

The CAISO received comments on the topics discussed at the November 16, 2023 stakeholder call from the following:

- A. AES
- B. Avantus Clean Energy LLC
- C. Bay Area Municipal Transmission Group (BAMx)
- D. California Community Choice Association
- E. California Public Utilities Commission
- F. California Public Utilities Commission – Public Advocates Office
- G. California Western Grid Development, LLC
- H. California Wind Energy Association
- I. Center for Energy Efficiency and Renewable Technology
- J. Gallatin Power Partners
- K. Golden State Clean Energy
- L. GridLiance West LLC
- M. Independent Energy Producers Association
- N. Kern – Southland Energy Link LLC
- O. Natural Resources Defense Council, Inc.
- P. New Leaf Energy
- Q. NextEra Energy Resources
- R. RWE Renewables
- S. Sonoma Clean Power Authority
- T. Terra-Gen, LLC
- U. The Nature Conservancy of California

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

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

The following are the CAISO's responses to the comments

1. [Please provide your organization's comments on the Recommended Reliability Projects less than \\$50 million for the North Region.](#)
2. [Please provide your organization's comments on the Recommended Reliability Projects less than \\$50 million for the South Region.](#)
3. [Please provide your organization's comments on the MIC Expansion Requests.](#)
4. [Please provide your organization's comments on the Preliminary Policy Assessment Results for the SCE & GLW areas.](#)
5. [Please provide your organization's comments on the Preliminary Policy Assessment Results for the SDG&E area](#)
6. [Please provide your organization's comments on the Preliminary Policy Assessment Results for the PG&E area.](#)
7. [Please provide your organization's comments on the Preliminary Economic Analysis Results.](#)
8. [Please provide any additional comments on the November 16, 2023 Transmission Planning Process Stakeholder Meeting.](#)

1. 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
1A	AES	No Comment	
1B	Avantus Clean Energy LLC	<p>Avantus Clean Energy, LLC (Avantus) concurs with PG&amp;E's identified projects requiring a variety of transmission system upgrades to improve system reliability.</p> <p>The presentation shows description and cost estimates of only three (3) projects. Is CAISO planning to update this presentation with information on the remaining 10 projects?</p> <p>The range of cost estimates seem to be quite broad. The upper numbers are almost double the PG&amp;E's September 2023 per unit cost guidelines. Are these cost estimates planned to be updated to more reasonable values?</p>	Additional projects less than \$50 million dollars that were not ready for approval at this time, as well as the projects with estimated cost above \$50 million, will be included in the Transmission Plan.
1C	Bay Area Municipal Transmission Group (BAMx)	<p>The Bay Area Municipal Transmission group (BAMx)<sup>[1]</sup> appreciates the opportunity to comment on the CAISO's 2023-2024 Transmission Planning Process. The comments and questions below address the material presented at the CAISO Stakeholder meeting on November 16, 2023.</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<sup>[2]</sup> to BAMx comments, it is currently reviewing the need and timing for some of the proposed transmission projects. These projects include the Crazy Horse Canyon-Salinas-Soledad #1 and #2 115 kV Line Reconductoring, Camden 70 kV Reinforcement Project, Reedley 70 kV Capacity Increase Project, Vaca Dixon Reinforcement (Rescope), and Diablo Canyon High voltage mitigation. We request the CAISO to take BAMx's comments on these projects into consideration as it evaluates these projects.</p>	BAMx comments are being considered while reviewing projects.
1D	California Community Choice Association	No comment	
1E	California Public Utilities Commission	Staff of the California Public Utilities Commission in the Energy Division (CPUC Staff or Staff) develop and administer energy	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>policy and programs to serve the public interest, advise the CPUC, and ensure compliance with CPUC decisions and statutory mandates. The CPUC Energy Division Staff provide objective and expert analyses that promote reliable, safe, and environmentally sound energy services at just and reasonable rates for the people of California.[1] Further, CPUC Staff advocate on behalf of California ratepayers at the Federal Energy Regulatory Commission (FERC), under whose jurisdiction the 2023-2024 Transmission Plan would fall.</p> <p>CPUC Staff appreciate this opportunity to comment and with these comments CPUC Staff seek clarification about load forecasts, the accuracy of cost estimates, assumptions that projects are in-service, the need and cost effectiveness of certain projects, and any actions to reduce delay or expedite transmission project development. CPUC Staff also request updates on projects as they become available along with adequate time to review information.</p> <p style="text-align: center;"><b><i>Martin-Millbrae 60 kV Area Reinforcement project (Greater Bay Area)</i></b></p> <p>During the presentation of the Martin-Millbrae Reinforcement project, PG&amp;E stated that they stand behind the load forecast and the base case used, as it aligns with the near-term growth they also forecast. CPUC Staff would like clarification on whether the “load forecast” mentioned by PG&amp;E is the load forecast used by the CAISO or another PG&amp;E-determined load forecast.</p> <p style="text-align: center;"><b><i>PG&amp;E AACE Level 5 Cost Estimation</i></b></p> <p>Multiple stakeholders asked for elaboration on how PG&amp;E will refine cost estimates from the initial AACE Level 5 100% contingencies. CPUC Staff also request that PG&amp;E provide additional information on the methodology used to determine how the AACE Level 5 cost estimates are further refined and</p>	<p>Load forecast used in the CAISO base cases are developed by PG&amp;E, so it is the same forecast.</p> <p>The CAISO will work with PG&amp;E to provide information regarding the AACE Level 5 estimates.</p>

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		what timeline PG&E uses to provide the refinements. As the TPP enters the later stages of the process, it's important for stakeholders to have the ability to consider projects with a more accurate representation of their costs.	
1F	California Public Utilities Commission – Public Advocates Office	The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) provides these comments on the transmission project recommendations presented at the 2023-2024 Transmission Planning Process Stakeholder meeting on November 16, 2023. Cal Advocates is an independent ratepayer advocate with a mandate to obtain the lowest possible rates for utility services, consistent with reliable and safe service levels and the state's environmental goals. <sup>[1]</sup>	
1G	California Western Grid Development, LLC	No comment	
1H	California Wind Energy Association	Please see CalWEA's response to question 6.	
1I	Center for Energy Efficiency and Renewable Technology	The three recommended reliability projects for the North Region have an estimated cost of between \$51 million and \$102 million. CEERT recommends that the CAISO require more precise project cost estimates from PG&E before approving reliability projects.	The CAISO's understanding is that the lower end is the planning level cost estimate and the higher end is with the 100 % contingency. The CAISO will work with PG&E to get more clarity on the cost estimates.
1J	Gallatin Power Partners	No comment	
1K	Golden State Clean Energy	No comment	
1L	Gridliance West LLC	No comment	
1M	Independent Energy Producers Association	The IEP has no comments on the specific Reliability Project proposed for less than \$50 million in the North Region of the State. IEP wants to emphasize the importance of maintaining approvals throughout each TPP cycle. Approval of a transmission project sends market signals to developers that this project will go forward and habitually maintaining these approvals will ensure generation comes online timely to meet the state's GHG reduction and electrification goals.	The comment has been noted.
1N	Kern – Southland Energy Link LLC	No comment	
1O	Natural Resources Defense Council, Inc.	No comment	
1P	New Leaf Energy	No comment	
1Q	NextEra Energy Resources	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
1R	RWE Renewables	No comment	
1S	Sonoma Clean Power Authority	No comment	
1T	Terra-Gen, LLC	No comment	
1U	The Nature Conservancy of California	No comment	

**2. 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
2A	AES	No Comment	
2B	Avantus Clean Energy LLC	<p>Avantus concurs with SCE’s recommendations on the proposed three (3) Reliability upgrades. However, the details on the other two projects, Trout Canyon – Lugo 500 kV line and the Eldorado 500 kV bus short circuit duty mitigation, are not provided. Is CAISO planning to add that information in the next update?</p> <p>On the SCE Eastern Area evaluation, the results show that the 12 circuit breakers at the Etiwanda 230 kV bus will exceed 100% of their rating only in the year 2035. So, can the installation of these circuit breakers be deferred by few more years instead of 2027? Many technology changes including the future inverter designs (Grid forming inverters) are coming that could affect the short circuit duty on these circuit breakers resulting in a different decision on when such replacement is needed.</p> <p>On the five (5) identified projects in the SDG&amp;E system, no information is found in the presentation. Is CAISO planning to add that information in the next update?</p>	<p>SCE appreciates Avantus question. SCE acknowledges that the field of grid-forming inverters (GFMI) is rapidly advancing and may enable inverter-based resources (IBR) to take a more active role in helping SCE maintain reliability in a grid with significant IBR penetration. The impact of GFMI on SCD remains to be determined and it is reasonable to assume that the vast amount of IBR seeking interconnection to SCE’s transmission system can continue to drive up SCD even with the relatively low fault contribution of each IBR (either grid-forming or grid-following). Moreover, SCE has no assurance that GFMI will 1) help reduce SCD at Etiwanda substation and/or 2) be adopted by interconnection customers to a level required to defer the decision to replace the CBs at Etiwanda.</p> <p>SCE uses a threshold of 95% of SCD capability to proactively upgrade CBs as waiting to reach 100% can hinder the timely completion of the mitigations required to maintain short-circuit protection and electrical safety (e.g., supply chain challenges have increased the lead time for 230 kV circuit breakers)</p> <p>Additional projects less than \$50 million dollars that were not ready for approval at this time, as well as the projects with estimated cost above \$50 million, will be included in the Transmission Plan.</p>
2C	Bay Area Municipal Transmission Group (BAMx)	No comment	
2D	California Community Choice Association	No comment	
2E	California Public Utilities Commission	No comment	
2F	California Public Utilities Commission – Public Advocates Office	<p>Cal Advocates requests additional information to explain the proposed \$40 million Etiwanda 230 kV Bus Short Circuit Duty (SCD) Mitigation project.<sup>[1]</sup> This proposed project involves only replacing twelve 230 kilovolt (kV) circuit breakers with an in-service date of 2027. Using Southern California Edison Company’s (SCE) 2023 Final Per Unit Cost Guide, Cal Advocates estimates the project should cost approximately \$12.2 million. Cal Advocates arrived at this \$12.2 million project</p>	<p>SCE thanks Cal Advocates for identifying this cost discrepancy. The correct cost estimate is approximately \$15 million, which includes \$10.9 million for the replacement of twelve (12) circuit breakers (UC#218), \$3.9 million for the replacement of line protection relays (UC#211), and \$137,000 for construction oversite. Transient Recovery Voltage (TRV) capacitors are not needed for this application.</p>

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		<p>cost estimate by referring to the unit cost for Circuit Breakers (without Transient Recovery Voltage Capacitors) and the costs for Transient Recovery Voltage (TRV) Capacitors for 230 kV Transmission Lines in SCE's Unit Cost Guide.<sup>[2]</sup> We then multiplied this referenced Circuit Breaker costs at \$916,000 by 12, which is the proposed number of replacement circuit breakers for the project, and the TRV Capacitor Costs at \$212,000 by 4 because TRV Capacitors come in sets of three. We also applied the Escalation Factor of 1.0272 from SCE's Unit Cost Guide for an in-service date of 2027.<sup>[3]</sup> Using this method, the project should cost approximately \$12.2 million instead of \$40 million. Since there is a \$27.8 million difference between Cal Advocates' cost estimate and the provided project cost estimate, Cal Advocates requests SCE explain the method it used to arrive at the \$40 million cost estimate.</p>	
2G	California Western Grid Development, LLC	No comment	
2H	California Wind Energy Association	Please provide short circuit duty information for Mira Loma East and West 220kV buses in 2025 and 2035 respectively.	<p>SCE appreciates CWEA's question. The estimated short-circuit levels at Mira Loma East and West 220 kV sections are as follow:</p> <ul style="list-style-type: none"> <li>•Mira Loma East 2025: 61.9 kA three-phase, 54.1 kA single-line-to-ground</li> <li>•Mira Loma East 2035: 64.7 kA three-phase, 59.4 kA single-line-to-ground</li> <li>•Mira Loma West 2025: 59.7 kA three-phase, 57.9 kA single-line-to-ground</li> <li>•Mira Loma West 2035: 60.3 kA three-phase, 59.8 kA single-line-to-ground</li> </ul>
2I	Center for Energy Efficiency and Renewable Technology	CEERT notes that SCE provided precise cost estimates for each of the three reliability projects identified in the South Region.	The comment is noted.
2J	Gallatin Power Partners	Gallatin Power Partners (Gallatin Power) strongly supports the Recommended Reliability Project less than \$50 million in Southern California Edison's (SCE) North of Lugo Area. Strengthening the SCE transmission infrastructure in the North of Lugo Area is a positive step towards enabling future transmission access to central and northern Nevada renewable resources that can help achieve California's decarbonization efforts at the lowest possible cost. In addition to the Recommended Reliability Project less than \$50M included in this cycle, Gallatin Power supports the already-approved upgrades to the SCE Kramer-Victor-Lugo 230kV Transmission System. and urges the California Independent System Operator (CAISO) to evaluate further upgrading the system between the Control	The comment is noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		Substation (Control) and the Kramer Substation (Kramer) to 500kV or HVDC, which would optimize and expand access to central and northern Nevada's abundant renewable resources.	
2K	Golden State Clean Energy	No comment	
2L	Gridliance West LLC	No comment	
2M	Independent Energy Producers Association	The IEP has no comments on the specific Reliability Project proposed for less than \$50 million in the South Region of the State. IEP wants to emphasize the importance of maintaining approvals throughout each TPP cycle. Approval of a transmission project sends market signals to developers that this project will go forward and habitually maintaining these approvals will ensure generation comes online timely to meet the state's GHG reduction and electrification goals.	The comment is noted.
2N	Kern – Southland Energy Link LLC	No comment	
2O	Natural Resources Defense Council, Inc.	No comment	
2P	New Leaf Energy	No comment	
2Q	NextEra Energy Resources	No comment	
2R	RWE Renewables	No comment	
2S	Sonoma Clean Power Authority	No comment	
2T	Terra-Gen, LLC	No comment	
2U	The Nature Conservancy of California	No comment	

**3. Please provide your organization’s comments on the MIC Expansion Requests.**

No	Submitting Organization	Comment Submitted	CAISO Response
3A	AES	No Comment	
3B	Avantus Clean Energy LLC	<p>MIC studies seem very helpful. In the later part of the presentation, the value of MIC studies become important while performing Deliverability Assessment. In some scenarios, lowering MIC values become a mitigation plan to achieve full Deliverability.</p> <p>On slides 30 and 31, can CAISO elaborate what “failed” in Status column mean?</p> <p>Avantus appreciates performing MIC studies to make Deliverability Assessment even more credible.</p>	<p>“Failed” means that the transmission system including the previously approved transmission projects cannot accommodate the MIC increase due to these MIC expansion requests. As a result without new transmission upgrades (not approved yet) the current MIC expansion requests will be denied. If new transmission upgrades are proposed and approved (part of this TPP cycle) that are required to mitigate either reliability, economics or policy and if such new transmission projects provide “additional” import deliverability capability in order to accommodate the MIC expansion requests than such MIC expansion requests will be carried forward.</p>
3C	Bay Area Municipal Transmission Group (BAMx)	No comment	
3D	California Community Choice Association	<p>CalCCA appreciates the California Independent System Operator’s (CAISO) presentation on the maximum import capability (MIC) expansion requests. The availability of MIC is critical for meeting a variety of load-serving entity (LSE) compliance obligations. Both Resource Adequacy (RA) and Integrated Resource Plan (IRP) procurement obligations require LSE to obtain MIC for the portions of their obligations being met by out-of-state (OOS) resources. In addition, the California Public Utilities Commission (CPUC) has relied upon significant amounts of OOS wind in its preferred system plans (PSP) that will require MIC to ensure deliverability to CAISO load. LSEs and developers may be understandably hesitant to invest in the development of new OOS resources when there is significant uncertainty that those resources will count towards their compliance obligations due to the lack of MIC in both the short and long-term. For these reasons, the CAISO should aim to provide as much transparency as possible within the MIC expansion request process so that LSEs have a clear picture of when, where, and how much total import capability will grow in response to the CPUC’s PSP portfolio.</p>	<p>Thank you for your support.</p> <p>The MIC expansion requests is a separate and distinct CAISO process apart for the MIC expansions driven by the CPUC PSP portfolio. The current MIC expansion data, processes and presentations are geared towards the submitter of such requests. If CAISO understands you comment correctly your proposal is that the CAISO discuss both MIC expansions requests and MIC expansions driven by the CPUC’s PSP portfolio at the same time for a better “overall view”.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The CAISO should adopt the following enhancements to increase MIC expansion transparency:</p> <ul style="list-style-type: none"> <li> <b>Provide Details Regarding MIC Expansions Driven by the CPUC Portfolio:</b> The CAISO did not study several MIC expansion requests because the requests overlapped with the CPUC portfolio. With the current level of information available to stakeholders, the overlap with MIC expansion requests and the CPUC portfolio is unclear. For example, the “On-Peak Eldorado – McCullough 500 kV constraint summary” on slide 83 includes details on the affected interties, the megawatts (MW) of MIC expansion request behind the constraint, and the amount of deliverable MIC expansion request MW. The presentation does not, however, provide a breakdown of the overlapping CPUC portfolio’s MIC expansion that is impacted by the constraint or enabled by the mitigation. In its presentation of policy-driven Transmission Planning Process (TPP) results, the CAISO should provide expected aggregate MIC expansion in MW by intertie from the combined impact of MIC expansion requests <u>and</u> the CPUC portfolio and their dependency on upgrades or mitigation.         </li> <li> <b>Update MIC Advisory Estimates with Future Expansion:</b> The CAISO’s long-term advisory estimates for import capability are very useful in understanding the future availability of future long-term MIC. The CAISO should regularly update these advisory estimates with the amount of MIC that can be expanded resulting from the CPUC’s portfolio, when that MIC expansion will take place, and the proposed mitigation or upgrade that will enable the MIC expansion. Given the PSP’s reliance on out-of-state resources, the CAISO should seek to provide stakeholders with a clear picture of how total import capability will grow so LSEs and developers can move forward with enough certainty to minimize the risk associated with securing MIC.         </li> </ul>	<p>Thank you for your suggestions.</p> <p>On-going forward bases details regarding approved portfolio and MIC expansion requests driven MIC increases (and their dependent upgrades) will be provided in section 6.1.2 of the latest CAISO Transmission Plan and they will also be included in the “Advisory estimates of future resource adequacy import capability”.</p> <p>The CAISO does plan on updating the “Advisory estimates of future resource adequacy import capability” with the MIC expansions driven by both the CPUC portfolio and MIC expansion request after they pass all the required deliverability studies (that is the TPP deliverability study and the GIP deliverability study). While these CPUC portfolio and the MIC expansion request get immediately modeled in the TPP deliverability study, currently due to pre-established timelines there is a lag in modeling them in the GIP deliverability studies, They will be modeled in the next round of GIP deliverability studies.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> <li> <b>MIC Associated with Non-CAISO Transmission Element Entitlements:</b> The CAISO should clarify if there is any MIC or modeled transmission in the CAISO model that is based upon an entitlement to a non-CAISO transmission element that, if the entitlement expired, would no longer be available to the CAISO? If so, the CAISO should explain how many MWs are tied to these entitlements and at what locations. The CAISO should also explain when the entitlements expire and the expected process for informing the TPP and MIC allocation process of these expirations to ensure that they can be accounted for in the CAISO and CPCU's planning processes.         </li> </ul> <p>The CAISO's assessment of MIC expansion requests indicates that, given the current transmission system, a vast majority 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" of the CAISO's deliverability assessments, the CAISO must (1) expand MIC after the completion of transmission upgrades that could result in additional deliverability for MIC expansion requests that overlap with the CPUC portfolio or (2) provide a feedback loop to the CPUC of MIC expansion requests that failed but were not included in the CPUC portfolio such that the CPUC 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 CPUC should take MIC expansion requests as an indication that there are high levels of commercial interest in the resources at those locations. As a result, the CPUC should include them as part of its base portfolios for determining policy-driven transmission. Mitigation alternatives should be selected that enable the MIC expansion requests to receive full deliverability. This step is essential to provide off-takers certainty on project viability and developers</p>	<p>Currently there is MIC established on such entitlements. See the first 8 branch groups herein:  <a href="http://www.aiso.com/Documents/ISOMaximumResourceAdequacyImportCapabilityforYear2024.pdf">http://www.aiso.com/Documents/ISOMaximumResourceAdequacyImportCapabilityforYear2024.pdf</a></p> <p>The CAISO has reached out to the owners of these entitlements in order to find details about the expiration/extension dates and the actions the owners intend to take at the expiration/extension date. The CAISO will first catalogue such owner responses and then discuss them with stakeholders and any affected parties that either currently rely or intend to rely on MIC over such entitlements.</p> <p>MIC expansion requests alone do not drive new transmission and if they fail at branch groups without new transmission approved for any valid reason than they just get rejected. If they fail at branch group that require new transmission for any other valid reason (including a CPUC portfolio need) than they get carried forward in order to test if the new transmission provides additional deliverability in amounts necessary to approve or partially approve such MIC expansion requests (they have lower priority compared with the CPUC portfolio need).</p> <p>The CAISO cooperates with the CPUC both directly and through open stakeholder meeting in order to make available details about how much deliverability is available and where.</p> <p>The CPUC takes in consideration more than just the RA contract status when making decisions about the portfolio, like for example the cost of transmission upgraders required to make the portfolio fully deliverable. MIC expansion requests should not automatically be included in the CPUC portfolio if alone they drive high costs of new transmission.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		the confidence to move forward with providing resources that are critical to meeting California's climate and reliability goals.	
3E	California Public Utilities Commission	CPUC Staff appreciate the efforts by the CAISO to review base portfolio resources to eliminate duplicate entries and avoid unnecessary MIC expansions. These efforts protect the interests of ratepayers and Staff welcome any further engagement from the CAISO that it believes could further improve the review process.	Thank you for your help and collaboration.
3F	California Public Utilities Commission – Public Advocates Office	Cal Advocates appreciates CAISO's transparency on California load serving entities' Maximum Import Capacity (MIC) requests and has no other comment on this topic.	
3G	California Western Grid Development, LLC	No comment	
3H	California Wind Energy Association	Some of the undeliverable MIC Expansion Requests could be deliverable once CAISO adopts its proposed deliverability assessment methodology reform.	Future cycles of deliverability studies, including TPP deliverability studies will use the deliverability methodology available after the reform. MIC expansion request already denied can apply again (if they still meet the qualification criteria). MIC expansion requests already moving along will be studied under the new methodology in the cycle that comes immediately after the new methodology approval.
3I	Center for Energy Efficiency and Renewable Technology	No comment	
3J	Gallatin Power Partners	No comment	
3K	Golden State Clean Energy	No comment	
3L	Gridliance West LLC	No comment	
3M	Independent Energy Producers Association	No comment	
3N	Kern – Southland Energy Link LLC	No comment	
3O	Natural Resources Defense Council, Inc.	No comment	
3P	New Leaf Energy	No comment	
3Q	NextEra Energy Resources	No comment	
3R	RWE Renewables	No comment	
3S	Sonoma Clean Power Authority	SCP shares concerns that are detailed in comments by CalCCA on this topic.	Thank you for your comments.



