

The CAISO received comments on the topics discussed at the September 27-28 stakeholder call from the following:

- a. AES Clean Energy
- b. Bay Area Municipal Transmission Group (BAMx)
- c. California Energy Storage Alliance
- d. California Public Utilities Commission - Public Advocates Office
- e. City of Palo Alto
- f. EDF-Renewables
- g. Imperial Irrigation District
- h. New Leaf Energy, Inc.
- i. NGIV2, LLC
- j. Northern CA Power Agency
- k. Silicon Valley Power
- l. Transmission Agency of Northern California

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

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

The following are the CAISO's responses to the comments

1. [Please provide comments on CAISO reliability assessment for the North area \(PG&E\).](#)
2. [Please provide comments on CAISO reliability assessment for the South area \(SCE, SDG&E, VE/GLWS\)](#)
3. [Please provide comments on PG&E proposed mitigation alternatives.](#)
4. [Please provide comments on SDG&E proposed mitigation alternatives.](#)
5. [Please provide comments on SCE proposed mitigation alternatives.](#)
6. [Please provide comments on VEA/GLW proposed mitigation alternatives.](#)
7. [Please provide comments on CAISO high voltage TAC presentation.](#)
8. [Please provide comments on CAISO policy assessment update.](#)
9. [Please provide comments on CAISO economic assessment update.](#)
10. [Any additional comments?](#)

1. Please provide comments on CAISO reliability assessment for the North Area (PG&E)

No	Submitting Organization	Comment Submitted	CAISO Response
1a	AES Clean Energy	<p>AES Clean Energy fully supports CAISO's consideration of storage resources as transmission alternatives. In the draft results, CAISO identified two areas where storage resources can be used to alleviate overloads for the Corona- Lakeville 115kV Line and Fulton- Santa Rosa No.1 115 kV Line in summer peak cases.^[1] While the preliminary reliability results aim to identify transmission issues and potential mitigation for reliability, AES Clean Energy believes it is important for CAISO to clarify the market role of storage resources as a transmission asset (SATA). It is crucial given that CAISO has historically approved three SATAs and has treated two of the storage projects differently from the other.^[2] Although the CAISO started the SATA policy initiative to evaluate how storage resources procured for transmission purposes could participate in the CAISO market, the initiative was not completed, and lingering questions remain.</p> <p>Currently, the CAISO's Business Practice Manual (BPM)^[3] does not clarify the process for storage resources' participation as transmission assets. Generation developers need to understand the treatment of storage resources for decision-making. To successfully procure storage as a transmission asset, CAISO should adopt a formal process that clearly identifies the role of storage as a transmission asset. The process should, at minimum, answer the following questions:</p> <ul style="list-style-type: none"> • Process: Does the CAISO have a suggested approach or a methodology for developers to offer storage or other preferred resources to mitigate the violations identified in the Transmission Planning reliability analysis? Would storage assets submitted through the request window applications be considered by the CAISO in its assessment? • Interconnection: Would the storage resource need to undergo the interconnection process? If so, how would the interconnection cost be allocated if the storage 	<p>Storage resources considered for local area reliability are considered to be participating in the CAISO market. The CAISO is not, at this time, planning to reopen the SATA initiative.</p> <p>Please see above comment.</p> <p>The storage resources alternative recommended for reliability need will be processed through CPUC procurement process.</p> <p>Yes. The interconnection cost will be allocated similar to any resources going through the interconnection process.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>resource is used for the purposes of transmission reliability?</p> <ul style="list-style-type: none"> • Deliverability: Would the storage resource still need to undergo the deliverability process? • Cost Recovery: How would the cost be recovered if storage is procured as a transmission asset? • Management: Would the storage resource developed by an independent power producer be transferred to the LSE for management? If not, would the developer essentially become a transmission owner/operator? • Availability: How would CAISO ensure the storage resources are available during contingencies? 	<p>Yes.</p> <p>The CAISO is not considering storage as a transmission asset at this time.</p> <p>This question relates to storage being a transmission asset, please see response above.</p> <p>This will be managed by the CAISO market.</p>
1b	Bay Area Municipal Transmission Group (BAMx)	<p>The Bay Area Municipal Transmission group (BAMx)¹⁴ appreciates the opportunity to comment on the CAISO's 2022-23 Transmission Planning Process. The comments and questions below address the material presented at the CAISO Stakeholder meeting on September 27-28, 2022.</p> <p>Need for Additional Data</p> <p>In the September 27 presentation, the CAISO showed incremental reliability issues in each planning area under the 2035 Additional Transportation Electrification (ATE) Sensitivity over those identified in the 2032 Baseline scenario. BAMx appreciates those summary tables. However, without any access to the underlying 2035 ATE Sensitivity power flow cases or the detailed results as the CAISO posted for the remaining study cases, it is challenging to evaluate the CAISO 2035 Sensitivity findings. To provide meaningful stakeholder feedback, it is pertinent that the CAISO posts the following two data sets as soon as possible.</p> <ol style="list-style-type: none"> 1. Detailed CAISO Reliability Assessment - Preliminary Study Results for the 2035 ATE Sensitivity scenario similar to those posted on August 15, 2022, for remaining cases; and 	<p>The CAISO is considering to include 2035 ATE sensitivity scenario results in the final reliability results posting. The underlying base cases will also be posted soon.</p>

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		<p>2. Underlying 2035 ATE Sensitivity scenario power flow cases for each planning area on the CAISO secured TPP portal.</p> <p>Previously Approved PG&E Projects</p> <p>BAMx applauds the CAISO's efforts in confirming the need for some of the previously approved projects. For example, the Fresno Area Preliminary Reliability Assessment Results identified the continued need for the following four previously-approved projects.[2]</p> <ol style="list-style-type: none"> 1. Wilson 115kV Reinforcement Project; 2. Herndon-Bullard 115 kV Reconductor; 3. Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage); and 4. Wilson-Oro Loma Reconductoring. <p>However, there are continued issues with other previously-approved projects.</p> <p>Midway-Temblor 115 kV Line Reconductor and Voltage Support</p> <p>The CAISO approved the Midway-Temblor 115kV Line Reconductor and Voltage Support reinforcement project in the 2012-2013 Transmission Planning Process (TPP). The project's scope is to reconductor approximately 15 miles of the Midway-Temblor 115kV line and install 45MVAR of shunt capacitors at the Temblor substation.</p>	<p>The CAISO will review the need and timing of need for the approved transmission project.</p>

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		<p>The latest identified need for the project, as identified by PG&E in its Stakeholder Transmission Asset Review Process (STAR), is to mitigate a thermal overload on the Midway-Temblor 115kV Line due to an N-1-1 outage of the Gates-Midway 500kV line and the Gates 500/230kV bank. The voltage support portion of the project also mitigates low voltages at Temblor due to an N-1 outage of Midway-Temblor 115kV.^[4] However, the overloads identified by PG&E in the STAR process were not observed in the CAISO's latest Preliminary Reliability Results for the years 2024 and 2027 posted by the CAISO for the 2022-2023 TPP. BAMx believes that the new second 500/230kV transformer at the Gates substation^[4] that is currently operational potentially mitigates the identified N-1-1 or P6 overload on the Midway-Temblor 115kV line.</p> <p>BAMx requests the CAISO to reevaluate the continued need and scope for the Midway-Temblor Project. If the project is needed, the CAISO should identify the contingencies and the related overloaded transmission facilities driving the continued need for the project.</p> <p><i>Morgan Hill Area Reinforcement Project</i></p> <p>The Morgan Hill Reinforcement project was originally approved in the 2013-2014 TPP cycle. Through project re-evaluation, the project's scope has changed. As presented by PG&E in the STAR process, the latest project scope is to "Rebuild Metcalf-Green Valley 115kV into the Green Valley-Morgan Hill 115kV and convert Morgan Hill 115kV bus to a BAAH configuration".^[5]</p> <p>The latest identified needs for the project are driven by the thermal overloads on the Metcalf-Llagas 115kV circuit, which are mitigated by the line re-arrangement associated with the Morgan Hill Area Reinforcement project. The justification for rebuilding the Morgan Hill 115kV substation into a breaker-and-a-half configuration is unclear. The existing substation configuration</p>	<p>Part of the project scope includes creating new connection between Green Valley and Morgan Hill substations, which requires a new terminal be created at the Morgan Hill substation.</p>