No	Submitting Organization	Comment Submitted	CAISO Response
3T	Terra-Gen, LLC	No comment	
3U	The Nature Conservancy of California	No comment	

**4. Please provide your organization’s comments on the Preliminary Policy Assessment Results for the SCE & GLW areas.**

No	Submitting Organization	Comment Submitted	CAISO Response
4A	AES	<p>AES Clean Energy appreciates the CAISO’s assessment of the Colorado River 500/230 kV constraint and supports mitigation of this constraint to relieve the 323 MW of undeliverable MWs.<sup>1</sup> To mitigate the constraint, the CAISO recommends expanding the West of Colorado CRAS.<sup>2</sup> However, AES Clean Energy notes that the West of Colorado CRAS expansion mitigation was recommended for the Colorado River 500/230kV constraint in the 2022-2023 TPP, but not approved.<sup>3</sup> This was in part due to RAS guidelines that limits the amount of MW that can be added to an existing RAS to 1150 MW, and West of Colorado River CRAS has already exceeded this limit. Therefore, AES Clean Energy recommends the CAISO to identify an alternative mitigation, such as an additional RAS scheme (rather than a CRAS expansion) or adding an additional 500/230kV transformer bank at Colorado River substation, to mitigate the Colorado River 500/230 kV constraint. This will ensure that CAISO meets its tariff obligation to meet state, municipal, county and federal policy requirements and directives, including renewable portfolio standards policies.<sup>4</sup></p>	<p>The comment has been noted. The Colorado River 500/230 kV transformer is an existing monitored element on the West of Colorado River CRAS, and the CAISO is working with the PTO to evaluate the continued need to add generation to the CRAS for this contingency following the RAS guidelines.</p>
4B	Avantus Clean Energy LLC	<p>SCE’s Northern Area is becoming a very important generation pocket with a large concentration of generation exceeding 15000 MW. Avantus strongly supports a very sound mitigation plan to eliminate chances of “cascading” and at the same time minimize generation curtailment for a loss of two 500 kV transmission lines in this pocket.</p> <p>Slide 46, last bullet, “generation amount that can be islanded...”, do you mean “generation amount that can be curtailed?” The same applies on slide 51.</p>	<p>The simultaneous or overlapping outage of Antelope – Windhub 500kV Line and Whirlwind – Windhub 500 kV Line without time for system adjustments occurs, islands all of Windhub connected generation. Thus, the ISO is re-evaluating the maximum generation amount that can be lost without creating the reliability concerns mentioned in the Stakeholder meeting presentation.</p>
4C	Bay Area Municipal Transmission Group (BAMx)	<p><b>Need for a Method to Reevaluate Need for the Approved Transmission Projects When Assumed Condition Change</b></p> <p>In the Draft 2022-2023 Transmission Plan, the CAISO considered the approval of the Trout Canyon-Lugo 500 kV Line with an estimated capital cost of \$2 billion.[1] However, its approval was held back in the Final Transmission Plan due to a letter from Lotus Infrastructure Partners on April 25, 2023.[2]</p>	<p>In the 2022-2023 TPP the CAISO was considering the need for the Trout Canyon-Lugo 500 kV line based on the sensitivity portfolio. Normally the ISO would not consider recommending upgrades to meet needs in sensitivity portfolio cases. However, stakeholders have expressed concern regarding the lack of available transmission capability needed to meet the</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>which identified an alternative solution, causing the CAISO additional time to assess.[3] If this alternative had not been proposed at the end of the 2022-2023 TPP cycle, the CAISO probably would have approved the Trout Canyon-Lugo 500 kV line as one of the policy-driven transmission projects in the Final Transmission Plan. It is the CAISO's standard practice to model all the previously-approved projects in the starting power flow cases that are used in a given transmission planning cycle.[4] So, had the CAISO approved the Trout Canyon-Lugo 500 kV line in the 2022-2023 Transmission Plan, it would have been modeled in the 2023-2024 TPP cases as given. Therefore, the continued need for the Trout Canyon-Lugo 500 kV line would not have been evaluated in the 2023-2024 TPP. And there would be no need for a superior alternative.</p> <p>Since the Trout Canyon-Lugo 500 kV line was not approved in the 2022-2023 TPP, the CAISO is evaluating whether that project is the most effective mitigation solution in the current TPP. During the November 16<sup>th</sup> stakeholder meeting, the CAISO, while presenting the preliminary policy assessment for the East of Pisgah Interconnection area, indicated that they are evaluating the need for solutions to address some deliverability constraints. However, the Trout Canyon-Lugo 500 kV line project may or may not be the solution that would be needed to address those deliverability constraints. These preliminary findings indicate that a combination of the change in the resource portfolios, especially in the VEA area and the Southern Area Reinforcement projects[5] approved in the 2022-2023 Transmission Plan, has reduced or eliminated the need for a major project like the new Trout Canyon-Lugo 500 kV line.</p> <p>BAMx believes this is an example of the need to reexamine the appropriateness of projects, even if they have been previously approved. BAMx has been asking the CAISO to be open to such a reevaluation for many years. A good example of the benefits of such re-examination was when the need for previously approved PG&amp;E projects was reevaluated in 2016-2018. CAISO's effort resulted in over \$3 billion of project</p>	<p>State's GHG reduction goals, so the ISO was looking for opportunities to expedite transmission development. As described in the comments, a competing alternative was proposed and the approval was postponed.</p> <p>In the 2023-2024 TPP the portfolio had less generation in the VEA area, so the need was not as pronounced as it was in the previous TPP. Therefore, the generation dispatch in the area was refined in the 2023-2024 analysis and found that the need was marginal. As a result, the decision to propose the approval of any upgrades in the area was further postponed.</p> <p>A review of the 2024-2025 resource portfolios indicates that the need for upgrades in this area is highly likely.</p> <p>The CAISO has previously responded to a similar comment. The CAISO agrees that when circumstances materially change in a way that is likely to change the previously identified need for a project, then it will be considered for reevaluation. Stakeholders, can provide comments if they believe specific circumstances have changed.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>cancellations and scope reductions. BAMx requests the CAISO develop a stakeholder process to define a set of circumstances when such reevaluation would occur. We understand that there would be limitations to such a reevaluation process. Project cost could be one such criterion. Of course, regulatory issues like PTO recovery of costs for an abandoned project would need to be considered. But ratepayer costs to reimburse for early feasibility work would be more than offset by not having to build a project or selecting a better alternative with the latest information on the need for projects. A less desirable alternative to a separate process may be to allow additional time to investigate the above proposal during the development of a plan for the next planning cycles. If this vehicle is chosen, multiple stakeholder meetings should be scheduled.</p> <p>Regarding the Trout Canyon-Lugo 500 kV line project, BAMx, therefore, recommends that the CAISO deploy the following approach in its determination of the transmission need. Check whether the other transmission projects (e.g., the Southern Area Reinforcement projects in 2022-2023 TPP under consideration for approval lower or eliminate the need for a given project (e.g., Trout Canyon-Lugo 500 kV line project). This analysis will require the CAISO to model a case with and without the Trout Canyon-Lugo 500 kV line project, assuming that the Southern Area Reinforcement projects are online to verify whether the Trout Canyon-Lugo 500 kV line is genuinely needed to address certain deliverability constraints. A similar approach should be implemented to confirm the need for all previously approved projects. If limited bandwidth to review and confirm the need for all previously-approved transmission projects in every planning cycle is a constraint, then the CAISO needs to develop criteria to select a transmission project for reevaluation in consultation with the stakeholders.</p>	
4D	California Community Choice Association	No comment	
4E	California Public Utilities Commission	<b><i>SCE Northern Interconnection Area</i></b>	The ISO will update stakeholders if the assessment shows a different Windhub Area Export Constraint Transmission Capability Estimate and if policy transmission upgrades are needed.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>During the November 16<sup>th</sup> stakeholder meeting, the CAISO discussed how important the Windhub system was to prevent the loss of 3000-6000 MW of generating resources identified in the SCE Northern Interconnection Area analysis. CPUC Staff would appreciate further updates as the CAISO re-evaluates the islanding situation at the Windhub Substation, particularly as policy-driven transmission mitigation options are explored.</p> <p style="text-align: center;"><b><i>SCE North of Lugo (NOL) Interconnection Area</i></b></p> <p>Analysis presented for the SCE NOL Interconnection Area presentation assumed all approved 2022-2023 TPP projects to be in-service. With the tendency for delays in TPP-approved projects, this assumption concerns CPUC Staff. Please provide additional information and justification on why this approach is used and if analysis was also performed with assumptions that some percentage of 2022-2023 TPP projects will not be in-service.</p>	<p>The ISO performs studies with all approved projects modeled based on their expected in-service date. This approach allows the ISO to determine whether the previously approved upgrades are adequate to meet the current need. The ISO monitors the progress of approved transmission projects; if the expected ISD of a project changes, studies in subsequent TPP cycles will be performed based on the updated expected ISD.</p>
4F	California Public Utilities Commission – Public Advocates Office	<p>Cal Advocates appreciates that CAISO considered protection schemes and energy storage as possible mitigation options to address deliverability issues with the preferred system portfolio in its analysis this TPP cycle. <b>[1]</b> Cal Advocates recommends CAISO also consider other grid enhancing technologies such as smart wires and increasing line or equipment ratings to address potential deliverability issues. These options would be more cost efficient for ratepayers than reconductoring and, for this reason, should be evaluated before reconductoring is considered as a possible mitigation option. The Federal Energy Regulatory Commission (FERC) also recommends that public utility transmission providers consider whether adding dynamic line ratings or advanced power flow control devices to existing transmission facilities could meet the same transmission need more efficiently or cost-effectively than a new transmission facility. <b>[2]</b></p>	<p>The comment has been noted.</p>
4G	California Western Grid Development, LLC	<p>See response to question 8</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
4H	California Wind Energy Association	<p>Some of the upgrade needs shown for the sensitivity portfolios in the previous TPP cycle are not present in this cycle even though the base portfolio is similar to the previous sensitivity portfolio. CalWEA urges CAISO to post the study base cases as soon as possible to support stakeholders' understanding of the underlying reasons for this discrepancy. The Lugo-Victorville 500kV overload is no longer reported in the study, eliminating the need for Lugo-Trout Canyon 500kV upgrade. Many generation interconnection projects are relying on this upgrade to obtain deliverability. In addition to the factors that CAISO mentioned on the call impacting the study results, please provide a comparison of IPP DC flow in the deliverability assessment between the two cycles, which may explain the discrepancy.</p>	<p>IPP DC flow was 2000MW in 2022-2023 TPP study and 1500MW in 2023-2024 TPP study. The base cases and other study input files for each study area have been posted to the ISO Market Participant Portal.</p>
4I	Center for Energy Efficiency and Renewable Technology	<p>CEERT notes that the PG&amp;E portion of the Midway to Whirlwind 500 kV line will be overloaded during normal operating conditions. CEERT recommends that the CAISO evaluate the use of dynamic line ratings for this overloaded line as an alternative mitigation measure.</p> <p>The CAISO has also observed that transmission upgrades could be considered as a mitigation option for this overloaded line if they also provide economic benefits. However, the CAISO does not specify what transmission upgrades should be evaluated for potential economic benefits. CEERT assumes that a possible mitigation could be the reconductoring of the Midway to Whirlwind 500 kV line. If that mitigation is under consideration CEERT recommends that the CAISO evaluate advanced conductors to replace the standard ACSR conductor.</p> <p>CEERT also recommends that dynamic line ratings be considered for the elements that are overloaded in the North of Lugo Interconnection Area in conjunction with the expansion of remedial action schemes.</p>	<p>Dynamic Line Ratings generally cannot be considered as a long-term solution since ambient conditions have a stochastic behavior and it is challenging to predict them with years in advance. Thus, deterministically established conditions are assumed during the policy assessment.</p> <p>In slide 50, the ISO proposed a preliminary transmission alternative that could be evaluated and consists of bypassing the series capacitor of the Midway–Whirlwind 500 kV line and increase the rating on SCE's segment by eliminating the line ground clearance restriction. Other alternatives could also be explored, and if that is the case, they will be described in the draft 23-24 TPP report</p>
4J	Gallatin Power Partners	<p>Gallatin Power understands that CAISO's analysis shows that all portfolio resources in the SCE North of Lugo area are deliverable. However, Gallatin Power also recognizes the significant discrepancy in resource portfolios when comparing the 2023-2024 TPP Resources Portfolios, 20-Year Transmission</p>	<p>As noted in the comment the NOL area deliverability assessment, which was performed with the \$482 million Lugo–Victor–Kramer 230 kV Upgrades that were approved in the 2022-2023 TPP modeled, indicated that the 2023-2024 TPP portfolio resources in the area are deliverable with existing or expanded RAS. The ISO cannot recommend transmission upgrades that</p>

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		<p>Outlook’s “2045 Scenario”, and the 2023 California Public Utility Commission (CPUC) Integrated Resource Plan (IRP) Preferred System Portfolio (PSP)/2024-2025 TPP Proposed “25 MMT Core Case”. The table below provides a comparison of the wind resource types included in the resource portfolios utilized by the 2023-2024 TPP, 20-Year Transmission Outlook and currently proposed to be used in the 2024-2025 TPP.</p> <table border="1" data-bbox="520 505 1192 764"> <thead> <tr> <th>Resource Type</th> <th>2023-2024 TPP Base Portfolio 2035 (MW)[1]</th> <th>2023-2024 TPP OSW Sensitivity 2035 (MW) [2]</th> <th>20-Year Transmission Outlook 2045 Scenario (MW)[3]</th> <th>Proposed 25 MMT Core Case 2035 (2024-2025 TPP) (MW)[4]</th> <th>Proposed 25 MMT Core Case 2045 ( 2024-2025 TPP) (MW) [5]</th> </tr> </thead> <tbody> <tr> <td>Offshore Wind</td> <td>4,707</td> <td>13,400</td> <td>20,000</td> <td>3,855</td> <td>4,531</td> </tr> <tr> <td>Wind</td> <td>3,074</td> <td>3,074</td> <td>3,074</td> <td>8,129</td> <td>10,362</td> </tr> <tr> <td>Out of State Wind</td> <td>5,618</td> <td>5,618</td> <td>12,000</td> <td>5,268</td> <td>10,204</td> </tr> </tbody> </table> <p>The significant decrease in forecasted offshore wind included in the proposed 25 MMT Core Case will further increase the demand for on-shore wind, geothermal and solar. Gallatin Power understands that the CAISO is in a precarious situation by being well underway with the 2023-2024 TPP with the knowledge that the resource portfolio for the next TPP cycle is proposed to differ significantly in both resource type and location. Over 5 GWs of the Wind in the 25 MMT Core Case is identified as being mapped in Southern Nevada. Insofar as it is possible from a regulatory and policy standpoint, Gallatin Power recommends that the CAISO be forward thinking and proactive when completing the 2023-2024 TPP analysis by keeping the proposed 25 MMT Core Case in mind, specifically the change in wind locations and the transmission development necessary to enable it.</p> <p>The U.S. Department of Interior (DOI), Bureau of Land Management (BLM) and Argonne National Laboratory prepared a map titled “Wind Resources, Exclusions, and Resource Sensitivities on BLM Administered Lands in Nevada”[6] which</p>	Resource Type	2023-2024 TPP Base Portfolio 2035 (MW)[1]	2023-2024 TPP OSW Sensitivity 2035 (MW) [2]	20-Year Transmission Outlook 2045 Scenario (MW)[3]	Proposed 25 MMT Core Case 2035 (2024-2025 TPP) (MW)[4]	Proposed 25 MMT Core Case 2045 ( 2024-2025 TPP) (MW) [5]	Offshore Wind	4,707	13,400	20,000	3,855	4,531	Wind	3,074	3,074	3,074	8,129	10,362	Out of State Wind	5,618	5,618	12,000	5,268	10,204	<p>are not found to be needed for the base portfolio the CPUC provided for the 2023-2024 TPP. Some of the additional considerations mentioned in the comment are applicable if the current base portfolio triggers a transmission upgrade. The 2024-2025 TPP will determine whether additional upgrades will be needed in the NOL area to support the 2024-2025 portfolio.</p>
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		<p>illustrates the substantial wind potential areas in central and northern Nevada, with fewer permitting considerations than in the southern Nevada region. Although parts of southern Nevada have a strong wind resource, a significant amount of these lands are in “Excluded Areas” or identified as requiring “High Level of Siting Consideration”, which significantly limits the amount of development that can occur. Whereas, central and northern Nevada show strong wind resource with more land identified as having “Moderate Level of Siting Considerations” while also having close proximity to California. It is important to note that the wind speed data presented in the map assumes a wind turbine height of 80 meters. Even with a relatively low hub height of 80 meters, there are 6,788,647 acres of BLM land with a wind speed of 5 m/s or greater that have a “Moderate Level of Siting Considerations”. Almost all of the land is located in central or northern Nevada. Wind development interest in central and northern Nevada is already very high. As of November 2023, the BLM Mineral &amp; Land Records System showed 22 active Nevada wind projects within the BLM Bristlecone Field Office, Eagle Lake Field Office, Humboldt River Field Office, Sierra Front Field Office, Stillwater Field Office, Tonopah Field Office, and Wells Field Office territories.[7]</p> <p>Central and northern Nevada also have substantial potential for geothermal energy. A map prepared by the National Renewable Energy Laboratory (NREL) titled “Geothermal Resources of the United States”<sup>8</sup> illustrates the relative favorability for geothermal potential in the greater Nevada area. Favorability is generally greatest in northwestern Nevada, with high favorability ratings in Esmeralda County continuing to the north. Esmeralda County can be viewed as the gateway for California into the strongest geothermal potential area in Nevada, directly abutting Mono and Inyo counties to the west, and lying only approximately 50 miles from the SCE’s Control Substation near Bishop, California. On November 14, 2023, the BLM held a competitive lease auction for geothermal leases<sup>9</sup>, predominantly in central and northern</p>	