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		<p>should be modified if PG&E needs an additional breaker position for the newly built Green Valley-Morgan Hill 115kV circuit. BAMx requests the CAISO to reevaluate the need for rebuilding the Morgan Hill substation into a breaker-and-a-half configuration. If such a need is not identified, the project’s scope should be adjusted to exclude rebuilding the Morgan Hill substation.</p> <p>BAMx requests the CAISO to reevaluate the need to rebuild the Morgan Hill substation, a distribution substation, into a breaker-and-a-half configuration ?contrary to the enhanced-loop or the ring bus configuration as specified in PG&E’s design standards.</p> <p>Need to Fully Evaluate Transmission Alternatives Without Approving Projects in the Current Cycle</p> <p><i>Potential Cayetano-Lone Tree 230 kV line capacity increase</i></p> <p>In the 2021-2022 Transmission Plan, the CAISO approved the Collinsville 500/230 kV substation as a policy-driven project.^[6] The Collinsville project (\$475M – \$675M) was identified as a superior solution over three 230 kV reconductoring projects to address the deliverability constraints^[7]</p> <ol style="list-style-type: none"> 1. Lone Tree-USWP-JRW-Cayetano 230 kV line (\$55.1M – \$71.6M) 2. Cayetano-North Dublin 230 kV line (\$42.4M – \$55.1M); and 3. Las Positas-Newark 230kV line (\$47.65M – \$62M). <p>The current planning cycle has identified a need to potentially reconductor the #1 project above even after assuming the Collinsville project to be operational.^[8] Moreover, the 2035 ATE sensitivity identifies the need for the #2 project.^[9] In other words, it appears the Collinsville project has proven inadequate for avoiding the need for reconductoring the Lone Tree-USWP-JRW-Cayetano 230 kV and Cayetano-North Dublin 230 kV lines for reliability purposes. This result indicates a need to re-</p>	<p>The Collinsville project alleviates number of transmission constraints in this corridor as identified in the policy study. However, this project doesn’t completely mitigate all reliability issues in the area. The Collinsville project was also approved to provide an additional supply from the 500 kV system into the northern Greater Bay Area to increase reliability to the area and advance additional renewable generation in the northern area.</p>

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		<p>evaluate whether the Collinsville project is the least cost policy-driven solution. We encourage the CAISO to fully evaluate the need and alternatives for satisfying the policy-driven needs for this network area in the current planning cycle.</p> <p><i>Re-evaluation of on Hold Wheeler Ridge Substation Project</i></p> <p>The original CAISO-approved project scope for the Wheeler Ridge Substation Project was to build a new 230/115 kV substation at Wheeler Ridge Junction using mostly existing right-of-way accesses to connect to the Stockdale 230 kV substation and convert the existing Wheeler Ridge-Lamont 115 kV to 230 kV operation, which provides a third 230 kV source to Wheeler Ridge Junction Substation. This project was driven by the overloads on both the 115 kV and 230 kV circuits. In the 2019-2022 Transmission Plan, the CAISO approved a 95 MW 4-hour storage resource on the Kern-Lamont 115 kV system (Lamont BESS) to mitigate the 115 kV issues on the Kern-Lamont 115 kV system.</p> <p>For the P1, P2, and P6 230 kV issues seen in the current studies^[10], we understand the CAISO is exploring several options, such as reconductoring the existing Midway-Wheeler ridge 230 kV lines, new 230 kV line either from the Midway 230 kV or Kern 230 kV to Wheeler ridge 230 kV substation.</p> <p>Given the several options that the CAISO could consider addressing these issues, we encourage the CAISO to ensure that the proposed mitigation option is the most cost-effective.</p>	<p>The CAISO is continuing to review the on hold projects.</p>
1c	California Energy Storage Alliance	<p>CESA appreciates the California Independent System Operator's (CAISO or ISO) regular consideration of energy storage as a mitigation solution and option to identified transmission needs. For the Pacific Gas & Electric (PG&E) area assessment, we have three comments.</p> <p>First, CESA supports the Dinuba Battery Energy Storage Project to address 115/70 kV overloads in Fresno-Reedley Area, but this project was identified as a previously-approved project requiring</p>	<p>More information will be provided on this as the review is performed through this cycle.</p>

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		<p>re-scoping. We request further information on the nature of this re-scoping.</p> <p>Second, CESA seeks further information on the Lamont Energy Storage Project, which was discussed as being “under review” to address Kern 115-kV overloads. Pursuant to California Public Utilities Commission (CPUC) Decision (D.) 22-02-004,^[1] PG&E was directed to procure a 95-MW storage project at the Kern-Lamont Substation through the Central Procurement Entity (CPE) solicitation process, with a progress filing via Tier 2 Advice Letter due to the CPUC by December 31, 2022. If issues surround whether they will need deliverability as a Local Resource Adequacy (RA) resource, CESA hopes that the reason for its review is not to necessarily require market participation as an RA resource from the onset, which was not required in D.22-02-004, nor was the storage resource approved by the CAISO in the 2021-2022 Transmission Planning Process (TPP) as requiring RA market participation – <i>i.e.</i>, just as a transmission reliability resource.</p> <p>Finally, CESA also recommends that energy storage be further explored for mitigation of the PG&E North Coast-North Bay (NCNB) 115 kV thermal overloads at Corona-Lakeville 115 kV Line. Limited details are shared in the presentation, but we encourage closer consideration of energy storage for these overloads, including whether charging restrictions play a role, as well as the nature of the overload (<i>e.g.</i>, duration, magnitude).</p> <p>In order to successfully consider energy storage as a mitigation measure in CAISO’s TPP, CESA recommends that the ISO formalize a process within the Business Practice Manual (BPM) that clarifies the path for energy storage procurement and its role within the market. The process should focus on the procurement process, interconnection, deliverability, cost recovery, availability, and management. Since the Storage As Transmission Asset (SATA) Initiative was suspended, it is unclear on how SATA resources would be considered on each of the aforementioned matters. With the exception of the energy storage resources</p>	<p>Lamont 115 kV area load forecast decreased, which resulted in reduced reliability issues in the area. The CAISO is currently working with PG&E to take a closer look in the future load forecast and distribution planning needs in the area. The Lamont resource is supposed to be a local RA resource and was identified as such Transmission Plan by way of requiring a 4-hour storage.</p> <p>The CAISO will performing further review through this TPP cycle.</p> <p>Storage resources considered for local area reliability are considered to be participating in the CAISO market. The CAISO is not, at this time, planning to reopen the SATA initiative.</p>

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		<p>considered in the since-canceled Oakland Clean Energy Initiative (OCEI), it has been unclear for SATA resources.</p>	
1d	<p>California Public Utilities Commission - Public Advocates Office</p>	<p>The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) is an independent consumer advocate with a legislative mandate to obtain the lowest possible rates for utility services, consistent with reliable and safe service levels, and the state's environmental goals. [1]</p> <p>Cal Advocates provides its comments on CAISO's reliability assessment for the North area in its response to question 3.</p>	<p>The comment has been noted.</p>
1e	<p>City of Palo Alto</p>	<p>City of Palo Alto Utilities (CPAU) had submitted Ames-Palo Alto 115 kV Line Project in the CAISO 2021-2022 TPP request window in October 2021, targeting thermal overloads on the Ravenswood-Cooley Landing 115 kV line and potential reliability concerns for the loss of three 115 kV line feeding Palo Alto substation, i.e., N-3 contingency. The project includes building a new Ames-Palo Alto 115 kV line with an option to terminate the 115kV line at the CPAU's Adobe Creek substation instead of the Palo Alto substation.</p> <p>CPAU intends to work with Pacific Gas and Electric Co. (PG&E) and CAISO during the 2022-2023 transmission planning process (TPP) to study further the N-3 extreme event that took place on February 17, 2010. CPAU expects that these efforts will demonstrate that the benefits of the reliability improvement obtained from the proposed project will greatly exceed the modest cost of the project. CPAU is hopeful that this assessment will be sufficient to approve the proposed project under the CAISO's extreme event reliability planning standard, leading to the approval of the Ames-Palo Alto/Adobe Creek 115kV project.</p> <p>CPAU observes that the CAISO preliminary reliability assessment shows long-term NERC and CAISO planning criteria violations on one of the CPAU import lines. This finding further</p>	<p>The CAISO will evaluate appropriate mitigation to address reliability needs identified in the area as per the performance requirement within the Standards.</p>