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		<p>Nevada, through which 96,605.5 acres of BLM lands were secured by geothermal developers.<sup>[10]</sup></p> <p>Esmeralda County is also a center for solar development in Nevada. As of November 2023, there are 14 active applications for large-scale solar and storage facilities on BLM lands in Esmeralda County, totaling over 11,000MW. This area is particularly attractive for solar development due to its strong solar resource, low environmental and cultural sensitivity and the low-cost land lease rates available on BLM lands.</p> <p>Furthermore, Gallatin Power would like to draw attention to the Energy Community designation for almost the entire state of Nevada. This classification renders the region eligible for bonus Investment Tax Credit (ITC) and Production Tax Credit (ITC) under the Inflation Reduction Act. The U.S. Department of Energy maintains an interactive online map identifying the Energy Community Tax Credit Bonus locations<sup>[11]</sup> and as of November 2023 the majority of Nevada qualifies. Leveraging the federal Energy Community bonus incentive would lead to lower cost renewable energy resources for California ratepayers when compared to wind resources in states without Energy Community status, such as Idaho.</p> <p>Given the substantial resource potential and amount of development activity in central and northern Nevada, Gallatin Power would like to urge the CAISO to consider further expanding transmission infrastructure in the North of Lugo area in California towards Nevada. CAISO has already identified and approved incremental transmission projects in this area, which when combined and optimized could enhance access to central and northern Nevada's abundant resources. Notably, the 2022-23 CAISO Transmission Planning Process (TPP) approved upgrades to the Southern California Edison (SCE) Kramer-Victor-Lugo 230kV Transmission System, indicating a path toward accommodating a greater influx of resources from the North of Lugo area. An upgrade to 500kV was also studied and had an estimated cost of \$700 million, a relatively small</p>	

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		<p>incremental cost compared to the \$482 million for the approved 230kV upgrades.<sup>[12]</sup></p> <p>SCE is also currently in the CPUC/CEQA permitting process for the Ivanpah-Control 115kV upgrade project to meet transmission line safety and reliability requirements, which includes a rebuild of the system from the Control Substation near Bishop, California (roughly 50 miles from the Nevada border) to the Kramer Substation.<sup>[13]</sup> SCE has already completed environmental and cultural studies for this upgrade and has made substantial progress in the permitting process. The currently contemplated Control to Kramer 115kV rebuild and the Kramer-Victor-Lugo 230kV upgrades should be “leapfrogged” and instead upgraded to 500kV or High Voltage DC (HVDC) lines. By taking advantage of existing right-of-way (ROW) and the significant environmental and permitting work already underway, increasing transmission access from North of Lugo towards Nevada could be completed in a more timely and lower cost manner when compared to building a greenfield transmission line to access out of state resources.</p> <p>Further, the 2022 CAISO 20-year Transmission Outlook identifies a Lugo to LA Basin HVDC upgrade at an estimated cost of \$1billion as necessary to meet the requirements of SB100.<sup>[14]</sup> Considering this identified future upgrade at Lugo, it may be appropriate to build HVDC lines from Control to Lugo. These three identified upgrades present an opportune foundation to develop a robust transmission network into Nevada through the North of Lugo study area, providing access to a diverse range of low-cost renewable resources in a timely manner.</p> <p>Gallatin Power firmly believes that strategic consideration of central and northern Nevada’s wind, solar and geothermal potential, coupled with transmission enhancements, will not only help to achieve California’s decarbonization goals at a lower cost and on a faster timeline, but also ensure a more resilient and efficient transmission grid for the region.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
4K	Golden State Clean Energy	No comment	
4L	Gridliance West LLC	<p><b>Trout Canyon–Lugo 500 kV Project</b></p> <p>GridLiance West (GLW) appreciates that CAISO is continuing to evaluate the Lugo–Victorville constraint and area solutions, especially the Trout Canyon–Lugo 500 kV project. The Lugo–Victorville constraint remains a significant impediment, adding costs to renewable project solutions, and impacting the allocation of deliverability to projects on the GLW system and from surrounding systems. It is essential to address the Lugo area constraint to resolve the delivery issues between southern Nevada and southern California, enhance the reliability of the CAISO grid in the region, and improve imports through Eldorado and other significant desert area tie points.</p> <p>The Trout Canyon–Lugo 500 kV project is the most cost-effective solution to meet the following policy-driven needs:</p> <ol style="list-style-type: none"> <li>1. Mitigate the Lugo–Victorville 500 kV area constraint</li> <li>2. Mitigate the GLW 230 kV area constraints</li> <li>3. Improve the deliverability of GLW- and VEA-area resources and enable access to Nevada’s solar and storage-rich areas, as well as to geothermal development sites in southern Nevada</li> </ol> <p>The need for the Trout Canyon–Lugo 500 kV project is further reinforced by the generation mapped by the California Public Utilities Commission’s (CPUC’s) Integrated Resource Plan (IRP). The 2023–2024 CPUC base portfolio highlights the need for improved deliverability in the southern Nevada region. Specifically, there are 5,400 MW of resources (3,690 MW of Full Capacity Deliverability Service (FCDS)) mapped to Trout Canyon and north, and over 9,000 MW of FCDS resources east of Pisgah. Additionally, the CPUC’s preliminary mapping for the 2024-2025 TPP shows a high level of mapped resources in these areas. If not addressed, this is likely to cause the Lugo–</p>	<p>In the 2023-2024 TPP the portfolio had less generation in the VEA area, so the need was not as pronounced as it was in the previous TPP. Therefore, the generation dispatch in the area was refined in the 2023-2024 analysis and found that the need was marginal. As a result, the decision to propose the approval of any upgrades in the area was further postponed.</p> <p>A review of the 2024-2025 resource portfolios indicates that the need for upgrades in this area is highly likely.</p>

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		<p>Victorville constraint to bind again in the 2024–2025 TPP, and Trout-Lugo will again be required.</p> <p>There have been other solutions identified in the past to resolve the Lugo–Victorville constraint, but none provide the same level of policy and economic benefits to the deliverability constraints of generation in the Eldorado Valley and southern Nevada as the Trout Canyon–Lugo 500 kV project. Additionally, CAISO had previously estimated the Trout Canyon–Lugo 500 kV line project to cost around \$1,500 to \$2,000 million (\$8.33M/Mile to \$11.11M/mile). However, the actual cost of the project is likely to be lower, considering the cost per mile of comparable transmission projects that were procured competitively, such as Harry Allen-Eldorado (\$3.4 M/mile) and SWIP North (\$3.8M/mile).</p> <p>Other alternatives to the Lugo–Victorville constraint currently considered include:</p> <ul style="list-style-type: none"> <li>• Eldorado–Lugo 500 kV No.2 Line: This alternative provides similar results in mitigating the Lugo–Victorville 500 kV area constraints as Trout Canyon–Lugo. However, it was not considered a viable mitigation by CAISO previously because this option would require additional transmission upgrades to address GLW area constraints, and it would include an excessive number of line crossings in a very congested area. In addition, the cost estimate of the Eldorado–Lugo 500 kV No.2 line project was previously estimated by CAISO to be approximately \$2.1 billion. With the Eldorado–Lugo 500 kV No. 2 line option, there is also a need to build a second Sloan Canyon–Eldorado 500 kV line, which has a cost estimate of \$14 million and includes an increase in line crossings in a very congested area.</li> <li>• Remedial Action Schemes (RAS): A new Trout Canyon RAS has been identified by CAISO as a potential mitigation. This would be the 4<sup>th</sup> RAS put on GLW’s system, with the other RAS at Sloan Canyon, Innovation,</li> </ul>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>and Gamebird. While RAS, in general, play an important role in ensuring grid stability, they are best viewed as complementary to, rather than substitutes for, long-term transmission solutions. Additionally, having too many RAS on the GLW system, especially when considering the size of GLW's queue (~21 GW) and even more commercial interest in the area, creates serious grid planning and operational challenges for GLW. Lastly, new transmission such as Trout Canyon–Lugo will help offset existing and future RAS, improve system reliability, and enable future renewable integration.</p> <p>GLW urges CAISO to approve the Trout Canyon–Lugo 500kV project in the 2023–2024 TPP as a solution to boost deliverability from the southern Nevada region to California load centers. This project's approval will help GLW fully realize its value proposition to CAISO and help achieve California's policy objectives.</p>	
4M	Independent Energy Producers Association	IEP supports a portfolio of MWs that are deliverable in each constraint area as defined by the Base Case plan being analyzed by CAISO. Although the placement of a CRAS on an overloaded substation may be a suitable solution for immediate need, relying on CRAS for many of the proposed interconnection projects may lead to more generation disconnections and disruptions to the balance of the grid. IEP recommends for each area studied, CAISO clarify if the full amount of Full Capacity Deliverability Status (FCDS) being studied is deliverable through CRAS mitigation efforts. If not, transmission solutions to achieve the Base Case FCDS levels should be the priority over all other mitigation options.	Connecting projects to RAS or CRAS to mitigate post-contingency transmission constraints does not impact the FCDS status of the projects.
4N	Kern – Southland Energy Link LLC	Kern-Southland Energy Link LLC appreciates the opportunity to provide comments on the 2023-2024 Transmission Planning Process (TPP) update provided on November 16, 2023. The deliverability analysis conducted for the base and sensitivity portfolio as part of the policy-based assessment did not identify any transmission constraints in the SCE Metro area, even though previous TPPs with much lower GHG target resource portfolios have shown significant constraints in the metro area	The ISO notes that the Serrano–Del Amo–Mesa 500 kV Transmission Reinforcement, which includes the new Del Amo 500/230 kV Substation, was approved in the 2022-2023 TPP to address deliverability constraints that were identified in the Metro Area. As well, the North of SONGS 500/230 kV substation and the North of SONGS–Serrano 500 kV line were approved in the same planning cycle to address deliverability constraints in the San Diego and SCE Metro areas. The ISO believes these major projects are the main reason the 2023-2024 TPP policy-driven assessment did not

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		<p>resulting from retirement of carbon intensive resources along the coast, especially when gas generation curtailment from Aliso Canyon Storage is considered as evidenced by the special study done in the 2022-2023 TPP. Our preliminary investigation shows that an increased amount of BESS siting in the LA metro area may be masking some of the past frequently constrained intra-basin deliverability constraints. For example, the 2035 busbar mapping report shows over 2,100MWs of FCDS generic energy storage capacity that is being assumed to be built in the Greater LA region by 2035 vs 1,600MWs and 1,200MWs in 2022-2023, 2021-2022 TPP respectively.</p> <p>We understand and appreciate the recent policy direction of better coordination between CPUC and CAISO to align resource and transmission planning assumptions as they share a symbiotic relationship. We also appreciate how a siting philosophy to avoid existing known transmission limitations can guide more siting of BESS closer to load in the LA metro area and we appreciate the value that BESS provides to the system. However, we want to request CAISO to consider the viability for limited-duration resources to mitigate transmission constraints during all hours the constraints may be binding, as well as the actual feasibility of developing and building BESS at such a massive scale within the city. For example, development constraints within urban areas include availability of land, strict fire codes, noise pollution, and the subsequent effects on the economics of the BESS.</p> <p>We believe there is a fundamental need to deliver cheaper FCDS resources from outside the LA basin area as west into the LA basin as possible, in order to maximize the existing intra-basin network that was built to deliver costlier carbon intensive generation. We are developing the Kern-Southland Energy Link (K-SEL) project to address this through an innovative and practical solution, via a multi-value project with policy, reliability, and economic benefits. K-SEL intends on repurposing an existing underground Oil &amp; Gas industry pipeline as the conduit for the below grade HVDC transmission cable and right-of-way, enabling the deliverability of cheaper FCDS resources deep into</p>	<p>identify any transmission constraints in the SCE Metro area that require transmission upgrades.</p> <p>The request regarding the K-SEL project has been noted. However, it was not considered as a candidate policy-driven project for the Metro area in the current planning cycle as no deliverability constraints were identified in the area that require transmission mitigation.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>the LA basin. K-SEL would be a fully networked, multi-terminal 2 GW VSC HVDC line, providing a critical backbone to the CAISO grid by interconnecting the Midway 500kV Substation – Pardee 500kV Substation - El Nido 230kV Substation providing a link to coastal LA. Additionally, K-SEL would provide a path into Del Amo 500kV Substation, with the optionality to tie into the South Area Reinforcement projects approved in the 2022-2023 TPP.</p> <p>We request CAISO to study K-SEL for its ability to reduce LCR and reliance on Aliso Canyon storage by providing deliverability of 2 GW of cheaper resources into the LA Basin without major upgrades to the intra-basin transmission system, the ability to provide voltage support to the coastal LA Basin system, and economic congestion management benefits from having a controllable North South backbone DC transmission link. Additionally, K-SEL would provide a controllable DC tie that would be wildfire resistant since it is fully underground, thereby increasing the system’s resiliency and operational flexibility. Energy Strategies conducted a deliverability analysis to assess the intra basin transmission impacts of meeting LA basin LCR requirements and reduced reliance on Aliso Canyon. The LCR and Aliso Canyon deliverability study showed that K-SEL alleviates the need for major intra basin transmission by providing a direct source into the LA coast, maximizing the utilization of the existing urban transmission infrastructure.</p> <p>We would be happy to provide the detailed study report upon request</p>	
40	Natural Resources Defense Council, Inc.	No comment	
4P	New Leaf Energy	No comment	
4Q	NextEra Energy Resources	<p>NextEra Energy Resources, LLC (“NextEra Resources”) supports CAISO’s evaluation of transmission solutions to the constraints in the East of Pisgah Area. The East of Pisgah Area is crucial for public policy solutions given the large amount of solar, geothermal, and battery projects in Southern Nevada and surrounding areas. It is also the gateway for wind generation in Wyoming and Idaho. The constraints in this area severely</p>	<ol style="list-style-type: none"> <li>1) The comment has been noted</li> <li>2) The 2023-2024 TPP study modeled all previously approved transmission projects including all the transmission upgrades approved in 2022-2023 TPP study. Those topology changes reduce the impact of certain area generation on the Lugo – Victorville constraint.</li> </ol>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>restrict deliverability of these resources hampering the economic viability of renewables projects by limiting eligible resource adequacy available to the CAISO market. For this reason, NextEra Resources supports the CAISO solution to enable cost effective transmission solutions, namely the Red-Bluff to Mira Loma reconducting and Remedial Action Scheme (“RAS”) that will enable Full Capacity Deliverability of Southern Nevada renewables and out of state wind in a timely manner. With that, NextEra Resources also supports the CAISO’s on-going commitment to the continued assessment of grid congestion in this area and whether more enduring, comprehensive solutions are required as out-of-state resources become increasingly needed to meet California climate targets.</p> <p>East of Pisgah is a high renewable resource area that both offers diversity of renewable generation resources and resources that are quicker to market than in-state resources challenged by longer development timelines. This is demonstrated by both the CPUC resource portfolios and the large number of interconnection requests in the area. The 2023-2024 CPUC base portfolio further reinforces the area’s deliverability need with over 9,000 MW of Full Capacity Deliverability Status (FCDS) resources mapped to East of Pisgah as seen in Table 1, which was a significant increase from the 2022-2023 base case. In 2022-2023 several overloads were seen on the Lugo – Victorville 500 kV Line, including a P1 overload in the base portfolio. While fewer overloads were seen in this year’s case, the generation mapped by the CPUC IRP coupled with the increased cost of off-shore wind will have a corresponding impact that triggers additional renewable and storage development. This additional development East of Pisgah may result in the Lugo Victorville constraint binding again in the 2024-2025 TPP, if not addressed in this cycle. Therefore, NextEra Resources appreciates CAISO’s continued commitment to investigate the Lugo – Victorville 500 kV constraint and strongly supports CAISO exploring all possible solutions to relieve constraints over the long-term. To that end, we offer the</p>	<p>The TPD deliverability study will model all CAISO approved TPP projects.</p> <p>3) The comment is noted. The RAS mitigations proposed in the 2023-2024 TPP were in compliance with the updated CAISO RAS guideline.</p>

No	Submitting Organization	Comment Submitted	CAISO Response																																																																																																			
		<p>following questions and observations to help aid CAISO staff in their evaluation:</p> <p>1) As reflected in Table 1 (below), the sensitivity portfolio models a larger number of megawatts into the East of Pisgah area and consequently indicates a higher degree of overload compared to the level of overload captured in the base portfolio. Since the Sensitivity portfolio can be a good indicator of what is expected in future TPP cycles, NextEra Resources suggests that the CAISO release the results from the policy sensitivity studies for the 2023-2024 cycle. This information will enable better analysis by planners and stakeholders in assessing the desirability of locating development in certain locations and the associated risk of overloads and associated lack of deliverability.</p> <p>Table 1: CPUC East of Pisgah Resource Portfolio</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr style="background-color: #cccccc;"> <th rowspan="2">RESOLVE Resource Name</th> <th colspan="3">2022-23 BASE Portfolio</th> <th colspan="3">2022-23 SENSITIVITY Portfolio</th> <th colspan="3">2023-24 BASE Portfolio</th> </tr> <tr style="background-color: #cccccc;"> <th>FCDS</th> <th>EODS</th> <th>TOTAL</th> <th>FCDS</th> <th>EODS</th> <th>TOTAL</th> <th>FCDS</th> <th>EODS</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>Nevada Geothermal</td> <td>440</td> <td>0</td> <td>440</td> <td>727</td> <td>0</td> <td>727</td> <td>905</td> <td>0</td> <td>905</td> </tr> <tr> <td>Solar</td> <td>770</td> <td>1946</td> <td>2716</td> <td>1320</td> <td>4196</td> <td>5516</td> <td>2157</td> <td>2786</td> <td>4943</td> </tr> <tr> <td>Wind - In State</td> <td>442</td> <td>0</td> <td>442</td> <td>442</td> <td>0</td> <td>442</td> <td>403</td> <td>0</td> <td>403</td> </tr> <tr> <td>Wyoming Wind</td> <td>1062</td> <td>0</td> <td>1062</td> <td>1500</td> <td>0</td> <td>1500</td> <td>1500</td> <td>0</td> <td>1500</td> </tr> <tr> <td>Idaho Wind</td> <td>0</td> <td>0</td> <td>0</td> <td>1000</td> <td>0</td> <td>1000</td> <td>1000</td> <td>0</td> <td>1000</td> </tr> <tr> <td>LI Battery</td> <td>1236</td> <td>0</td> <td>1236</td> <td>2711</td> <td>0</td> <td>2711</td> <td>2689</td> <td>0</td> <td>2689</td> </tr> <tr> <td>Wind - Out of State (Existing TX)</td> <td>486</td> <td></td> <td>486</td> <td>486</td> <td>0</td> <td>486</td> <td>571</td> <td>100</td> <td>671</td> </tr> <tr> <td><b>Total</b></td> <td><b>4436</b></td> <td><b>1946</b></td> <td><b>6382</b></td> <td><b>8186</b></td> <td><b>4196</b></td> <td><b>12382</b></td> <td><b>9225</b></td> <td><b>2886</b></td> <td><b>12111</b></td> </tr> </tbody> </table> <p>*Table 1 data pulled from the following sources: <a href="#">ISO-Board-Approved-2022-2023-Transmission-Plan</a>; <a href="#">Presentation-2023-2024-Transmission-Planning-Process-Nov16223</a></p> <p>2) Per Table 2 (below), there are fewer constraints overall identified in this 2023-2024 TPP study compared to last year.</p>	RESOLVE Resource Name	2022-23 BASE Portfolio			2022-23 SENSITIVITY Portfolio			2023-24 BASE Portfolio			FCDS	EODS	TOTAL	FCDS	EODS	TOTAL	FCDS	EODS	TOTAL	Nevada Geothermal	440	0	440	727	0	727	905	0	905	Solar	770	1946	2716	1320	4196	5516	2157	2786	4943	Wind - In State	442	0	442	442	0	442	403	0	403	Wyoming Wind	1062	0	1062	1500	0	1500	1500	0	1500	Idaho Wind	0	0	0	1000	0	1000	1000	0	1000	LI Battery	1236	0	1236	2711	0	2711	2689	0	2689	Wind - Out of State (Existing TX)	486		486	486	0	486	571	100	671	<b>Total</b>	<b>4436</b>	<b>1946</b>	<b>6382</b>	<b>8186</b>	<b>4196</b>	<b>12382</b>	<b>9225</b>	<b>2886</b>	<b>12111</b>	
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No	Submitting Organization	Comment Submitted	CAISO Response																				
		<p>Additionally, the contingency and overload pairs from the 2022-2023 cases TPP are compared to the 2023-2024 base case. A new base case overload of a 500 kV facility is seen in this TPP cycle that was not seen last year, while existing overloads on the Eldorado-McCullough and Lugo-Victorville 500 kV lines diminished despite a similar portfolio size. During the stakeholder call CAISO suggested that one of the reasons for fewer overloads (while maintaining similar portfolio size) could be topology changes in the base case. NextEra Resources requests that CAISO expand on this further, specifically: What topology changes were made? Is there something shifting constraints from one area to another, including any changes made on importing flowgates? Will these same topology changes, that are indicating a higher level of deliverable resources, be used in the TPD deliverability studies?</p> <p>NextEra Resources suggests that there needs to be consistent treatment and modeling of these constraints across all CAISO studies.</p> <p>Table 2: East of Pisgah Overloaded Facilities</p> <table border="1" data-bbox="520 984 1192 1224"> <thead> <tr> <th>Overloaded Facilities</th> <th>Contingency</th> <th>2022-23 BASE Portfolio (%)</th> <th>2022-23 SENSITIVITY Portfolio (%)</th> <th>2023-24 BASE Portfolio (%)</th> </tr> </thead> <tbody> <tr> <td>Eldorado-McCullough 500 kV line</td> <td>Eldorado-Lugo 500 kV line</td> <td>&lt;100</td> <td>118.57</td> <td>110.4</td> </tr> <tr> <td>Lugo-Victorville 500 kV line</td> <td>Eldorado-Lugo 500 kV line</td> <td>103.5</td> <td>125.6</td> <td>&lt;100</td> </tr> <tr> <td>Sloan Canyon-Eldorado 500 kV line</td> <td>Base Case</td> <td>&lt;100</td> <td>&lt;100</td> <td>100.4</td> </tr> </tbody> </table> <p>*Table 2 data pulled from the following sources: <a href="#">ISO-Board-Approved-2022-2023-Transmission-Plan</a>; <a href="#">Presentation-2023-2024-Transmission-Planning-Process-Nov16223</a></p> <p>3) The 2023-2024 TPP study is depending on a higher level of RAS, particularly as mitigation solutions (in the Southern California system). While RAS, in general, plays an important,</p>	Overloaded Facilities	Contingency	2022-23 BASE Portfolio (%)	2022-23 SENSITIVITY Portfolio (%)	2023-24 BASE Portfolio (%)	Eldorado-McCullough 500 kV line	Eldorado-Lugo 500 kV line	<100	118.57	110.4	Lugo-Victorville 500 kV line	Eldorado-Lugo 500 kV line	103.5	125.6	<100	Sloan Canyon-Eldorado 500 kV line	Base Case	<100	<100	100.4	
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No	Submitting Organization	Comment Submitted	CAISO Response
		<p>and cost-effective role in ensuring grid stability by providing relief to overloaded elements without building more transmission, it is a temporary solution commonly utilized to mitigate “near term” grid issues. Where appropriate, NextEra Resources recommends that CAISO consider longer term corrective action plans. The longer-term corrective action plans will provide the incremental transmission grid capability to integrate renewable and energy storage resources more effectively and will also reliably reduce overloads as observed in the on-peak deliverability assessment.</p>	
4R	RWE Renewables	No comment	
4S	Sonoma Clean Power Authority	No comment	
4T	Terra-Gen, LLC	<p>Terra-Gen provides the following feedback on CAISO’s Preliminary Policy Assessment Results for the SCE Northern Interconnection Area:</p> <p>CAISO has provided background regarding the on-peak Windhub area export constraint and a potential to identify related policy-driven transmission mitigation, summarized as follows.</p> <p>CAISO noted that an area deliverability constraint has been enforced to address the voltage collapse and loss of resource issue described on slide 46 of its November 16, 2023, presentation. CAISO also noted the constraint was exceeded in the base portfolio under the HSN condition. Due to the exceedance, CAISO is currently re-evaluating the maximum generation amount that can be islanded at the Windhub Substation before cascading occurs and based on that information, may identify if a policy-driven transmission mitigation is needed.</p> <p>Terra-Gen acknowledges CAISO’s review of this issue regarding the on-peak Windhub area export constraint. Terra-Gen requests CAISO clarify whether a policy-driven transmission project would be necessary to mitigate the identified issue or if there is a possibility to simply increase the on-peak Windhub area export constraint to address the issue. In general, Terra-</p>	<p>The ISO will re-assess if the Windhub Area Export Constraint Transmission Capability Estimate can be increased so the base portfolio is deliverable without mitigation or if a policy driven upgrade is needed.</p> <p>The ISO policy assessment did not find deliverability issues, in the On-Peak scenarios, at Whirlwind, Antelope, and Vincent Areas. Increasing the Windhub Area Export Transmission Capability, either with the current transmission or with transmission upgrades, will not affect the deliverability of the base portfolio resources connected to other substations in SCE Northern Area, but could increase the competition for TPD allocation for future generator interconnection projects.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Gen is supportive of any increase to the on-peak Windhub area export constraint limit.</p> <p>More specifically, Terra-Gen requests that CAISO specifically explore the feasibility of increasing the on-peak Windhub area export constraint limit to levels sufficient to support flows at observed levels in its HSN scenario results. Terra-Gen is also supportive of CAISO considering policy-driven transmission mitigation if deemed necessary and cost effective. Additional policy-driven transmission reinforcements will also improve reliability and provide economic benefits, as well as increasing deliverability for resources behind the Windhub constraint.</p> <p>Terra-Gen also notes that changes to increase the on-peak Windhub area export constraint limit will have “downstream” impacts on the deliverability availability in the Whirlwind, Antelope, and Vincent areas; i.e., increasing the Windhub area constraint limit will reduce availability of deliverability for resources in the Whirlwind, Antelope, and Vincent areas. Terra-Gen is among numerous other project sponsors comprising significant interconnection requests in these downstream areas. Therefore, Terra-Gen recommends that CAISO also consider the need for additional policy-driven transmission projects in subsequent TPP cycles to ensure adequate deliverability becomes available to support the TPP portfolio resources mapped to these areas, including viable projects currently requesting interconnection in the Whirlwind, Antelope, and Vincent areas. This approach is important to incorporate in future planning efforts if CAISO proposes to increase the on-peak Windhub area export constraint limit to avoid negatively impacting the viability of projects in downstream areas.</p>	
4U	The Nature Conservancy of California	TNC recommends attention to transmission projects with the highest likelihood of successful permitting, specifically projects that enable high levels of resources that correspond to areas of low environmental impact. TNC’s <u>Greenlight Study</u> demonstrates that renewable energy projects in areas of lower environmental conflict can be accomplished faster and more affordably.	Deliverability assessment of the resource portfolio provided by the CPUC for use in the 2023-2024 TPP did not identify deliverability constraints that require transmission upgrades in the Vestal area. Resource portfolios transmitted by CPUC for the ongoing 2024-2025 TPP and future planning cycles will determine whether transmission upgrades will be needed in the area.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>TNC and partners recently conducted an analysis reviewing alignment of current and planned transmission capacity, solar resource potential, and commercial interest in areas with low environmental conflict in the San Joaquin Valley, an area that the IRP identifies as important for future solar resources. This information was shared as part of the <a href="#">2023 IEPR docket</a>. TNC found that Vestal has higher solar resource potential on least-environmental conflict land than available and planned transmission, so TNC recommends the CAISO consider study of upgrades at Vestal. TNC also echoes CEERT's comments on the broader Central Valley area that these are generally good locations for the development of solar and battery projects that can improve system and local area reliability.</p>	

<b>5. Please provide your organization's comments on the Preliminary Policy Assessment Results for the SDG&amp;E area.</b>			
<b>No</b>	<b>Submitting Organization</b>	<b>Comment Submitted</b>	<b>CAISO Response</b>
5A	AES	No comment	
5B	Avantus Clean Energy LLC	Slide 91, which circuits are being referred for "two-hour" rating? Can you list that rating? How does that compare with standard "four-hour" rating?  Slide 93, Is the purpose of using "30 minute" rating to gain time to drop generation?	Line ratings are classified as Critical Energy Infrastructure Information by the facility owners. Using 2-hour or 30-minute ratings allows time to do system re-dispatch to bring loadings on lines back to within normal ratings.
5C	Bay Area Municipal Transmission Group (BAMx)	No comment	
5D	California Community Choice Association	No comment	
5E	California Public Utilities Commission	No comment	
5F	California Public Utilities Commission – Public Advocates Office	Please refer to the comments provided in response to question number 4.	Proposed mitigation in the SDGE area is to use 2-hour and 30-minute emergency ratings. No reconductoring is proposed.
5G	California Western Grid Development, LLC	No comment	
5H	California Wind Energy Association	The two mitigations proposed in the SDG&E area are to use shorter-term emergency ratings, which have zero cost. CaWEA urges CAISO to implement the mitigations immediately in the generation interconnection process to provide more deliverability in the upcoming TPD allocation.	The emergency ratings are being used as mitigation in the deliverability studies already, and will be used in the TPD allocation study as well.
5I	Center for Energy Efficiency and Renewable Technology	No comment	
5J	Gallatin Power Partners	No comment	
5K	Golden State Clean Energy	No comment	
5L	Gridliance West LLC	No comment	
5M	Independent Energy Producers Association	a. IEP supports a portfolio of MWs that are deliverable in each constraint area as defined by the Base Case plan being analyzed by CAISO. Although the placement of a CRAS on an overloaded substation may be a suitable solution for immediate need, relying on CRAS for many of the proposed interconnection projects may lead to more generation disconnections and disruptions to the balance	The proposed mitigation of using 2-hour and 30-minute emergency ratings is sufficient to make the portfolio deliverable without any new RAS.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>of the grid. IEP recommends for each area studied, CAISO clarify if the full amount of Full Capacity Deliverability Status (FCDS) being studied is deliverable through CRAS mitigation efforts. If not, transmission solutions to achieve the Base Case FCDS levels should be the priority over all other mitigation options.</p> <p>b. IEP recommends for each project proposed, CAISO should carefully consider the longer-term vision for the area and choose the mitigation option that would enable deliverability of resources, not just maintain reliability. Transmission upgrades are long-lead time items, and for California to meet its SB 100 clean energy and GHG goals, the state needs to be proactive in building transmission to enable resources to come online. In addition, CAISO's Interconnection Process Enhancements initiative has a proposal to only allow interconnection requests in zones with available transmission capacity. Therefore, ensuring the appropriate and proactive buildout in the TPP process is critical. If an upgrade to the transmission system would solve the constraint, ensure deliverability during times of grid stress, and maintain reliability, CAISO should recommend that option and not overly rely on CRAS.</p> <p>c. To ensure there are limited delays in bringing generation online, IEP recommends approving upgrades that allow the CPUC portfolio to be fully deliverable in each zone.</p>	
5N	Kern – Southland Energy Link LLC	No comment	
5O	Natural Resources Defense Council, Inc.	No comment	
5P	New Leaf Energy	No comment	
5Q	NextEra Energy Resources	No comment	
5R	RWE Renewables	No comment	
5S	Sonoma Clean Power Authority	No comment	
5T	Terra-Gen, LLC	No comment	



No	Submitting Organization	Comment Submitted	CAISO Response
5U	The Nature Conservancy of California	No comment	

**6. Please provide your organization’s comments on the Preliminary Policy Assessment Results for the PG&E area.**

No	Submitting Organization	Comment Submitted	CAISO Response
6A	AES	No comment	
6B	Avantus Clean Energy LLC	This analysis is a very thorough job. Avantus has no further comments.	
6C	Bay Area Municipal Transmission Group (BAMx)	<p><b>Anticipated Significant Changes to Offshore Wind Resource Selection Requires Revisiting Current TPP Portfolios and CAISO’s Determination Regarding Policy-Driven Transmission Upgrades</b></p> <p>BAMx appreciates that the CAISO is evaluating the resource portfolios that were provided by the California Public Utilities Commission (CPUC) in March 2023 to be utilized in its 2023-2024 TPP.</p> <p>The latest CPUC IRP Ruling on the 2023 Preferred System Plan recommends the 25 MMT Core portfolio as the Base portfolio.<sup>11</sup> If it is adopted by the Commission, then it would be transmitted to the CAISO as both the reliability and policy-driven base case scenario to be analyzed by the CAISO in the 2024-2025 TPP. As summarized in Table 1 below, the Base portfolio in the 2023-2024 TPP included 1,607 MW of offshore wind (OSW) resources in the North Coast area, whereas the Sensitivity portfolio in the same TPP cycle assumed as high as 8,045 MW of OSW. The expected costs of offshore wind are now significantly higher relative to its competing resources across the modeling horizon based on the most recent 2023 National Renewable Energy Laboratory (NREL) Annual Technology Baseline (ATB).<sup>12</sup> As a result, the proposed Base portfolio and the Sensitivity portfolio in the latest Draft Base portfolio select no OSW resources in the North Coast. Also, the proposed Base portfolio in the latest Draft Base portfolio includes only 4,531 MW of OSW, which is entirely mapped in the Morro Bay Call area (Central Coast). In contrast, the proposed Sensitivity scenario does not select a single MW of OSW. As evident from Table 1 below, the proposed 2024-2025 TPP portfolios constitute a significant departure from the past</p>	<p>The CAISO is currently working on developing mitigations needed to support resource portfolio studied as part of the 2023-2024 TPP. As part of our final approval recommendations, the CAISO may consider CPUC’s new decision along with other factors.</p>

No	Submitting Organization	Comment Submitted	CAISO Response																																																							
		<p>portfolios that require serious consideration in the CAISO's current, i.e., the 2023-2024 TPP cycle.</p> <p><b>Table 1: A Comparison of Offshore Wind Resource Capacity (MW) Selected in the 2022-2023 TPP vs. 2023-2024 TPP vs. Draft 2024-2025 TPP Portfolios.</b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th rowspan="2">Offshore Wind Area</th> <th colspan="2">2022-2023 TPP*</th> <th colspan="2">2023-2024 TPP**</th> <th colspan="2">Draft 2024-2025 TPP***</th> </tr> <tr> <th>Base Portfolio</th> <th>Sensitivity Portfolio</th> <th>Base Portfolio</th> <th>Sensitivity Portfolio</th> <th>Base Portfolio</th> <th>Sensitivity Portfolio</th> </tr> </thead> <tbody> <tr> <td>Morro Bay Call Area</td> <td style="text-align: center;">1,588</td> <td style="text-align: center;">3,100</td> <td style="text-align: center;">3,100</td> <td style="text-align: center;">5,355</td> <td style="text-align: center;">4,531</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Humboldt Call Area</td> <td style="text-align: center;">120</td> <td style="text-align: center;">1,607</td> <td style="text-align: center;">1,607</td> <td style="text-align: center;">2,600</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Del Norte Area</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">3,445</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Cape Mendocino Area</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2,000</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td><b>Total North Coast</b></td> <td style="text-align: center;"><b>120</b></td> <td style="text-align: center;"><b>1,607</b></td> <td style="text-align: center;"><b>1,607</b></td> <td style="text-align: center;"><b>8,045</b></td> <td style="text-align: center;"><b>0</b></td> <td style="text-align: center;"><b>0</b></td> </tr> <tr> <td><b>Total</b></td> <td style="text-align: center;"><b>1,708</b></td> <td style="text-align: center;"><b>4,707</b></td> <td style="text-align: center;"><b>4,707</b></td> <td style="text-align: center;"><b>13,400</b></td> <td style="text-align: center;"><b>4,531</b></td> <td style="text-align: center;"><b>0</b></td> </tr> </tbody> </table> <p>* <a href="https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2022-2023-Transmission-planning-process">https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2022-2023-Transmission-planning-process</a></p> <p>** <a href="https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2023-2024-Transmission-planning-process">https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2023-2024-Transmission-planning-process</a></p> <p>*** CPUC ED, "2023 Proposed PSP &amp; 2024-2025 TPP Resolve Modeling Results," October 5, 2023</p> <p>BAMx agrees with the CAISO that they cannot make any assessment on the draft 2024-2025 TPP portfolios until they are finalized and provided to them by the CPUC as part of the Final Decision in the IRP proceeding. However, as the CAISO is considering approval of transmission project(s) that are found needed to meet the OSW resource needs of the Base portfolio, it needs to be cognizant of the changed circumstances regarding the economic viability of OSW resources in the North Coast. If the CAISO approves a policy-driven project to accommodate the OSW resources in the North Coast, that could not only prove to</p>	Offshore Wind Area	2022-2023 TPP*		2023-2024 TPP**		Draft 2024-2025 TPP***		Base Portfolio	Sensitivity Portfolio	Base Portfolio	Sensitivity Portfolio	Base Portfolio	Sensitivity Portfolio	Morro Bay Call Area	1,588	3,100	3,100	5,355	4,531	0	Humboldt Call Area	120	1,607	1,607	2,600	0	0	Del Norte Area	0	0	0	3,445	0	0	Cape Mendocino Area	0	0	0	2,000	0	0	<b>Total North Coast</b>	<b>120</b>	<b>1,607</b>	<b>1,607</b>	<b>8,045</b>	<b>0</b>	<b>0</b>	<b>Total</b>	<b>1,708</b>	<b>4,707</b>	<b>4,707</b>	<b>13,400</b>	<b>4,531</b>	<b>0</b>	
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		<p>be a sub-optimal outcome but could also lead to stranded asset(s) based on the current expectations regarding the cost of OSW as reflected in the draft 2024-2025 TPP portfolios. BAMx urges the CAISO to delay the approval of any policy-driven transmission related to accessing OSW in the North Coast until the CPUC provides clarity based on the above-described updated information.</p> <p>This provides another example that would benefit from the above proposal to set up criteria for reevaluation of previously approved projects. If the CAISO does approve some OSW-related transmission projects despite knowing there is a likelihood that 2024-2025 TPP portfolios would no longer require proposed projects, the CAISO could reevaluate its earlier decision. Some development costs would have been spent unnecessarily, but they would be minor compared to building a project that well-exceeds the need.</p> <p><b>Need Cost Estimates of Major Transmission Options to Access OSW in North Coast and Additional Transmission Upgrades Triggered By Procurement of Humboldt/North Coast OSW</b></p> <p>During the November 17<sup>th</sup> call, the CAISO verbally provided the high-level cost estimates for the following three transmission options.</p> <ol style="list-style-type: none"> <li>1. 500 kV AC line to Fern Road;</li> <li>2. Onshore overhead VSC-HVDC to Collinsville Substation; and</li> <li>3. Offshore sea cable VSC-HVDC to a Substation in the Bay Area.</li> </ol> <p>BAMx understands that the CAISO will consider the combined capital cost of these major transmission options and the additional transmission reinforcements that would be needed for each of the three options to select the most economic transmission option in the current transmission planning cycle.</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>BAMx supports the CAISO approach but reminds CAISO that without the CAISO providing the capital cost estimates for each of the transmission enforcements, it would be impossible for the stakeholders to weigh in on the cost-effectiveness of the three transmission options. BAMx understands that the CAISO plans to provide all the capital cost estimates in its Draft Transmission Plan. However, having preliminary capital cost estimates at such a late stage in the TPP cycle, provides stakeholders with very little time to provide meaningful feedback and for CAISO to incorporate it in the Final Transmission Plan. We, therefore, urge the CAISO to post the capital cost estimates of all transmission projects under consideration as they become available at the CAISO's secured transmission planning web portal.</p> <p><b>Further Technical Evaluation of OSW Transmission Projects Needs to Be Accompanied By High-Level Permitting/Feasibility/Environmental Assessment</b></p> <p>Integrating North Coast OSW is a challenging objective with technical, environmental, and scheduling risks. Such risks suggest value in staging transmission improvements in a manner where decisions on higher cost and technically challenging elements are made later in the process once better information is available. The choice between the terrestrial alternatives (Fern Road or Collinsville) will likely depend on environmental factors. It does not appear that these environmental and permitting constraints have been considered in the determination of transmission options yet. Similarly, the CAISO needs to perform high-level technical feasibility and supply chain issues associated with the submarine cable option(s). CAISO's approval of any green-field policy-driven transmission project without considering the feasibility challenges and environmental permitting constraints for transmission development would be counter-productive. Therefore, BAMx recommends that the CAISO conduct a high-level feasibility and environmental permitting assessment before</p>	<p>Given the complexity of these projects, preliminary cost estimates could not be provided sooner than the draft transmission plan.</p> <p>The CEC recently released a report on an offshore wind transmission study, which explores the potential environmental challenges associated with various alternatives. (<a href="https://www.energy.ca.gov/data-reports/reports/ab-525-reports-offshore-renewable-energy">https://www.energy.ca.gov/data-reports/reports/ab-525-reports-offshore-renewable-energy</a> (under Consultant Reports). The CAISO will take such potential environmental and permitting challenges into account when recommending a project to integrate north coast offshore wind for approval.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>recommending any particular transmission project to access North Coast OSW.</p> <p><b>Questions on Potential Mitigation Projects for Humboldt Area Offshore Wind Interconnection</b></p> <ol style="list-style-type: none"> <li>1. Please explain why the Contra Costa - Lone Tree Series compensation project helps address the P1 overload on the North Dublin - Vineyard 230 kV under the <b>Base B</b> alternative instead of reconductoring that line.[3]</li> <li>2. It appears that Lone Tree – Cayetano – Newark Corridor Series Compensation approved in 2022-2023 Transmission is not adequate in addressing the deliverability issues in the <b>Base A</b> alternative.[4] Please evaluate why the reconductoring of the Cayetano - Lone Tree (USWP-Cayetano) 230 kV line is preferred over revising the scope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project</li> <li>3. Please explore the effectiveness and adequacy of a series compensation project as a mitigation measure for the Tesla - Newark 230 kV constraint in lieu of reconductoring the line in the <b>Base B</b> and <b>Base C</b> alternatives.[5]</li> </ol>	<p>North Dublin-Vineyard line is in series with the Contra Cost-Lone Tree line. As such, reducing flow on the Contra Costa-Lone Treesection will also help reduce loading on the North Dublin-Vineyard line.</p> <p>The feasibility of re-scoping verses need for new upgrade will be looked into prior to the final recommendations.</p> <p>Comment noted.</p>
6D	California Community Choice Association	<p>In some cases, the CAISO’s policy assessment results do not identify any area-scale deliverability constraints even though the 2023 generator interconnection and deliverability allocation procedures (GIDAP) resulted in no deliverability allocations in the region to due existing constraints (e.g., North of Greater Bay or Greater Bay Areas). To ensure that valuable clean capacity that is mapped by the CPUC and under contract with LSEs is not put at risk, the CAISO should:</p> <ul style="list-style-type: none"> <li>• Clarify why the GIDAP and TPP results differ with respect to the identification of area-scale deliverability constraints; and</li> </ul>	<p>The main reason is the difference between the TPP portfolio and the commercial interest resources in the GIP in terms of the amount and location of the resources. Other reason is change in the system power flow pattern caused by aggregate resource modeled between different regions.</p>