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		<p>confirms the need for additional mitigation measures necessary to address the City's reliability needs.</p> <p>Urgent Need for A Separate Source to Serve City's Load Reliability</p> <p>The City of Palo Alto is interconnected to the CAISO control grid at Palo Alto Switching Station and served via three 115 kV lines from Ravenswood and Cooley Landing Substations. The three lines share a common corridor and create two double circuit tower lines (DCTL) south of Ravenswood. The Ravenswood-Palo Alto Nos. 1 & 2 115 kV DCTL begins at Ravenswood Substation. In comparison, the Ravenswood-Palo Alto No. 1 & Cooley Landing-Palo Alto 115 kV DCTL begins south of Cooley Landing Substation. This configuration can potentially leave the City of Palo Alto served with a single 115 kV line in the event of either of the two DCTL outages.</p> <p>Along with the multiple double circuit tower lines, the common corridor shared between all three 115 kV lines serving the City of Palo Alto is of concern. The inadequate reliability is due to having all three-transmission lines that provide power to the City being located in a single corridor and single substation that are both in close proximity to the departure end of a runway at the Palo Alto General Aviation Airport. This corridor has been struck by an airplane twice since 2010.</p> <p>On February 17, 2010 an airplane crashed and all three lines to be interrupted, and the city-wide outage lasted for ten hours. Stanford Hospital, a level I trauma center, was on the verge of starting to move patients to other hospitals when the power was finally restored. For two days following the aircraft impact, the entire City was served by a single wood pole 115kV line while PG&E crews worked to replace the damaged double circuit transmission tower. This event had a significant effect on the businesses, hospitals, and residents in the City. CPAU is the sole electricity provider to three major hospitals, Stanford Hospital, Lucile Packard Children's Hospital at</p>	

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		<p>Stanford, and Palo Alto Veterans Affairs Medical Center. Serving over 2.6 million people, Stanford Medicine is the only Level 1 Adult and Level 1 Pediatric Trauma Center verified by the American College of Surgeons (ASC) on the peninsula of the San Francisco Bay Area.</p> <p>On September 13, 2021 an airplane crashed shortly after takeoff, and came extremely close to taking out all three lines which serve the City of Palo Alto and the six PG&E lines which continue to the south. This plane crash took out a set of transmission lines in the Palo Alto Baylands immediately adjacent to the substation, which is directly under the 800 foot above mean sea level right closed traffic pattern. In this incident, a plane hit the nearby PG&E Ravenswood - Ames #2 115kV line causing a wire down at structure 2/18. The wire down was laying across the PG&E Cooley Landing – Los Altos 60kV line below, causing it to relay out. This time, due to the Palo Alto incoming transmission lines originating from the same Ravenswood and Cooley Landing PG&E buses, Palo Alto experienced system disturbances in the form of low voltage and low-frequency events. Again, this crash was very close to causing an even broader reliability issue than the 2010 plane crash, as the plane nearly took out all three lines in the corridor as well as those that continue south. It reminded us that we still have not addressed the fundamental issue that resulted in the February 2010 city-wide blackout</p> <p>The proposed Ames-Palo Alto 115 kV Line would increase the capacity and reliability of the 115 kV system serving Palo Alto and provide a 115 kV interconnection outside the common corridor and single receiving substation under the airport flight path.</p> <p>More Information Is Available Which Reinforces the Need to Serve City’s Load Separately from the Existing Transmission Corridor</p>	