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		<ul style="list-style-type: none"> <li>Either provide confidence that the 2024 GIDAP will align with the TPP results or expand the scope of upgrades so that they will align.</li> </ul>	
6E	California Public Utilities Commission	No comment	
6F	California Public Utilities Commission – Public Advocates Office	<p>Similar to our recommendations on SCE’s and Gridliance West’s (GLW) service areas, the proposed Pacific Gas and Electric Company (PG&amp;E) area mitigations should first exhaust consideration of any protection schemes and grid enhancing technology (GET) mitigations options prior to considering new wire solutions. Cal Advocates supports CAISO’s inclusion of alternatives like reinstating 500 kV line rerates, as it is a cost-effective solution that addresses potential line overloads in the PG&amp;E area. Once all economical mitigations have been exhausted, Cal Advocates supports consideration of new wire solutions that can be competitively bid.</p> <p><b>Regarding Offshore Wind Study Results</b></p> <p>Cal Advocates supports CAISO’s approach to determining the most cost-effective option to integrate North Coast offshore wind (OSW), which involves investigating four base case options and four sensitivity options. Cal Advocates requests that CAISO provide cost estimates for the different integration options presented in the Transmission Planning Process (TPP) stakeholder meetings to allow for a stakeholder discussion on these cost estimates. Cal Advocates also requests discussion on whether investments to support exclusively North Coast OSW integration should be put on-hold in this TPP cycle. Cal Advocates makes this request because it appears that the Commission may not include North Coast OSW in its portfolio for study in the 2024-2025 TPP cycle based on preliminary busbar mapping results.<sup>[1]</sup></p> <p>If CAISO decides to support one of the proposed North Coast OSW integration options, Cal Advocates requests that this</p>	<p>CAISO will consider RAS and GET where possible.</p> <p>Given the complexity of these projects preliminary cost estimates could not be provided sooner than the draft transmission plan.</p> <p>CAISO is currently working on developing mitigations needed to support resource portfolio studied as part of the 2023-2024 TPP. As part of our final approval recommendations, the CAISO may consider CPUC’s new decision along with other factors.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>decision be presented in a TPP stakeholder meeting and not just included in the final plan without stakeholder discussion.</p> <p><u>Proposed Projects to Bring North Coast OSW to Onshore Connections</u></p> <p>As mentioned, in the presentation, CAISO did not provide project costs to integrate OSW to connection points onshore. Instead, CAISO referenced a 2023 Schatz Center Northern California and Southern Oregon Offshore Wind Transmission Study for cost estimates. This report explains that the most expensive option amongst the upgrades considered is “the utilization of HVDC subsea cables, estimated at \$4.0 billion. In comparison, the overland routes to Fern Road substation are estimated at \$2.4 billion, while HVDC injections to Collinsville substation are estimated at \$2.1 billion.”<sup>[2]</sup></p> <p>If the amount of North Coast OSW is increased from the base case amount at 1,607 MW to 8,045 MW, as proposed in the sensitivity case, Cal Advocates assumes that the integration costs would increase.<sup>[3]</sup> To confirm this cost increase, Cal Advocates request CAISO provide a cost estimate to integrate the proposed amount of North Coast OSW in the sensitivity case.</p> <p><u>Possible Financial Impact of Bringing North Coast OSW from Onshore Connections to Load</u></p> <p>At the November 16, 2023 stakeholder meeting, CAISO also presented 10 additional mitigations necessary to bring North Coast OSW to load. Cal Advocates’ interpretation of the CAISO’s tariff suggests the following three projects would be competitively bid, to support primarily North Coast offshore wind:<sup>[4]</sup><sup>[5]</sup></p> <ul style="list-style-type: none"> <li>• New Fern Road-Tesla 500 kV Line;</li> <li>• Collinsville 230 kV Reactor; and</li> </ul>	<p>Cost estimates for all the transmission alternatives and the mitigation measures for the base and sensitivity portfolios will be included in the draft transmission plan</p> <p>Once the approval recommendations are finalized, the CAISO will evaluate projects to identify ones that meet the criteria to go through the competitive solicitation process.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> <li>New Eastshore 230/115 transformer Bank #3.</li> </ul> <p>Competitively bidding projects would reduce the capital costs associated with reaching California’s energy policy goal and presents a cost saving opportunity for ratepayers.</p> <p>It is worth noting that CAISO’s November 16, 2023 presentation did not highlight the potential transmission investments needed to integrate Morro Bay OSW. The policy portfolio for study in this 2023-2024 TPP cycle includes 3,100 MW of Morro Bay OSW for the base case and 5,355 MW for the sensitivity. For this reason, Cal Advocates requests CAISO confirm the transmission investments needed to integrate the proposed amount of Morro Bay OSW. Based on the November 16, 2023 presentation, it seems that only a transformer at Wheeler Ridge 115/70 kV Transformer #2 would be needed for the base case.<a href="#">[6]</a></p> <p><u>Financial Impact of OSW Transmission Mitigations</u></p> <p>The mentioned 2023 California and Oregon OSW study estimates that California’s total cost for land-based and undersea infrastructure costs to support OSW integration from \$5.13 billion to \$12.33 billion.<a href="#">[7]</a> Cal Advocates requests CAISO present these cost estimates in the next TPP meeting for further discussion to clarify the OSW locations and projects considered in this cost estimate. This discussion should cover the anticipated OSW transmission costs with the current base and sensitivity system portfolios for study in CAISO’s 2024-2025 TPP cycle.</p>	<p>In accordance with the 23-24 portfolio there was no additional transmission needed to deliver Morro Bay OSW.</p> <p>Cost estimates for all the transmission alternatives and the mitigation measures for the base and sensitivity portfolios will be included in the draft transmission plan</p>
6G	California Western Grid Development, LLC	No comment	
6H	California Wind Energy Association	CalWEA and other parties are advocating at the CPUC that the Commission retain at least 1.6 GW of offshore wind off the North Coast in its adopted 2023 Proposed System Plan, as was included in the 2023-24 base case portfolio, to support the	

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		<p>CAISO's continued planning for these necessary upgrades. More generally, CalWEA and other parties are advocating in the CPUC's planning process, as we have in the TPP process, that the state should strengthen the transmission backbone in PG&amp;E's service territory, rather than continue with piecemeal upgrades. CalWEA notes that the same overloads in PG&amp;E's service territory have been identified in three consecutive TPP cycles and CAISO is still not addressing the problem properly.</p> <p>Specifically, the overloads in the North Dublin-Vineyard 230kV &amp; Cayetano-Lone Tree 230kV path have been addressed as follows:</p> <ol style="list-style-type: none"> <li>1. 2021-2022: Collinsville 500kV (the mitigation did not work at all and, in fact, made the overload worse since the Collinsville upgrade doesn't create new transmission capacity)</li> <li>2. 2022-2023: series reactors</li> <li>3. 2023-2024: reconductor (proposed)</li> </ol> <p>This 230kV path is parallel to the Collinsville-Tesla 500kV path. The 500kV upgrades from Fern Road to Telsa to support OSW would reduce flows on the 230kV path as well. Therefore, should the CPUC restore 1.6 GW of North Coast offshore wind to the PSP, these needs should be examined together to strengthen backbone transmission capacity in the area, rather than inefficiently continuing patchy solutions.</p> <p>In the unfortunate event that North Coast offshore wind is not included in the adopted PSP in February, CAISO should refine the scope of the previously approved Collinsville upgrade to include: 1) series compensation reduction on Fern Road to Telsa path; and 2) up to 20 ohms reactor on Collin-Pittsburg before the upcoming TPD allocation. The series compensation reduction will be effective in providing additional deliverability to generators in the North of Greater Bay Area and will thus continue making some progress towards the state's clean energy goals.</p>	<p>As the portfolio and OSW landscape changes so does the optimal solution for a given constraint. Each portfolio is evaluated with the latest information available, which could lead to the evolution of mitigation solutions.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
61	Center for Energy Efficiency and Renewable Technology	<p>CEERT appreciates the CAISO's framing of the analysis for the base case portfolio for North Coast offshore wind. The four alternative transmission projects – 500 kV AC line to Fern Road, onshore VSC-HVDC to Collinsville, offshore VSV-HVDC to Bay Area and offshore VSC-HVDC to Moss Landing are reasonable alternative transmission projects to evaluate. Each alternative project requires downstream network upgrades to deliver 1,607 megawatts of offshore wind resources from the Humboldt Bay area in the base case portfolio. The sensitivity case requires substantially more investment in transmission projects to assure deliverability of additional offshore wind capacity from the North Coast.</p> <p>CEERT notes that the draft preferred system portfolio (PSP) currently under consideration by the CPUC for the 2024-2025 transmission planning process does not include new wind resources from the North Coast. At its October 20, 2023 workshop the CPUC presented a supplemental analysis for the 2023 proposed PSP that included multiple sensitivity cases.*</p> <p>The purpose of this sensitivity analysis was to consider the impacts of different future resource costs on the development of an optimal resource portfolio. Given a high level of uncertainty about future costs for offshore wind resources, the CPUC explored situations where including offshore wind selection in the resource portfolio could be economically justified.</p> <p>The CPUC sensitivity analyses found that higher costs of competing resources costs would not, on its own, result in the selection of offshore wind in a least-cost portfolio. However, it did find that if offshore wind costs are lower than currently projected and the availability of non-offshore wind resources is significantly reduced then up to 4.3 GW of offshore wind would be selected by 2035.</p> <p>The CAISO in its November 13, 2023 comments to the CPUC regarding the draft 2024 preferred system portfolio (R.20-05-003) observed that it would be helpful for the CPUC to provide</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>stakeholders with clear PSP reconciliations in order to understand changes in planned and expected capacity by interconnection zones. The draft 2024 PSP contains zero offshore wind resources located in the North Coast wind area and an increase to 4,531 MWs of offshore wind in the Morro Bay wind area. The CAISO noted this change and observed that general stability in resource portfolios over successive years is important to provide a level of consistency in transmission planning, procurement, and interconnection. CEERT strongly agrees with this observation.</p> <p>CEERT strongly supports keeping the development of offshore wind as a future option for California’s evolving resource portfolio. However, given the uncertainty about the cost of offshore wind it would be prudent to first pursue offshore wind development in the Morro Bay call area where onshore transmission capacity is already available.</p> <p>CEERT believes the CAISO should continue to study transmission options for the interconnection of Humboldt Area offshore wind resources together with other North Coast wind resources, including those in Oregon, in the upcoming 20-Year Transmission Outlook report. It is our view that it is premature to recommend actionable policy-driven transmission projects for the interconnection of Humboldt Area offshore wind in the 2023-2024 transmission plan.</p> <p>CEERT strongly support the policy-driven transmission upgrades in the other parts of the PG&amp;E area particularly in the Greater Fresno interconnection area. For the many reconductoring projects CEERT requests that the CAISO evaluate the opportunity to use advance conductors to increase transmission capacity and power deliverability on the PG&amp;E system.</p>	<p>The comment has been noted.</p> <p>CAISO is currently working on developing mitigations needed to support resource portfolio studied as part of the 2023-2024 TPP. As part of our final approval recommendations, the CAISO may consider CPUC’s new decision along with other factors.</p> <p>The comment has been noted.</p>
6J	Gallatin Power Partners	No comment	
6K	Golden State Clean Energy	Golden State Clean Energy (“GSCE”) believes it is important that the California Independent System Operator (“CAISO”) use the 20-Year Transmission Outlook in this transmission planning process (“TPP”) cycle to right-size Fresno area transmission	CAISO is looking at all study areas through multiple lenses including the cross over between policy and economic studies to ensure appropriate mitigations are proposed, which are in line with the future needs.



No	Submitting Organization	Comment Submitted	CAISO Response
		<p>that is a high priority for CAISO’s studies. However, the mitigation options in the preliminary policy assessment that involve the 115 kV system or other modest upgrades to existing facilities will not provide the degree of investment in the region that will be required to scale up future solar and storage development in alignment with the 20-Year Transmission Outlook. Larger-scale investments will allow northern California to plan for comparable amounts of future resources with the southern part of the state, especially solar, and increase the region’s access to renewable energy while also providing pushback flows on Path 26.</p> <p>This TPP cycle is faced with a difficult process hurdle that also impacts the policy and economic assessment in the Fresno area and broader San Joaquin Valley, which is that the Manning Substation has been approved to alleviate area constraints and will integrate significant amounts of solar and storage that can feed directly into the 500 kV system, but the CPUC’s resource portfolios have not yet included expected generation at the Manning Substation. There are planning process and timing reasons for this, but that does not mean the new resource potential that Manning brings should be ignored when designing the transmission system needed by 2035. Although Manning is being modeled and can alleviate constraints, new generation resources are not currently mapped to this new substation, even though Cluster 15 showed an immediate and very significant interest in interconnecting solar and storage to Manning. New resources are expected to interconnect to Manning within this TPP’s study horizon that are in addition to the resources included in the CPUC’s portfolio, and CAISO should plan for these additional resources in this TPP cycle.</p> <p>In light of our concern that the mitigation options in the preliminary policy assessment are not of the scale needed and that process hurdles are impeding this TPP cycle’s ability to study resources in the Fresno area that will appear within the study horizon, GSCE recommends CAISO align the final policy-driven solutions with the 20-Year Transmission Outlook by right</p>	<p>scalable solution to the extent possible, that would be in line with future needs.</p> <p>Please see above response.</p> <p>Please see above response.</p>