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		<p>The Palo Alto Airport is the busiest single runway airport in California, with roughly to 200,000 annual operations. The runway, at 2,443 feet in length, is relatively short, with departing traffic crossing transmission corridors as the airplane climbs to 800 feet above mean sea level. Based on available records, six (6) single airplane crashes have occurred at/near the Palo Alto Airport since 1986, including the two major crashes affecting the transmission system as described above.</p> <p>The City commissioned a study to gauge the vulnerability of the transmission system supply to the City. This study report concludes that the recent single airplane crashes into the transmission corridor represent a demonstrable and unique risk arising from high air traffic volumes crossing over the top of the city's single transmission corridor. Given this report's Critical Energy/Electric Infrastructure Information (CEII) nature, CPAU plans to share this report with the CAISO staff on a confidential basis.</p> <p>As stated above, CPAU believes it is important to timely develop a plan to address the reliability issues delineated above. CPAU looks forward to working with PG&E and CAISO staff to develop such mitigations.</p>	
1f	EDF-Renewables	EDF-R appreciates this opportunity to provide brief comments on the 2022-2023 Transmission Planning Process in advance of the economic and policy components of the study. EDF-R appreciates the CAISO's continued work on evaluating transmission needs on a rolling 10-year basis via the TPP, and encourages CAISO to consider least regrets solutions in the next phases of the TPP given that we know that California's supply needs are slated to increase 5-fold to support SB 100 goals. It is important that CAISO begin undertaking necessary studies to inform and enable the development of long lead-time transmission solutions to support that generation.	The comment has been noted.
1g	Imperial Irrigation District	No comments	
1h	New Leaf Energy, Inc.	No comments	
1i	NGIV2, LLC	No comments	
1j	Northern CA Power Agency	No comments	

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1k	Silicon Valley Power	<p>SVP Supports the CAISO-Approved Projects in 2021-2022 Transmission Plan</p> <p>The City of Santa Clara, dba Silicon Valley Power (SVP), appreciates the opportunity to comment on developing the 2022-23 Transmission Plan. The comments and questions below address the material presented at the CAISO Stakeholder meeting on September 27-28, 2022. SVP acknowledges the significant efforts of the CAISO and PTO staff to develop this material.</p> <p>SVP supports the Study Plan’s assumption that all transmission projects that the CAISO has approved, including those in the 2021-2022 Transmission Plan, are modeled in the reliability study.^[1]</p> <p>SVP appreciates the CAISO staff’s tremendous efforts throughout the 2021-2022 transmission planning cycle, resulting in the CAISO recommending both short- and long-term solutions to address the SVP’s reliability issues. In particular, SVP supports the CAISO management recommended approval of the two HVDC lines in the area, that is, one 500 MW HVDC line from Newark 230 kV to near the Los Esteros 230 kV substation and connected to the SVP’s NRS 230 kV substation with 230 kV AC lines or cables, and another 500 MW HVDC line from Metcalf 500 kV to San Jose B 115 kV substation.</p> <p>SVP’s Load Continues to Grow At a Dramatic Rate, and CEC and SVP Expect a Significant Load Growth Over the Next Several Years</p> <p>As the CAISO is aware, SVP’s load is expected to grow considerably in the next several years, primarily driven by hyper-scale data centers. Table 1 compares the 1-in-10 Summer Peak loads for SVP modeled in the last three planning cycles with the actual 2022 peak load. SVP’s actual peak load in September 2022 was 703 MW (a major increase from 592 MW of peak load in 2021), well exceeding the 2030 1-in-10 peak load of 670 MW</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p> <p>As noted in the comment above, the CAISO approved near-term and long-term projects to address reliability needs in the area. For the remaining interim issues, the CAISO has been working with SVP in developing interim operating solutions. For future cycles, the CAISO</p>