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		<p>sizing the transmission upgrades to better meet future needs. Right-sizing should particularly occur in the Fresno area where major investments are still needed to put the area on track with the longer-term outlook envisioned in the SB 100 Report, and the 20-Year Transmission Outlook identifies new and upgraded high voltage facilities in Southern PG&amp;E to enable the area's future solar and storage development.</p> <p>In addition to providing insight into future needs, the 20-Year Transmission Outlook effectively examined the bulk transmission system to study significant in-state resource development opportunities. This is in contrast to the CPUC's resource portfolio development process that only considers a limited set of transmission upgrades when locating resources and is overly focused on the existing queue and past generation interconnection studies. Allowing the 20-Year Transmission Outlook to guide transmission upgrades provides a crucial perspective not captured in the CPUC portfolio development process, and it enables future generation interconnection to move away from PG&amp;E's low voltage system and avoid a backlog of legacy projects and cascading network upgrades. Besides strategically placed local resources, such as battery storage, that may provide reliability benefits interconnecting to the low voltage system, CAISO should emphasize future interconnection that can directly feed into the high voltage system.</p> <p>We appreciate that CAISO has only presented its preliminary assessment results and that much work remains before the draft 2023-24 Transmission Plan. Nevertheless, we strongly encourage CAISO to look toward the 20-Year Transmission Outlook to right-size transmission upgrades and ensure the investment properly considers the full scale of resource development expected in the region, including from generation</p>	<p>Please see above response.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>interconnection to the Manning Substation and other forms of commercial interest</p> <p><u>GSCE proposed policy-driven solution</u></p> <p>GSCE requests that CAISO study as a possible policy-driven solution the transmission project associated with the Fresno County solar plus storage projects in the WAPA SNR queue (i.e., the Monarch 500 kV Transmission Project).<sup>[1]</sup> GSCE understands that CAISO is aware of the Monarch project from an affected system perspective, but this transmission project and the corresponding solar and storage in the WAPA SNR queue could benefit LSEs in CAISO's footprint if CAISO were to study the transmission project with the view of the transmission capacity being shared between the CAISO BAA and the Balancing Authority of Northern California BAA.</p> <p>The Monarch 500 kV Transmission Project can integrate solar and storage in the CPUC's resource portfolios while also allowing for renewable energy delivery directly onto the high voltage system that can access the Greater Bay Area where it is difficult interconnecting land-intensive renewable resources. In addition, CAISO's queue is currently inundated with projects, and Cluster 14 and 15 projects are not expected to reach commercial operation for many years. WAPA's queue is not currently facing these hurdles and thus LSEs in CAISO's footprint could benefit from accessing these resources.</p> <p>A combination of both policy and economic benefits associated with Monarch may make it a reasonable transmission solution. CAISO should examine whether the transmission project provides economic benefits related to congestion on Path 15, north of Los Banos, and potentially Moss Landing-Las Aguilas that are being prioritized for study in the economic assessment. The project could also provide a transmission solution to some of the concerns that CEERT is attempting to address with its proposed Path 15 HVDC replacement.</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>GSCE believes there are sufficient policy and economic reasons to approve this project in the 2023-2024 TPP cycle, but we appreciate that it is a relatively new proposal and thus CAISO should provide it with due consideration during the current TPP cycle or if needed, continue to examine it in the 2024-2025 TPP or through an addendum study process to the 2023-24 TPP similar to SWIP-North. This appears reasonable given solar and storage needs in the Fresno area and San Joaquin Valley should continue to increase in the CPUC's resource portfolios (as witnessed by the CPUC's current draft portfolio and the 20-Year Transmission Outlook), and congestion on Path 15 and north of Los Banos continues to increase in the absence of new backbone transmission.</p>	
6L	Gridliance West LLC	No comment	
6M	Independent Energy Producers Association	<p>IEP supports a portfolio of MWs that are deliverable in each constraint area as defined by the Base Case plan being analyzed by CAISO. Although the placement of a CRAS on an overloaded substation may be a suitable solution for immediate need, relying on CRAS for many of the proposed interconnection projects may lead to more generation disconnections and disruptions to the balance of the grid. IEP recommends for each area studied, CAISO clarify if the full amount of Full Capacity Deliverability Status (FCDS) being studied is deliverable through CRAS mitigation efforts. If not, transmission solutions to achieve the Base Case FCDS levels should be the priority over all other mitigation options.</p>	<p>Connecting projects to RAS or CRAS to mitigate post-contingency transmission constraints does not impact the FCDS status of the projects.</p>
6N	Kern – Southland Energy Link LLC	No comment	
6O	Natural Resources Defense Council, Inc.	<p>Generally, regarding the Preliminary Policy Assessments, NRDC encourages the CAISO to plan toward the sensitivity portfolio. The base case and the sensitivity portfolio have the same 30 MMT carbon goal, but the load forecast associated with 13.4 GW of offshore wind most closely aligns with the state's decarbonization and climate goals. Since we know that we will eventually need at least this much offshore wind due to anticipated load growth, and given the long-lead time to build</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>transmission, CAISO should plan toward this case in order to avoid a delay in upgrades.</p> <p>NRDC support the consideration of the offshore wind sensitivity portfolio in evaluating transmission needs in the PG&amp;E area. As CAISO is looking into transmission needs for the PG&amp;E area for offshore wind, they should plan for the full offshore wind potential for that area because the incremental cost to build additional transmission capacity within existing proposed projects is low relative to the cost of expanding transmission capacity at a later point in time.</p>	
6P	New Leaf Energy	<p>In the comments below, NLE respectfully urges the CAISO to reexamine the Gates-Arco-Midway 230 kilovolt (“kV”) line constraint and the Morro Bay 230 kV line constraint—both of which the CAISO did not propose approving mitigations for during the November 16, 2023 stakeholder meeting for the 2023-2024 Transmission Planning Process (“TPP”). NLE provides several reasons the CAISO should reexamine these constraints before releasing its draft 2023-2024 Transmission Plan.</p> <p>NLE has redacted all confidential information from the comments below. Concurrently with submitting these comments, NLE transmitted a non-redacted confidential version of the comments to the CAISO.</p> <p style="padding-left: 40px;"><b>a. Gates-Arco-Midway 230 kV Line Constraint</b></p> <p>The Gates-Arco-Midway 230 kV line constraint impacts 90 substations, and nearly a quarter of the CAISO’s queued megawatts (“MW”) of generating capacity through Cluster 14 are behind this constraint alone.<sup>11</sup> The constraint significantly affects proposed projects in the PG&amp;E Fresno and Kern study areas. [REDACTED].<sup>12</sup> [REDACTED].<sup>13</sup> If the CAISO does not approve Gates-Arco-Midway, this constraint will continue to be binding and will prevent Cluster 14 projects in the Kern and Fresno study areas from qualifying for TPD.</p>	<p>Under the current Portfolio neither of these constraints have been binding. Policy mitigations are to be developed primarily to support deliverability of the resources in the base portfolio. However, the CAISO does give consideration to finding from sensitivity scenario and also from other studies, like GIP, economic and 20-year outlook, to find the right, scalable solution to the extent possible, that would be in line with future needs. Regarding the difference in findings between Policy and GIP studies, the main reason is the difference between the TPP portfolio and the commercial interest resources in the GIP in terms of the amount and location of the resources. Other reason is change in the system power flow pattern caused by aggregate resource modeled in different regions.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Further, approving a mitigation for this policy-driven need would also address identified reliability-driven needs. The CAISO’s preliminary reliability results for the PG&amp;E bulk system identify overloads to the Arco-Midway 230 kV line under a P1 loss of the Gates-Midway 500 kV line, as well as under several P6 outages. Further, the 2024 and 2028 Local Capacity Technical Studies identify Local Capacity Requirement deficiencies in the Kern and Fresno Local Capacity Resource Areas.<sup>14</sup> Approving the mitigation would address these deficiencies and Local Resource Adequacy procurement challenges experienced by the load-serving entities.</p> <p>Additionally, NLE respectfully urges the CAISO to further analyze the policy-driven studies for the Gates-Arco-Midway 230 kV line. The findings of the policy-driven study performed in the TPP and the studies estimating transmission capability for the California Public Utilities Commission (“CPUC”) do not appear to align. The CAISO released transmission capability estimates— for use in the CPUC’s Integrated Resource Planning (“IRP”) process—indicating that the Midway constraint on the Midway-Q2005 230 kV line, which is a parallel path to the Gates-Arco-Midway 230 kW line, has 1,099 MW of deliverability available for Full Capacity Deliverability Status (“FCDS”) resources.<sup>15</sup> This transmission capability estimate is largely consistent with the results from the 2023 TPD Allocation Report.<sup>16</sup> However, the draft policy-driven studies performed as part of the 2023-2024 TPP do not show a binding constraint for the Gates-Arco-Midway 230 kV line, despite there being significantly more resources proposed behind this constraint than available deliverability.<sup>17</sup> NLE respectfully requests that the CAISO investigate why the results of these studies do not align and why the relevant proposed resources do not trigger a mitigation.</p> <p>Finally, though the CAISO does not consider environmental justice issues in the context of the TPP initiative, it bears mentioning that there are a disproportionate number of Disadvantaged Communities (“DACs”) located in the Fresno and Kern study areas.<sup>18</sup> If the CAISO does not approve a mitigation</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>for the Gates-Arco-Midway 230 kV line constraint, most projects in these areas would not receive TPD. This would consequently prevent or delay construction of the projects and impede the community, health, and environmental benefits for residents within these DACs.</p> <p>For the reasons described above, it is essential that the CAISO reexamine the Gates-Arco-Midway 230 kV line constraint. Failing to approve a mitigation for this constraint in the 2023-2024 Transmission Plan would result in Cluster 14 projects in the Kern and Fresno study areas needing to withdraw from the interconnection queue or proceed as Energy Only.<sup>[9]</sup> This could significantly impact California’s ability to meet its renewable energy and reliability goals, as well as the availability of resources needed to satisfy Local Capacity Requirements.</p> <p style="text-align: center;"><b>b. Morro Bay 230 kV Line Constraint</b></p> <p>NLE respectfully urges the CAISO to further analyze the policy-driven studies for the Morro Bay 230 kV line. The findings of the policy-driven study performed in the TPP and the studies estimating transmission capability for the CPUC do not appear to align. The CAISO’s transmission capability estimates for the CPUC’s IRP process indicate that the Morro Bay Looping has 937 MW of deliverability available for FCDS resources.<sup>[10]</sup> This transmission capability estimate is fairly consistent with the results from the 2023 TPD Allocation Report.<sup>[11]</sup> On the other hand, the draft policy-driven studies performed as part of the 2023-2024 TPP do not show a binding constraint for the Morro Bay 230 kV line—despite 2,500 MW of resources within the Morro Bay 230 kV boundary. Although a specific Point of Interconnection is needed to determine the exact amount of deliverability available for FCDS resources, the capacity in the policy-driven studies is over 2.5 times the estimated available deliverability for FCDS resources. The CAISO should therefore revisit the results of these studies.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Additionally, the mitigation for the Morro Bay 230 kV line constraint is a multi-value asset that would address policy- and reliability-driven needs that are critical to address for Cluster 14 projects seeking TPD. NLE's prior comments on the 2023-2024 TPP reliability results advocate for approving a mitigation for the Morro Bay 230 kV line constraint. The CAISO's response to comments states that the long-term thermal violations in a post-Estrella Substation configuration were largely driven by load projection at Paso Robles, and the CAISO therefore recommends monitoring load materialization.<sup>[12]</sup> However, if the CAISO does not approve the mitigation in the 2023-2024 TPP, Cluster 14 projects behind the constraint would not receive deliverability during the next two TPD allocation cycles and would need to proceed as energy-only resources or withdraw from the queue.<sup>[13]</sup> Furthermore, approval timing will be critical in this cycle due to the timeline required to complete the mitigation.<sup>[14]</sup></p>	
<b>6Q</b>	NextEra Energy Resources	No comment	
<b>6R</b>	RWE Renewables	<p>RWE Offshore Wind has a leading offshore wind development portfolio in the United States and currently holds California lease area OCS-P 0561, one of the Northern California lease areas auctioned by the Bureau of Ocean Energy Management in December 2022. RWE appreciates the opportunity to provide input to CAISO's Preliminary Policy Assessment Results that include various transmission expansion options for connecting Humboldt offshore wind.</p> <ol style="list-style-type: none"> <li><b>CAISO should consider total offshore wind capacity available in the Humboldt area in evaluating alternatives to ensure both offshore wind lease areas in Humboldt are considered</b></li> </ol> <p>We understand that CAISO is considering the following four options for connecting Humboldt offshore wind:</p> <ul style="list-style-type: none"> <li>Option A: 500 kV AC line to Fern Road with 4.5GW path capacity</li> </ul>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> <li>• Option B: Onshore overhead VSC-HVDC to Collinsville with 1.4GW path capacity</li> <li>• Option C: Offshore sea cable VSC-HVDC to Moss Landing with 2.0GW path capacity</li> <li>• Option D: Offshore sea cable VSC-HVDC to Bay Hub with 2.0GW path capacity</li> </ul> <p>We'd like to highlight that there are 2 offshore wind lease areas off the coast of Humboldt where the combined generation capacity is more than 3GW. With only 1.6GW in the base portfolio and 2.6GW in the sensitivity portfolio, a significant amount of these projects could be left stranded. We therefore request CAISO consider how each option can be expanded to accommodate the full output of these 2 wind lease areas. The capacity shortfall is especially acute for all HVDC options (options B, C and D) that currently only have 1.4 or 2.0 GW capacity, which is not sufficient to accommodate even the 2.6GW sensitivity portfolio and therefore definitely need to be expanded. Choosing an option that can accommodate additional offshore wind capacity would be a "least regrets" approach that allows for additional cost-effective offshore wind development.</p> <p>We understand that transfer path capacity is estimated based on a high-level assessment with simplified assumptions considering contingencies and maximum generation tripping allowed. We would like to request CAISO to provide a more accurate estimate of injection capacity of each option taking into account the system losses and the overloads and potential mitigations in the rest of the system, in light of concerns that there will be insufficient transfer capacity to accommodate both wind lease areas.</p> <p>For each option, we would also like additional clarity of what POIs will be available to connect Humboldt offshore wind, to ensure that the options work for both wind lease areas.</p>	<p>Sensitivity studies have 8GW of OSW in the Humboldt area and are being used to inform baseline decisions for scalability. The CAISO will propose a project for approval to integrate the offshore wind in the base portfolio but will have the flexibility to be expanded for integration of higher levels of offshore wind in the sensitivity portfolio.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p style="text-align: center;"><b>2. The Selected Option must be Feasible from a Permitting Perspective</b></p> <p>As noted in the Schatz Energy Research Center study for Northern California/Southern Oregon Transmission Infrastructure: Environmental Concerns and Permitting Analysis(<a href="https://efiling.energy.ca.gov/GetDocument.aspx?tn=252695&amp;DocumentContentId=87775">https://efiling.energy.ca.gov/GetDocument.aspx?tn=252695&amp;DocumentContentId=87775</a>), permitting transmission corridors in Humboldt and Northern California region can be very challenging for both overland and subsea options. Therefore, considering the potential development feasibilities is critical to ensure the recommended transmission line can be built and delivered without significant delays. To the extent possible, CAISO should ensure that it is not adopting an option that will ultimately prove to be impossible or difficult to permit.</p> <p style="text-align: center;"><b>3. Additional opportunities for stakeholder input are needed before the draft plan is issued in March 2024</b></p> <p>RWE thanks the CAISO for its efforts to refine the Preliminary Policy Assessment Results toward the draft transmission plan in March 2024. In light of the questions outlined above concerning the ability of each option to accommodate additional capacity, the POIs available to each wind lease area, and concerns around potential permitting challenges, RWE would appreciate additional opportunities to provide input on the Humboldt offshore wind options prior to the publication of the draft plan in March 2024. Achieving California's offshore wind planning goal of 5GW by 2030 and 25GW by 2045 depends on the successful development of the existing 5 lease areas in Humboldt and Morro Bay, and it is critical that the necessary transmission expansion is adequately planned and delivered.</p>	<p>The CAISO will take potential environmental and permitting challenges into account when recommending a project for approval.</p> <p>Due to the complexity of these projects additional details cannot be provided prior to the draft transmission plan.</p>
6S	Sonoma Clean Power Authority	<p>A key priority for SCP is supporting local energy project development to provide clean, reliable, and affordable energy to SCP's customers. Transmission is a key bottleneck to clean energy deployment in the North Bay and SCP has appropriately increased its focus on tracking transmission upgrades in the</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>PG&amp;E territory. The North Bay region could greatly benefit from the reliability offered by battery energy storage projects and has strong potential to provide expanded geothermal capacity that will be critical in meeting the state’s decarbonization and reliability goals—both of which are represented in the busbar mapping underlying the 2023-24 TPP policy assessment. In reviewing the preliminary policy assessment results and listening to the November 16<sup>th</sup> discussion, SCP offers the following comments:</p> <ul style="list-style-type: none"> <li>• <b>Results are Misaligned with GIDAP:</b> The PG&amp;E policy assessment results in the North of Greater Bay or Greater Bay areas did not identify any area-scale deliverability constraints. This is misaligned with the results of the 2023 GIDAP, which resulted in zero deliverability being allocated in the region due to the Delevan 500 kV and Bay Area (Contra Costa-Delta Pump) constraints. Although the 2023 GIDAP did not benefit from the 2022-23 TPP, the only related upgrade identified in the 2022-23 plan was a 500 kV series compensation reduction project—which the ISO stated during the call is not considered a long-term solution in TPP planning. Due to the representation of contracted resources in LSE plans, the CPUC continues to map a significant amount of resources in the Bay Area and has assumed the 2021-22 TPP upgrades (Collinsville and 230 kV reconductoring) are sufficient to enable deliverability for resources. SCP asks for the CAISO to provide clarity on why the GIDAP and TPP results differ and either provide confidence that the 2024 GIDAP will align with the TPP results or expand the scope of upgrades to ensure that valuable clean capacity that is under contract isn’t put at risk.</li> <li>• <b>Transparency on 500 kV De-rates:</b> In the evaluation of Humboldt offshore wind, the CAISO evaluates reinstating 500 kV ratings as an alternative for mitigating several constraints. During the November 16<sup>th</sup> call, it was shared that PG&amp;E recently de-rated its 500 kV lines resulting in these constraints. Given the potential impact on</li> </ul>	<p>Regarding the difference in findings between TPP Policy and GIP studies, the main reason is the difference between the TPP portfolio and the commercial interest resources in the GIP in terms of the amount and location of the resources. Other reason is change in the system power flow pattern caused by aggregate resource modeled in different regions.</p> <p>The CAISO has been identifying in its assumptions where the studies are performed using the derated ratings. The CAISO understands that PG&amp;E has plan to reinstate these ratings and is working with PG&amp;E to help prioritize based on the impacts observed in various studies.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>deliverability and scope of upgrades, SCP asks the CAISO to provide more transparency on the impact of the 500 kV de-rates, the studies that have been impacted by the de-rates (past TPPs, GIDAPs, etc.), and the potential and necessary criteria for potential reinstatement.</p> <ul style="list-style-type: none"> <li>• <b>Explore Novel Solutions for Accelerating Deliverability:</b> Concerns were shared on the November 16<sup>th</sup> call on PG&amp;E's ability to provide the necessary resources to execute identified upgrades. SCP appreciates the CAISO's clarification that the PTO's ability to perform upgrades is not used as a criteria in identifying the scope of policy upgrades. However, the timing of upgrades is dependent on the PTO and upgrade delays could add considerable risk to valuable clean energy projects in PG&amp;E territory. Given the concerns about PG&amp;E resource constraints, SCP asks the CAISO to give special consideration to opportunities to apply novel technologies and approaches to PG&amp;E territory. This could include grid-enhancing technologies, strategically siting battery storage, leveraging grant funding, or identifying approaches to expand the scope of upgrades that can be evaluated for competitive solicitation. Many of the upgrades in the North of Greater Bay area involve reconductoring around the Geysers. SCP is currently leading an initiative called the Geothermal Opportunity Zone (GeoZone) to grow capacity at the Geysers in partnership with three geothermal developers and would be open to partnering with the CAISO and PG&amp;E on testing novel solutions to accelerate deliverability in this region if there is interest.</li> </ul>	<p>GETs are considered wherever feasible at the time of developing appropriate mitigation. The CAISO is working with PTOs and state agencies to help track progress of implementation of approved projects and provide transparency where delays are being experienced. Please follow the Transmission Development Forum for more detail.</p>
6T	Terra-Gen, LLC	<p>Terra-Gen provides the following feedback on the Preliminary Policy Assessment Results for the PG&amp;E area and Humboldt Area Offshore Wind (OSW) interconnection:</p> <p>CAISO has provided background on its 2023-24 OSW Sensitivity portfolio, noting that it included 8,045 MW from the North Coast. CAISO also explained that for all OSW Sensitivity cases, a new</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>500 kV line from Fern Road to Tesla is assumed. Terra-Gen supports the CAISO's continued utilization of these OSW Sensitivity portfolio assumptions.</p> <p>Terra-Gen believes that the potential mitigations that CAISO has identified in the PG&amp;E area to support OSW in the North Coast should be pursued. Specifically, Terra-Gen strongly supports the approval of the New Fern Road – Tesla 500 kV Line which has been identified as one of the key solutions in assumptions to enable other alternative solutions that will enable the interconnection of future North Coast OSW resources. North Coast OSW reinforcements also support reliability and project viability for TPP portfolio resource in the North of Greater Bay Study Area that are needed to meet more immediate California Public Utilities Commission (CPUC) Integrated Resource Planning (IRP) Mid-Term Reliability procurement directives.</p>	
6U	The Nature Conservancy of California	<p>TNC is interested to learn if the proposed line reconductoring at Henrietta would also support transmission capacity expansion for new solar resources nearby the Henrietta substation. As part of the abovementioned study, TNC identified Henrietta as a substation nearby higher levels of low-environmental conflict solar resource potential than existing available transmission at the substation. Similarly, TNC would like to understand if upgrades impacting Helm would create more transmission capacity for solar resources nearby Helm, while also achieving the intended congestion mitigation. Solar and storage resources allocated to Helm appear low relative to solar resource potential on least-conflict land, so we recommend CAISO staff review with the IRP team.</p>	<p>Please follow future studies and other data that the CAISO has made public and additional information that the CAISO is planning to provide through the Interconnection Process Enhancement, to determine where additional capacity will become available due to approved projects. In regards to the amount of resources selected in portfolio, please participate and provide comments in CPUC IRP directly.</p>

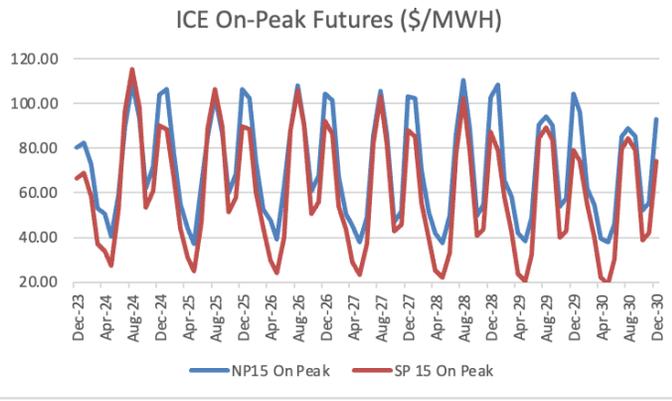
**7. Please provide your organization's comments on the Preliminary Economic Analysis Results.**

No	Submitting Organization	Comment Submitted	CAISO Response
7A	AES	No comment	
7B	Avantus Clean Energy LLC	This analysis is a very thorough job. Avantus has no further comments.	
7C	Bay Area Municipal Transmission Group (BAMx)	In the 2022-2023 TPP, the CAISO identified the benefits of the projects approved in the 2021-2022 Transmission Plan in terms of reduced renewable curtailments, such as the GridLiance/VEA 230 kV upgrades, Manning, Collinsville, Moss Landing - Las Aguilas projects. <sup>[1]</sup> However, no such benefits were attributed to any transmission projects approved in the last (2022-2023) Transmission plan, such as the Lugo – Victor – Kramer 230 kV Upgrade or the Southern Area Reinforcement projects during the November 16 <sup>th</sup> stakeholder meeting. Does that mean no such benefits were observed as part of the preliminary economic analysis, or were they not reported? Please explain. BAMx also requests the CAISO to calculate the production cost benefits for all the policy-driven projects under consideration for approval, just the way the CAISO had done for the Manning and Collinsville projects in the 2021-2022 Transmission Plan. <sup>[2]</sup>	The transmission upgrades approved in the last planning cycle in the southern California areas and in the GridLiance West area helped to reduce renewable curtailment in these areas. However, curtailment in some of these areas were still observed in this planning cycle, mainly because system constraint (such as the ISO net export limit, which is not impacted by transmission upgrades) and transmission congestions that were triggered by renewable resources in the CPUC portfolio for this planning cycle. The ISO considered to conduct detailed assessment for some of these areas in this planning cycle.
7D	California Community Choice Association	No comment	
7E	California Public Utilities Commission	No comment	
7F	California Public Utilities Commission – Public Advocates Office	To address the observed congestion in the Southern California Edison East of Pisgah and Lugo to Victorville area, CAISO identifies the Trout Canyon to Lugo 500 kV line as a possible mitigation. <sup>[1]</sup> Cal Advocates requests CAISO provide two additional pieces of information with its Trout Canyon – Lugo 500 kV line analysis.  First, CAISO should provide information that illustrates the policy and economic benefits from the Southern Reinforcement projects approved in the 2022-2023 Transmission Plan as part of its analysis of the Trout Canyon Lugo 500 kV Line. This evaluation will assist with explaining the impact of the previously approved projects and the additional benefits that the Trout-Canyon – Lugo 500 kV line could provide. This information will	This comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>also assist with assessing if the Trout-Canyon – Lugo 500 kV project is still necessary.</p> <p>Second, CAISO should compare the costs and benefits of the Trout Canyon – Lugo 500 kV project with the proposed Mead – Adelanto Project Upgrade (MAP Upgrade project). The MAP Upgrade project would convert the existing Mead – Adelanto line from High-Voltage Alternating Current operation (HVAC) to High-Voltage Direct Current (HVDC) operation. This conversion is anticipated to increase the Mead-Adelanto line capacity from 1,291 megawatt (MW) to 3,500 MW.[2] As a result, the MAP Upgrade project would provide increased transmission capacity between southern California and southern Nevada, and specifically along the Eldorado-Lugo corridor. This project alternative is also anticipated to cost \$1.1 billion, which is significantly less than the proposed \$2 billion for the Trout Canyon-Lugo 500 kV project.[3] It is worth noting that the Trout Canyon-Lugo 500 kV line would need to establish a new transmission corridor across the California desert and for this reason is a riskier project than the proposed MAP Upgrade project, which involves upgrading an existing line.</p>	
7G	California Western Grid Development, LLC	See response to question 8	
7H	California Wind Energy Association	No comment	
7I	Center for Energy Efficiency and Renewable Technology	<p>The CAISO Preliminary Economic Analysis Results were very informative. There is a clear trend of increasing power flows from Southern California to Northern California that is creating congestion on Paths 15 and 26.</p> <p>The analysis shows that Southern California solar and wind generation and evening battery discharging contribute to south to north congestion on the Path 26 corridor. Development of solar and battery resources in the Central Valley can partially mitigate this congestion as well as offshore wind development at Morro Bay.</p>	This comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The analysis also shows that Path 15 corridor congestion increased compared with the results in the last transmission plan. The increased Path 15 congestions is, in part, a result of increased renewable energy development in the Kern and Fresno areas. CEERT believes that the potential for longer-term solar and battery development is underestimated for the Kern and Fresno areas. The last 20-Year Transmission Outlook anticipated as much as 30 gigawatts of solar development in this area.</p> <p>For these reasons CEERT has recommended that the CAISO study the conversion of elements of Path 15 to HVDC to increase transmission capacity in the Central Valley that will enable increased resource development. As a minimum the CAISO should study the conversion of the existing 500 kV AC line from the Los Banos substation to the Midway substation with a bi-pole HVDC line that includes voltage sourced converters at each terminal.</p>	
7J	Gallatin Power Partners	No comment	
7K	Golden State Clean Energy	<p>GSCE is encouraged by CAISO's priority studies of Path 26, Path 15, and the Fresno area (both the Henrietta 115 kV congestion as well as Moss Landing–Las Aguilas 230 kV congestion caused in part by Fresno/Kern area solar). The preliminary 2023-2024 economic study results generally show significant increases in congestion from the final 2022-2023 Transmission Plan. For example, PG&amp;E Fresno area congestion increased from \$13.81 million in the final 2022-2023 Transmission Plan<sup>[1]</sup> to \$147.60 million in the preliminary 2023-2024 results.<sup>[2]</sup> The preliminary 2023-2024 results show similar, though not as significant, increases in Path 26 and Path 15 congestion. GSCE recommends CAISO consider these economic studies in combination with the policy-driven assessment in the Fresno area and the 20-Year Transmission Outlook to identify multiple benefits that could be achieved by adding high voltage transmission in Southern PG&amp;E to access abundant San Joaquin Valley solar resources.</p>	<p>This comment has been noted. As indicated in the November stakeholder meeting, some of these congestions would be assessed in detail in the final TPP report.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Though the economic analyses have accurately identified significant congestion on the CAISO key north/south transmission corridors and the PG&amp;E Fresno area, GSCE believes CAISO’s current Transmission Economic Assessment Methodology (“TEAM”) may understate actual congestion at times. To ground truth CAISO’s current methodology, GSCE recommends CAISO compare historical actual congestion to its economic modeling results. Recent market reports suggest that congestion on Path 15 and Path 26 is already occurring. The CAISO Department of Market Monitoring (“DMM”) 2022 Annual Report identified a significant increase in congestion costs, with <b>\$1.07 billion</b> in day-ahead congestion rents representing 5.5 percent of day-ahead market energy costs.[3] The DMM 2022 Annual Report also identified the three constraints with the greatest annual impact on price separation as the Midway-Vincent #2 500 kV Line, the Quinto-Los Banos 230 kV Line, and the Panoche-Gates #2 230 kV Line. In total, the congestion on these lines significantly limited both north-to-south and south-to-north flows across the CAISO footprint.[4] 2023 congestion has been lower than 2022 congestion but continues to show significant impacts on Path 15, with the Gates-Midway #2 500 kV Line and the Los Banos-Gates 500 kV Line experiencing congestion in four and five percent of hours, respectively, in the day-ahead in the second quarter.[5]</p> <p>In addition to using historical data, the CAISO should consider whether its economic analysis is consistent with forward-looking price differentials for NP26, SP26, and ZP26. Energy futures prices on the Interconnection Exchange (“ICE”) indicate increasing price deviations between CAISO zones. The figure below shows the ICE futures forward-peak product for December 2023 through December 2030 with a roughly \$11/MWh on-peak price differential between NP15 and SP15.[6]</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		 <p>In sum, the CAISO should pursue improvements to TEAM that provide more accurate, robust economic studies to review economically driven projects and to right-size reliability and policy projects that can provide economic benefits.</p>	
7L	Gridliance West LLC	<p><b>Beatty Upsizing Opportunity</b></p> <p>In the 2022–2023 Transmission Planning Process (TPP), CAISO approved transmission enhancements for the Beatty 230 kV project. The project scope includes building new 230 kV lines and expanding existing substations, which GLW is actively developing. However, as per slide 184 of the preliminary economic assessment results, the congestion in the GLW/VEA and SCE East of Pisgah area is considered high-priority, and thus, CAISO should further study the expansion of the planned GLW facilities by converting the approved 230 kV double-circuit to a 500 kV, double-circuit capable design. The lines could be initially constructed to a 500 kV standard but operated at 230 kV in the short term. This would allow for a seamless conversion to a 500 kV pathway in the future, as required by the system when new generators are interconnected. By increasing the capacity in this way, the time and effort required for future permitting, construction, and interconnection will be greatly reduced.</p>	<p>This comment has been noted. The ISO considered to conduct detailed assessment for the congestions in the Gridliance West/VEA area.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The 500 kV upsizing from Trout Canyon to Beatty transmission path provides a higher capacity alternative and optionality to maximize future renewable generation on the previously studied GLW upgrades. The GLW transmission capability expansion could support an increased volume of renewable resources—such as solar, geothermal, and battery storage—that is optimal given market conditions, California Policy objectives, and CAISO reliability needs. Given that the CPUC has expanded the volume of diverse renewables mapped in GLW’s area as well as the size of GLW’s queue (~ 21 GW, which includes ~6 GW at Beatty), this 500 kV upsizing could add as much as 3 GWs of additional transfer capability from the Beatty area to the bulk CAISO grid. There is a clear opportunity to maximize GLW’s upgrade potential, which is crucial for future renewable integration as design, routing, right-of-way (ROW), and permitting efforts are already well underway for the Beatty 230 kV project.</p> <p>The cost of such an expansion to the current Beatty upgrade would be most cost-effective if approved in the next TPP, prior to GLW’s procurement of the 230 kV equipment. In this case, GLW could maintain the current Beatty 230 kV project’s schedule, which has an in-service date of 2027. GLW brings this expansion opportunity to the attention of the CAISO staff to ensure it is considered as part of the CAISO’s economic analysis in this TPP, as GLW is presented with a limited opportunity window to conduct the upsizing instead of the 230 kV equipment upgrade. GLW has also provided the details of the upgrade enhancement opportunity in recent comments to the CPUC.</p> <p><b>Beatty–Esmeralda Economic Study</b></p> <p>GLW submitted the Beatty–Esmeralda Project as a supplement to the CAISO proposed Beatty 230 kV upgrade identified in the 2022–2023 CAISO TPP. As previously mentioned in GLW’s study request, the CPUC 2023–2024 Generation Resource mapping has identified a large increase in expected renewable and geothermal interconnections to the CAISO’s portion of the grid located in Nevada, particularly along the Johnnie Corner–</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Valley–Lathrop–Beatty 230 kV path with 1.1 GW of mapped solar and geothermal in the Base Portfolio. This is also aligned with current and growing generator developer interest in the area, with currently 1.3 GW of active generator interconnection requests along the aforementioned path and 6.8 GW of additional solar / storage and geothermal projects being permitted in the Esmeralda area as well as along the Beatty–Esmeralda route.</p> <p>GLW now offers the following as new information to further highlight the ease of permitting in the Esmeralda area. As noted in GLW’s economic study request, southern Nevada has significant amounts of accessible and buildable land and offers lower-cost and faster renewable generation construction with minimal environmental impacts. This is even more apparent with a recent development from the Bureau of Land Management’s (BLM) notice of intent (NOI) for a programmatic environmental impact statement (PEIS) for public lands in Esmeralda County, Nevada. [1]</p> <p>This effort and commentary from the BLM illustrates a substantial push to smooth the regulatory road for renewable developers. The “Esmeralda 7” identified seven solar projects totaling in 5.3 GW of potential new generation (see attached PDF). Given that NV Energy’s proposed Greenlink West has only an estimated ~3-4 GW of total capacity reserved for new generation projects, a great deal of the Greenlink adjacent projects from northern Nevada to southern Nevada will not have a place on that system, which underscores the need for additional expansion north of GLW’s existing footprint.</p> <p>GLW would be pleased to work with the CAISO in its analysis and welcomes the opportunity to provide more insight and information on the local development opportunities in and around its system.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		 <p style="text-align: center;">Proposed Esmeralda Solar Projects</p> <p>[screenshot of the attached PDF for internal reviewer convenience]</p>	
7M	Independent Energy Producers Association	The IEP wants to emphasize the need to keep transmission interconnection charges reasonable.	This comment has been noted.
7N	Kern – Southland Energy Link LLC	K-SEL would also like to request consideration of the economic benefits that K-SEL would provide to CAISO and the LA Basin. With the multi-terminal configuration interconnecting Midway – Pardee – El Nido (or Del Amo), K-SEL would provide a parallel path in the form of a controllable DC tie that could be optimized to alleviate congestion on Path 26, which experienced nearly 3,500 hours of congestion and a total cost of congestion of ~\$72M in the CAISO 23-24 TPP economic assessment.	This comment has been noted.
7O	Natural Resources Defense Council, Inc.	No comment	
7P	New Leaf Energy	No comment	
7Q	NextEra Energy Resources	No comment	
7R	RWE Renewables	No comment	
7S	Sonoma Clean Power Authority	No comment	
7T	Terra-Gen, LLC	No comment	
7U	The Nature Conservancy of California	No comment	

<b>8. Please provide any additional comments on the November 16, 2023 Transmission Planning Process Stakeholder Meeting.</b>			
<b>No</b>	<b>Submitting Organization</b>	<b>Comment Submitted</b>	<b>CAISO Response</b>
8A	AES	No Comment	
8B	Avantus Clean Energy LLC	When 8000 MW of off-shore wind in the Humboldt Bay area and 5000 MW of off-shore wind at Moro Bay is modeled in the system, what is the impact of this 13000 MW of generation on downstream transmission system, especially on 60-70 kV lines that ultimately deliver this power to load centers?	Impacts on lower voltage systems are identified in the Sensitivity results presented on November 16 and will be outlined in the draft transmission plan.
8C	Bay Area Municipal Transmission Group (BAMx)	BAMx appreciates the opportunity to comment on the 2023-2024 Transmission Plan preliminary Policy and Economic assessment results and acknowledges the significant effort of the CAISO staff in developing this material.	
8D	California Community Choice Association	In its evaluation of Humboldt offshore wind mitigation alternatives, the CAISO will evaluate reinstating 500 kilovolts (kV) ratings that had previously been derated. Given the impacts deratings may have on deliverability and the need for upgrades, the CAISO should provide transparency on past 500 kV de-rates, studies that have been impacted by the de-rates (past TPPs, GIDAPs, etc.), and the potential and necessary criteria for reinstating 500 kV ratings.	The CAISO has been identifying in its assumptions where the studies are performed using the derated ratings. The CAISO understands that PG&E has plan to reinstate these ratings and is working with PG&E to help prioritize based on the impacts observed in various studies.
8E	California Public Utilities Commission	<p style="text-align: center;"><b>Previously Approved Projects</b></p> <p>CPUC Staff echo the request from other stakeholders to better understand what ongoing methodology the CAISO is using to evaluate the continued need for previously approved TPP projects. With a significant number of previously approved TPP projects undergoing significant delays or cancellations, Staff encourage the CAISO to conduct more regular assessments of projects not yet commenced to ensure the most efficient and cost-effective solutions are built.</p> <p>Relatedly, CPUC Staff would appreciate further information on what the CAISO is doing to change the historic trend of project delays and to expedite the development of TPP-approved projects identified as necessary solutions for the transmission grid.</p>	Need for previously approved projects are evaluated on a case-by-case basis based on the extent of change in the input assumptions. Scope of previously approved projects are reevaluated in some cases to better fit the future need based on the recent assessment and depending upon the project status

No	Submitting Organization	Comment Submitted	CAISO Response
		<p style="text-align: center;"><b>Model Input Files</b></p> <p>CPUC Staff support the release of base cases and model input files from the CAISO to stakeholders as expeditiously as possible.</p> <p style="text-align: center;"><b>Adequate Timing for Stakeholder Review</b></p> <p>Staff appreciate the efforts made by the CAISO to provide information to stakeholders in a timely manner and continue to encourage the CAISO to provide all relevant information with sufficient time for real stakeholder engagement. While acknowledging the necessary timeline for approving each Transmission Plan, at times there have been delays in publishing results and files which limit the ability of stakeholders to properly engage in the current TPP and even the next iteration of the TPP (when considering that inputs and assumptions heavily influence the next TPP's modeling and studies). Large portions of the PG&amp;E analysis remain incomplete (TBD) such as mitigation options in the Humboldt Area Offshore Wind Interconnection Alternatives section and sensitivity analysis in the Greater Bay and North of Greater Bay Interconnection area. "This information should enable customers, other stakeholders, or an independent third party to replicate the results of planning studies,"[1] and timely dispersal of information is needed to meet this requirement and to enable stakeholders to review and provide input in the TPP.</p>	<p>Due to the complexity of the studies additional details were not able to be provided sooner than the draft transmission plan.</p>
8F	California Public Utilities Commission – Public Advocates Office	<p><b><u>Reliability Project Update</u></b></p> <p>Cal Advocates appreciates that CAISO is not moving forward with the conceptual reliability projects that PG&amp;E presented at the September 27, 2023 Reliability meeting. Providing PG&amp;E with additional time to evaluate mitigation options to address identified reliability issues including considering GETs should result in cost savings for ratepayers.</p> <p><b><u>California Independent System Operator (CAISO) should coordinate with the California Public Utilities Commission</u></b></p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p><b><u>(CPUC) to incorporate non-CPUC load-serving entities' (LSEs) planned resources into the busbar mapping process, rather than amend the busbar mapping results on a post-hoc basis.</u></b></p> <p>In its Interconnection Process Enhancements (IPE) Initiative Phase 2 Straw Proposal, CAISO states, "In addition to the portfolios received by the CPUC for the annual transmission planning process, the ISO will coordinate with the Local Regulatory Authorities (LRAs) and non-CPUC jurisdictional entities to determine their approved resources in their individual IRPs to include in the transmission planning analysis."  [1] However, non-CPUC-jurisdictional LSEs' planned resources should be taken into consideration during the joint CAISO-CPUC-California Energy Commission (CEC) busbar mapping process, to the extent possible. The inclusion of non-CPUC jurisdictional LSEs' future resources on a post-hoc basis in the transmission planning analysis may result in suboptimal ratepayer outcomes in the event that the busbar mapping process would have produced a different set of mapped resources and transmission upgrades had the full suite of non-CPUC-jurisdictional entities' planned resources been taken into consideration in the CPUC's Integrated Resource Planning (IRP). The IRP process already includes some non-CPUC-jurisdictional entities' planned resources in the list of baseline resources. However, these resources may not reflect all planned resources, due to the information asymmetry inherent in the CPUC's lack of jurisdiction over the IRP activities of other LRAs' and LSEs.[2] For example, the CPUC's IRP modeling may not reflect all generic resources that non-CPUC-jurisdictional entities may be planning in future study years to meet their Renewables Portfolio Standard and greenhouse gas emissions reduction needs. As the CPUC lacks jurisdiction to require other LRAs to provide any such information, the CPUC may be unable to improve the IRP modeling inputs and assumptions unilaterally to model any missing non-CPUC-jurisdictional entities' planned resources.</p>	<p>The ISO provided the following in the IPE 2023 Draft Final Proposal.</p> <p><i>In addition to the portfolios received by the CPUC for the annual transmission planning process, the ISO will coordinate with other LRAs and non-CPUC jurisdictional entities to determine their approved resources in their individual Integrated Resources Plans (IRP) to include in the transmission planning analysis. As part of the 2024-2025 transmission planning process, the ISO will request non-CPUC jurisdictional entities to provide their current approved resource plans as input into the development of the study plan...</i></p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>However, the CAISO and CEC have jurisdiction to require such information from the non-CPUC-jurisdictional entities by way of their CAISO roles as LRAs[3] and their IRP obligations before the CEC.[4] In addition, the CAISO and CEC actively collaborate with the CPUC in the IRP’s busbar mapping process. Therefore, the CAISO should not be content to amend the busbar mapping results on an ad-hoc basis to reflect the transmission deliverability needs of the non-CPUC-jurisdictional entities.</p> <p>Instead, the CAISO should proactively collaborate with the CPUC and CEC. Ideally, the CPUC would have information on any non-CPUC-jurisdictional entities’ planned resources well before the busbar mapping process begins – early enough in the IRP process for the IRP modeling to address the effects of non-CPUC-jurisdictional entities’ planned resources and associated transmission deliverability needs. However, the non-CPUC-jurisdictional LSEs have varying schedules and levels of detail for their own planning activities. The timing and detail of the non-CPUC-jurisdictional entities’ plans may or may not allow for early incorporation into the CPUC’s IRP modeling assumptions. If early incorporation proves infeasible, then the CAISO should work with the CPUC and CEC to incorporate non-CPUC-jurisdictional entities’ planned resources directly into the busbar mapping process.</p>	
8G	California Western Grid Development, LLC	<p style="text-align: center;"><b>Comments of California Western Grid LLC on CAISO’s November 16, 2023, Stakeholder Presentation For the 2023-2024 Transmission Planning Process</b></p> <p>Three Rivers Energy Development, LLC (TRED) is an Independent Transmission Developer that is developing the Pacific Transmission Expansion Project (“PTE Project” or “PTEP”) on behalf of California Western Grid Development, LLC. (“California Western Grid” or “CWG”). 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 renewable energy supply including new offshore wind, available to the Diablo Canyon 500 kV</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>switchyard, or Morro Bay to be delivered to the LA Basin to reduce local capacity requirements while also solving other significant reliability, economic and public policy needs.</p> <p>Cal Western Grid found the CAISO September 26 and November 16 2023-24 TPP Stakeholder Meetings to be extremely valuable and informative. We appreciate all the expertise and hard work CAISO staff have applied to bring us to this point in the TPP.</p> <p>Cal Western Grid will be making three primary requests of CAISO in our comments today.</p> <ol style="list-style-type: none"> <li>1. Evaluate the cumulative reliability, economic and policy benefits of PTEP - and present CAISO's findings in a single tabulation in the 2023-24 TPP draft transmission plan on March 31, 2024.</li> <li>2. Update the TEAM methodology analysis of PTEP - When evaluating Local RA Benefits of PTEP using the TEAM methodology, recognize that by 2035 the marginal system RA resource will be utility scale batteries and not gas fired generation.</li> <li>3. Act on the urgency to move forward with least regrets long lead time transmission solutions for transmission constrained local areas and recommend approval of an undersea transmission solution from Central California to the LA Basin to the CAISO Board in this 2023-24 TPP.</li> </ol> <p><b>Evaluate the Cumulative Reliability, Economic and Policy benefits of the PTEP project.</b></p> <p>Cal Western Grid appreciates CAISO's intent to evaluate both reliability and economic benefits. PTEP as part of the 2023-24 TPP (11/16 Stakeholder Presentation slides 11 and 183). In addition to reliability and economic benefits, Cal Western Grid also believes PTEP provides significant public policy benefits.</p>	<p>Path 26 corridor congestion was selected for detailed analysis in the 2023-2024 planning cycle, and the PTE project will be considered as an alternative to mitigate the Path 26 corridor congestion.</p> <p>Please note that the ISO has studied the PTE project in previous several planning cycles. It was observed that the PTE project can only partially mitigate the Path 26 corridor congestion. The ISO noticed that the scope of the PTE project was modified in the 2023-2024 TPP economic study request. This change will be modeled in the PTE project production cost simulation model.</p> <p>Both production cost savings and local capacity reduction savings will be calculated according to the CAISO's TEAM methodology. The local capacity reduction savings will be evaluated based on the capacity cost provided in the latest CPUC Resource Adequacy Report. The ISO will evaluate the proposed battery cost in the PTE economic study request. The details of the economic assessment results for the PTE project can be found in the 2023-2024 draft TPP report, which will be posted in April, 2024.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>We request the CAISO evaluate the benefits of the PTEP holistically, summing the cumulative reliability, economic and policy benefits of the proposed project, and tabulate and present the summary cumulative findings in a single place in the 3/31/24 CAISO draft Transmission Plan.</p> <p>Our concern is that while each individual project benefit (reliability, economic and policy) may not in of itself justify approval of PTEP transmission solution, when the individual benefits are added together, they will more than justify moving forward with a subsea transmission solution that brings power from Central California directly into the transmission constrained Western LA Basin.[1] By presenting a finding on the cumulative benefits of a subsea transmission solution, stakeholders will be reassured that the project was evaluated across all of the benefits and value streams the project has to offer.</p> <p>Cal Western Grid has specific requests to help shape CAISO evaluation of each of the PTEP reliability, economic and policy benefits.[2]</p> <p><b><u>Reliability Benefits of PTEP</u></b> - While reliability needs are often studied as small, targeted solutions, PTEP offers a broad spectrum of reliability benefits for Path 26 and the LA Basin. As we stated in our 10/13/23 study request, we urge the CAISO to apply a broad strategic approach to evaluating the reliability benefits offered by PTEP. To look beyond a single reliability benefit and instead evaluate PTEPs cumulative ability to (1) reduce congestion on Path 26; (2) eliminate numerous P6 and P7 contingencies on the SCE Main and Western LA Basin systems; and (3) eliminate uncertainty in meeting the battery recharging requirements in the LA Basin.</p> <p>All three of which were noted as reliability needs in the CAISO September 26 Stakeholder Meeting and all of which can be alleviated by PTEP.</p>	