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		<p>assumed in the CAISO 2020-2021 TPP. SVP understands there is uncertainty concerning the rate of load growth but is quite concerned about the CAISO not approving sufficient transmission to meet the needs for reliable electric service to SVP's customers. We understand the need to follow the projections of the CEC in its base cases, but we believe that the CAISO should consider the projected SVP peak loads in the years 2024, 2027, and 2032 assumed in the 2022-2023 TPP as load levels that are likely to be exceeded.</p> <p>Table 1: A Comparison of SVP's Actual 2022 Peak Load and 1-in-10 SVP Summer Peak Loads (MW) Modeled in Last Three TPP Cycles</p> <table border="1" data-bbox="510 727 1192 1507"> <thead> <tr> <th>Year</th> <th>Actual (MW)</th> <th>CAISO 2020-2021 TPP (MW)</th> <th>CAISO 2021-2022 TPP (MW)</th> <th>CAISO 2022-2023 TPP (MW)</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>592</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2022</td> <td>703*</td> <td>624</td> <td></td> <td></td> </tr> <tr> <td>2023</td> <td></td> <td></td> <td>821</td> <td></td> </tr> <tr> <td>2024</td> <td></td> <td></td> <td></td> <td>814</td> </tr> <tr> <td>2025</td> <td></td> <td>657</td> <td></td> <td></td> </tr> <tr> <td>2026</td> <td></td> <td></td> <td>1,076</td> <td></td> </tr> <tr> <td>2027</td> <td></td> <td></td> <td></td> <td>1,082</td> </tr> <tr> <td>2030</td> <td></td> <td>670</td> <td></td> <td></td> </tr> <tr> <td>2031</td> <td></td> <td></td> <td>1,175</td> <td></td> </tr> <tr> <td>2032</td> <td></td> <td></td> <td></td> <td>1,168</td> </tr> </tbody> </table>	Year	Actual (MW)	CAISO 2020-2021 TPP (MW)	CAISO 2021-2022 TPP (MW)	CAISO 2022-2023 TPP (MW)	2021	592				2022	703*	624			2023			821		2024				814	2025		657			2026			1,076		2027				1,082	2030		670			2031			1,175		2032				1,168	<p>recommends SVP to work with CEC to include forecasted load growth in the CEC's forecast.</p>
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		<p>*SVP's CY2022 actual instantaneous system peak was recorded on SVP's NCP1 meter as 703 MW on 09/06/2022 @ HE13:00 with 13MW of load curtailment. By HE14:00, SVP was curtailing >80MW of load and would have peaked at 760MW had customer load curtailment not occurred.</p> <p>Additional Transmission Upgrades Are Required to Address Multiple NERC and CAISO Planning Criteria Violation In the Interim</p> <p>The CAISO has recognized that other improvements to the transmission system's capability to serve load reliably will be needed before the HVDC projects can be constructed. In the 2021-2022 Transmission Plan, the CAISO also approved adding series compensation devices to one of the 115 kV lines serving the SVP load. SVP fully supports this short-term mitigation.^[2] The CAISO 2021-2022 Transmission Plan correctly recognized that this solution would not be adequate to address the near-term reliability issues for the SVP system. And we see strong evidence of that in CAISO's preliminary reliability assessment in the current TPP cycle. Column A in Table 2 below shows that there are multiple P1, P6, and P7 contingency overloads on the PG&E facilities SVP depends on to serve its load reliably, as identified in the CAISO preliminary reliability assessment.^[3] SVP conducted an independent power flow analysis to replicate the CAISO findings, which reached the same conclusions. SVP conducted an additional scenario, which assumes a 50MW of battery energy storage system (BESS) at SVP's 60kV Kenneth substation.^[4] SVP found that adding the 50MW BESS eliminates some of the P1 and P7 overloads in 2027, reducing the overloads in the remaining cases, but not eliminating them.</p> <p>Table 2: Multiple NERC and CAISO Planning Criteria Violations in 2027 from CAISO Preliminary Reliability Analysis in 2022-2022 TPP</p>	<p>As noted in the comment above, the CAISO approved near-term and long-term projects to address reliability needs in the area. For the remaining interim issues, the CAISO has been working with SVP in developing interim operating solutions. For future cycles, the CAISO</p>