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		<p><b>Economic Benefits of PTEP</b> – Cal Western is pleased the CAISO accepted Cal Western Grid’s Economic planning study request for PTEP (slide 183/187 of CAISO November 16 presentation, and Page 77 of the CAISO 2023-24 TPP Final Study Plan dated 8/15/23).</p> <p>PTEP offers a multitude of economic benefits, some of which can be quantified using the TEAM methodology and many of which are not included in TEAM’s restricted view of project economic benefits.</p> <p>The most notable benefits that can be quantified applying the TEAM methodology include:</p> <ul style="list-style-type: none"> <li>• Production Benefits</li> <li>• System Adequacy Benefits</li> <li>• Local Resource Adequacy Benefits</li> <li>• Congestion relief benefits</li> </ul> <p>Cal Western commissioned a study by E3 Consulting in 2022 to take a fresh look at the economics of the PTEP Project. Using the TEAM methodology E3 found that even if gas plants are not retired in the LA Basin by 2035 the PTEP yields a b/c ratio of 0.58 to 0.64. The key difference between the E3 analysis and traditional CAISO TEAM evaluation is the way Local Capacity benefits are quantified. E3 concluded utility scale batteries are the system marginal resource by 2035, not gas fired generation. However, E3 assumed that gas generation continued to be the marginal resource for local RA in 2035. We urge CAISO to revise its past practice of assuming gas generation is the marginal system resource for both system RA and Local RA in 2035.</p> <p>Cal Western believes there are also glaring omissions from TEAM methodology Benefits Calculations, for example none of the following have been historically quantified:</p> <ul style="list-style-type: none"> <li>• GHG and Renewable Energy Credit (REC) Benefits</li> </ul>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> <li>• Local Air Emissions benefits (NOx, PM2.5, SOx)</li> <li>• Reduced Risk of Wildfires</li> <li>• Reduced need for Aliso Canyon Storage Facility</li> </ul> <p>The E3 study of PTEP economics from 2022 did quantify the avoided REC and GHG benefits but attempting to quantify additional benefits was beyond the scope of the study. Simply adding a reasonable value for PTEPs avoided REC and GHG costs raised the b/c ratio to 0.62-0.68. Again, this b/c ratio did not assume any gas plant retirements in the LA Basin.</p> <p>Cal Western Grid encourages the CAISO to at a minimum quantify REC and GHG benefits as part of its TEAM evaluation of PTEP in the 2023-24 TPP. CAISO can review the methodology E3 used to evaluate REC and GHG benefits by looking at Cal Western Grid 2022-23 TPP Technical Appendix A (page 32-33) of our Request Window Submission Form submitted on 10/14/22.</p> <p>Finally, E3 prepared a only a partial update of the economic analysis of PTEP in September 2023 but concluded that given the 2023-24 TPP increased loads and significant new resource additions in the preferred portfolio, the TEAM economic benefits of PTEP would likely be higher than they found in their initial 2022 economic benefits study.</p> <p><b>Public Policy Benefits of PTEP</b> - The CAISO evaluation of public policy benefits in the 2022-23 TPP was focused on “Deliverability” and “System Resource Adequacy”. The public policy transmission solutions that were approved in the 2022-23 TPP had the benefit of removing constraints that could hamper bringing clean power from generators to the high voltage 230/500 kV backbone system. However, transmission needed to deliver that power to location constrained load pockets such as the LA Basin was not the focus.</p> <p>Cal Western Grid applauds the CAISO 2022-23 TPP approval of Public Policy transmission solutions to bring power from</p>	<p>The ISO notes that the policy-driven transmission upgrades that were approved in the 2022-23 TPP included the Del Amo and North of SONGS 500/230 kV substations that were found to be needed to deliver portfolio resources to load pockets such as the LA Basin and San Diego. The 2023-2024 TPP did not identify deliverability constraints that require transmission solution. The Del Amo and North of SONGS 500/230 kV substations are functionally similar to the El Nido and Redondo Beach 230 kV terminals of PTEP in terms of delivering portfolio resources to load pockets.</p>

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		<p>renewable energy sources to the high voltage 230/500 kV backbone system, which the CAISO called 'deliverability' solutions. However, failing to evaluate and approve transmission solutions that allow renewable power to move from the high voltage 230/500 kV backbone system into transmission constrained load centers is a critical omission that SB 887 requires be addressed.</p> <p>Cal Western Grid believes that the CPUC is still required to provide gas plant guidance to the CAISO under SB 887, however, CAISO has already received sufficient guidance from the CPUC to proceed with much needed transmission into transmission constrained local areas. The preferred resource portfolio the CPUC has already transmitted to CAISO for the 2023-24 TPP combined with the public policy guidance articulated in SB 887 is sufficient for the CAISO to approve a few initial projects that perform well under multiple scenarios and support reduced reliance on gas plants in transmission constrained load pockets. The only thing CAISO must do is to expand the definition of 'deliverability' the way SB 887 requires; Section 1 (h) (3) asks the CAISO to plan and approve transmission that "eliminate(s) transmission constraints that prevent electrical generation resources from delivery to the wider grid <u>and</u> that prevent importing energy into load pockets."</p> <p>In the 2022-23 TPP the CAISO approved numerous deliverability solutions that allowed electrical resources to be delivered to the grid. The CAISO did this based on the portfolio provided by the CPUC. What the CAISO failed to do was approve transmission solutions to eliminate transmission constraints that prevent importing energy into load pockets.</p> <p>It appears to Cal Western Grid that the CAISO is about to repeat this material omission for public policy transmission approvals in the 2023-24 TPP. From the staff overview of Slides 33 and 34 at the 11-16-23 Stakeholder Meeting it appears to Cal Western Grid that CAISO Staff intends to define deliverability narrowly once again, as the ability to deliver power from resources to the</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>high voltage grid, and not address eliminating transmission constraints that prevent importing energy into load pockets. In the 2023-24 TP the CAISO must broaden its definition of deliverability to include transmission needed to bring energy into transmission constrained load pockets.</p> <p>Turning to the language of SB 887, it is clear the legislature asks CAISO recognize the policies set forth in SB 887:</p> <p style="padding-left: 40px;">‘...it is the intent of the Legislature that the Independent System Operator shall take notice of the state policies expressed in this section” SB 887 Section 1 (c).</p> <p>And Section 1 (h)(3) of SB 887 makes it clear that state policy is to eliminate transmission constraints that prevent importing energy into load pockets (transmission constrained load pockets):</p> <p style="padding-left: 40px;">“It is the policy of the state that planning for new transmission facilities considers the following goals: ....  (3) eliminate constraints that prevent electrical generation resources from delivering to the wider grid and that prevent importing energy into load pockets.”</p> <p>And in Section 1 (e) (4) (A) SB 887 provides policy guidance regarding when transmission should be in place to eliminate constraints into local capacity areas, i.e., not later than 2035:</p> <p style="padding-left: 40px;">“Providing resource projections that, combined with transmission capacity expansions, are expected to substantially reduce, no later than 2035, the need to rely on nonpreferred resources in local capacity areas.”</p> <p>The State policy is clear, and the CPUC and CEC have already given load forecasts with a resource portfolio to the CAISO that enables the CAISO to approve the transmission SB 887 Section 1 (h) (3) sets forth as public policy, (i.e., transmission that</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>removes constraints that prevent importing energy into load pockets).</p> <p>All that is needed is for the CAISO to expand its definition of 'deliverability' to embrace the scope required under SB 887. Deliverability that includes <u>both</u> bringing power from resource zones to the high voltage grid and to transmission constrained load pockets.</p> <p>Cal Western Grid understands that the CAISO has repeatedly asked for gas plant guidance from the CPUC and a plan for reducing reliance on gas generation. Cal Western Grid believes that guidance, including a retirement plan for gas fired generation would facilitate CAISO planning for transmission solutions, but while this required guidance has not been provided, it should not be necessary in order to get started now, in the current 2023-24 TPP, for approving transmission to load centers as envisioned in SB 887.</p> <p>In fact, waiting for a CPUC gas plant retirement plan is a luxury the CAISO can no longer afford. The 2023-24 TPP resource portfolios provided by the CPUC, once again, do not contain a plan for reducing reliance on gas plants during the planning horizon. Even more concerning is the CPUC on October 5, 2023, issued its proposed preferred planning portfolio for the 2024-25 TPP without any provision for gas plant reductions or guidance for the CAISO.</p> <p>Again, the CPUC proposed a Preferred Resource Portfolio that does not plan for meaningfully reduced reliance on gas plants in transmission constrained local areas, or even a plan for reducing reliance on system wide gas plants during the entire planning horizon, through 2039.</p> <p>We urge CAISO recognize the CPUC preferred portfolio that the CPUC has already provided is enough to start approving least regrets transmission solutions that will provide substantial</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>reliability and economic benefits and will be needed to meet California's SB 887 policy objectives.</p> <p>As the CAISO knows well, long lead time transmission approved by the CAISO in the 2023-24 TPP is subject to competitive bidding to select a sponsor. We recognize CAISO Management intends to seek Board Approval of major transmission projects at the Board Meeting in May 2024. If a project were approved by CAISO Board in May 2024 as part of the 2023-24 TPP, a sponsor would not, under CAISO's phase 3 competitive process, be selected until the very end of 2024 or more likely early 2025. Only then can the more than decade-long timeframe for permitting and construction begin. SB 887 requires the Commission to plan to reduce reliance on gas plants in location constrained load centers by 2035. Projects approved by CAISO which do not have a sponsor until early 2025 cannot realistically be expected to be operational by 2035, and the more likely operational date would be in the 2036-2038 timeframe, which fails the policy requirements of the state. This is because the challenge for siting and permitting requirements for significant new transmission projects is long and arduous. This coupled with recent supply chain issues exacerbated by the worldwide growing demand for new transmission cable and equipment that is being driven by the need to reduce reliance on fossil generation.</p> <p>While Cal Western Grid continues to encourage CAISO to proactively reach out to the CPUC and CEC, Cal Western believes the CAISO can and should make a determination of need for PTEP in this 2023-24 TPP without waiting for further guidance or a gas plant retirement plan from the CPUC.</p> <p>If CAISO reviews the cumulative benefits of PTEP, even without gas plants being retired, the TEAM methodology alone can drive a b/c ratio that approaches or exceeds 1.0. When the additional reliability benefits, economic benefits that are not quantified in TEAM and urgency to get started with needed policy driven transmission, as required by SB 887 are considered</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>cumulatively, CAISO should conclude approval for PTEP is warranted in the 2023-24 TPP.</p> <p>Cal Western believes the CAISO approval would receive very little pushback. Multiple stakeholders have filed comments at the CPUC expressing the need to get going with needed new transmission. And importantly, even the CPUC said when transmitting the resource portfolios for the 2023-24 TPP to CAISO:</p> <p style="padding-left: 40px;">“If California is to meet its aggressive reliability and environmental goals, more transmission will be needed to be planned and built ahead of generation and storage development, and it is just a matter of exactly when, and not if, the transmission will be needed.”<sup>[3]</sup></p> <p>It is far past time for CAISO to start approving least regrets transmission solutions that will provide substantial reliability and economic benefits that will be needed to meet California’s SB887 policy objectives.</p> <p>PTEP is a least regrets option that, if triggered in the 2023-24 TPP, can provide a solution to the transmission constrained West LA load pocket and provide substantial economic and reliability benefits.</p> <p>California Western Grid appreciates the opportunity to offer its views on these critical issues and stands ready to answer any questions or to provide any additional information CAISO may need.</p>	
8H	California Wind Energy Association	No comment	
8I	Center for Energy Efficiency and Renewable Technology	<p>CEERT appreciates the CAISO presentations at the November 16, 2023 Transmission Planning Process Stakeholder Meeting. CEERT is looking forward to the scheduled January stakeholder meeting on the updated 20-Year Transmission Outlook. CEERT believes it would be valuable to stakeholders if the CAISO schedules an update on the results from economic studies that</p>	<p>This comment has been noted. The final planning PCM models will be posted around the same time when the draft TPP report is posted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		will be conducted based on the planning study requests prior to the release of the draft transmission plan at the end of March 2024.	
8J	Gallatin Power Partners	No comment	
8K	Golden State Clean Energy	No comment	
8L	GridLiance West LLC	No comment	
8M	Independent Energy Producers Association	IEP wants to emphasize that there should be consistency between planning cycles to provide a level of certainty to developers that projects planned for upgrade in previous TPPs will move forward, and only under well documented and justified cases should planned upgrades be reconsidered. For example, while an upgrade to the Trout Canyon – Lugo 500 kV line was identified in the previous TPP cycle, the current TPP cycle is now showing that it is not needed for reliability purposes. Once an upgrade is justified in a previous TPP cycle, this upgrade should be assumed to be occurring in future TPP cycles so as not to add uncertainty for if and when a project recommended in a TPP cycle will actually be developed	The Trout Canyon – Lugo 500 kV line was not identified as needed in the previous TPP cycle.
8N	Kern – Southland Energy Link LLC	No comment	
8O	Natural Resources Defense Council, Inc.	NRDC appreciates CAISO’s work on this transmission planning cycle and encourages CAISO to consider more Grid Enhancing Technologies in the 23-24 TPP because “the consideration of reconductoring enables four times more transmission build-out by 2035 - representing over 80% of the transmission needed to reach over 90% clean electricity. With \$180 billion in system cost savings by 2050, reconductoring presents a cost-effective and time efficient, yet underutilized, opportunity to accelerate global transmission expansion,” according to a <a href="#">November 2023 study</a> .	The comment has been noted.
8P	New Leaf Energy	NLE respectfully requests that the CAISO promptly post the policy-driven base cases to the Market Participant Portal, along with the TARA input files required to run deliverability assessments. The CAISO should provide stakeholders with access to this data as soon as possible—rather than posting the data and the draft transmission plan in the same month as has been done in the past. Posting the base cases and underlying data expeditiously would ensure stakeholders have sufficient	The comment has been noted. The base cases and other study input files for each study area have been posted to the ISO Market Participant Portal.

No	Submitting Organization	Comment Submitted	CAISO Response
		time to provide informed and useful feedback in the TPP initiative.	
8Q	NextEra Energy Resources	No comment	
8R	RWE Renewables	No comment	
8S	Sonoma Clean Power Authority	<ul style="list-style-type: none"> <li>• <b>Minimal Policy Upgrades:</b> As was noted by others in the November 16<sup>th</sup> meeting, SCP was in general surprised by the minimal scope of policy upgrades in the 2023-24 TPP. The CPUC's Staff Report on Modeling Assumptions for the 2023-2024 TPP stated that the portfolio may trigger major upgrades like the Cortina-Vaca Dixon 230kV, Contra Costa – Delta Switchyard 230kV, and Morro Bay – Templeton 230kV but no major policy upgrades were identified in the TPP study. SCP appreciates the CAISO's detailed analysis in the TPP that identifies mitigations and less costly options to achieve the CPUC's portfolio but is also concerned with the small scale of identified upgrades given the deliverability limitations SCP has experienced with recent project development and the ambitious resource deployment in the coming years to meet state climate and reliability targets. It would be helpful if the CAISO shared the amount of loading the CAISO estimated on constraints in the 2023 GIDAP process or the CPUC white paper to build confidence that the proposed TPP upgrades will be sufficient.</li> <li>• <b>ISO Response Process:</b> SCP appreciates the written responses the CAISO posted on previous TPP meetings and encourages the CAISO to continue the process for comments submitted on the November 16<sup>th</sup>, 2023 meeting. If possible, responses should be posted ahead of the next stakeholder meeting to allow stakeholders to use the meeting as an opportunity for follow-up and clarification.</li> </ul>	<p>Due to the significant amount of work involved in performing these studies, it will not be feasible for the CAISO to provided additional information about the loading on other GIP constraints if they are notbinding in the Policy study. The study base case and other input data are posted on the MPP for stakeholders to perform their own additional assessment as needed.</p> <p>That has been the practice and the CAISO will do the best to continue to meet these timing.</p>
8T	Terra-Gen, LLC	Terra-Gen also provides the following feedback on the overall 2023-24 TPP regarding the upcoming 2024 Transmission Planning Deliverability (TPD) allocation cycle:	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Terra-Gen notes there is a significant decision regarding the modeling of bypassing or reducing series compensation on the Table Mountain-Vaca Dixon-Collinsville-Tesla 500kV Path that should also be included in the 2024 TPD allocation cycle. While CAISO is currently employing this solution in the 2023-24 TPP to address reliability constraints, there is currently no plan to incorporate this solution into the 2024 TPD Allocation case. CAISO has explained it views this series compensation reduction or bypass solution as interim; however, since the series compensation is a part of the approved upgrades and no other upgrades are planned, it can indeed be considered a permanent solution.</p> <p>Terra-Gen is concerned about the absence of modeling the reduction or bypassing series compensation on the Table Mountain-Vaca Dixon-Collinsville-Tesla 500kV Path poses a significant challenge. Without such modeling, there will be no available deliverability for projects in Cluster 13 and Cluster 14 located in the North of Greater Bay Study Area. The recommended modeling would also improve deliverability in the northeast part of the Greater Bay Area study area as well. Terra-Gen notes it previously requested this issue be considered by CAISO in past TPP comments submitted on October 11, 2023. Terra-Gen would appreciate CAISO's attention regarding this matter and requests CAISO provide clarification regarding its intent for modeling this series compensation treatment in the upcoming 2024 TPD allocation cycle.</p>	<p>Further series compensation readjustment on the Table Mountain-Vaca-Collinsville-Tesla 500 kV path is not part of the approved upgrade. Operational challenges has been identified in implementing the series compensation reduction on a permanent basis. A more comprehensive series compensation study will be needed to be able to readjust the series compensations on the 500 kV path. Until such time, the series compensation adjustment will only be used as a temporary operating solution as need based on the operating conditions.</p>
8U	The Nature Conservancy of California	<p>TNC has no additional comments about the November 16th Stakeholder Meeting. TNC offers the following recommendations for future discussions on improvements to the TPP:</p> <ol style="list-style-type: none"> <li>1. By basing the TPP's proposed transmission projects on the energy resource portfolios that result from application of the CEC Land Use Screens, the TPP is already well-positioned to focus transmission in areas of lower social and environmental conflict. There is an opportunity to apply the CEC Land Use Screens in two additional ways to accelerate the deployment of transmission and energy</li> </ol>	<p>The comment has been noted. The CAISO continues to collaborate with the CEC and the CPUC through their respective SB100 and IRP processes.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>resources: 1) The CAISO should consider assessing the degree to which draft transmission projects align to the CEC's Land Use Screens to highlight projects best positioned to unlock new solar, wind, and storage resources in low-conflict areas; 2) As many of the TPP's proposed projects are still at a point where they can be achieved through two or more potential alternatives, there is an opportunity to apply the Screens to the locations of proposed transmission projects. This would highlight projects that merit closer consideration of how they can be achieved, such as utilizing existing rights of way, seeking lower-impact alternative routes, or replacing line projects with operational changes or batteries. While conflicts are studied as part of later planning stages, this is an opportunity to identify potential conflicts sooner and thus to set those projects up for success.</p> <p>2. CAISO staff should consider permitting feasibility as a criteria for project assessment. Specifically, projects that cross county or other jurisdictions where they would face plausible permitting challenges are higher-risk to achieve. This underscores the opportunity for: 1) proactive planning across the energy agencies and other local and regional jurisdictions and 2) aligning transmission planning with renewable energy land use planning that has occurred at the federal, state, and local levels.</p>	