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		<table border="1" data-bbox="512 297 1205 1008"> <thead> <tr> <th data-bbox="512 297 716 505">Overloaded Facility</th> <th data-bbox="716 297 957 505">Contingency</th> <th data-bbox="957 297 1037 505">Cat</th> <th data-bbox="1037 297 1115 505">Cat Descr</th> <th data-bbox="1115 297 1205 505">2027 CAISO Base Case (with Series Compensation at Los Esteros) (A)</th> </tr> </thead> <tbody> <tr> <td data-bbox="512 505 716 574">Los Esteros-Silicon Switching Station 230 kV Line</td> <td data-bbox="716 505 957 574">LOS ESTEROS-NORTECH 115KV</td> <td data-bbox="957 505 1037 574">P1</td> <td data-bbox="1037 505 1115 574">N-1</td> <td data-bbox="1115 505 1205 574">100.0%</td> </tr> <tr> <td data-bbox="512 574 716 618">LSESTRSRCTR-NORTECH 115 kV</td> <td data-bbox="716 574 957 618">Phase Shifter Path</td> <td data-bbox="957 574 1037 618">P1</td> <td data-bbox="1037 574 1115 618">N-1</td> <td data-bbox="1115 574 1205 618">109.0%</td> </tr> <tr> <td data-bbox="512 618 716 688">Newark-Northern Receiving Station #1 115kV Line</td> <td data-bbox="716 618 957 688">Phase Shifter Path</td> <td data-bbox="957 618 1037 688">P1</td> <td data-bbox="1037 618 1115 688">N-1</td> <td data-bbox="1115 618 1205 688">109.0%</td> </tr> <tr> <td data-bbox="512 688 716 732">Kifer-FMC 115 kV Line</td> <td data-bbox="716 688 957 732">Phase Shifter Path & LOS ESTEROS-NORTECH 115KV</td> <td data-bbox="957 688 1037 732">P6</td> <td data-bbox="1037 688 1115 732">N-1-1</td> <td data-bbox="1115 688 1205 732">122.0%</td> </tr> <tr> <td data-bbox="512 732 716 792" rowspan="2">Newark-Northern Receiving Station #1 115kV Line</td> <td data-bbox="716 732 957 792">NEWARK E-F BUS TIE 230KV & TESLA-METCALF 500kV</td> <td data-bbox="957 732 1037 792">P6</td> <td data-bbox="1037 732 1115 792">N-1-1</td> <td data-bbox="1115 732 1205 792">131.0%</td> </tr> <tr> <td data-bbox="716 792 957 836">Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines</td> <td data-bbox="957 792 1037 836">P7</td> <td data-bbox="1037 792 1115 836">DCTL</td> <td data-bbox="1115 792 1205 836">139.0%</td> </tr> <tr> <td data-bbox="512 836 716 896">Newark-Northern Receiving Station #2 115kV Line</td> <td data-bbox="716 836 957 896">Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines</td> <td data-bbox="957 836 1037 896">P7</td> <td data-bbox="1037 836 1115 896">DCTL</td> <td data-bbox="1115 836 1205 896">127.0%</td> </tr> <tr> <td data-bbox="512 896 716 956">Newark 230/115kV Transformer #11</td> <td data-bbox="716 896 957 956">Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines</td> <td data-bbox="957 896 1037 956">P7</td> <td data-bbox="1037 896 1115 956">DCTL</td> <td data-bbox="1115 896 1205 956">101.0%</td> </tr> <tr> <td data-bbox="512 956 716 1008">Newark-Kifer 115kV Line</td> <td data-bbox="716 956 957 1008">Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines</td> <td data-bbox="957 956 1037 1008">P7</td> <td data-bbox="1037 956 1115 1008">DCTL</td> <td data-bbox="1115 956 1205 1008">114.0%</td> </tr> </tbody> </table>					Overloaded Facility	Contingency	Cat	Cat Descr	2027 CAISO Base Case (with Series Compensation at Los Esteros) (A)	Los Esteros-Silicon Switching Station 230 kV Line	LOS ESTEROS-NORTECH 115KV	P1	N-1	100.0%	LSESTRSRCTR-NORTECH 115 kV	Phase Shifter Path	P1	N-1	109.0%	Newark-Northern Receiving Station #1 115kV Line	Phase Shifter Path	P1	N-1	109.0%	Kifer-FMC 115 kV Line	Phase Shifter Path & LOS ESTEROS-NORTECH 115KV	P6	N-1-1	122.0%	Newark-Northern Receiving Station #1 115kV Line	NEWARK E-F BUS TIE 230KV & TESLA-METCALF 500kV	P6	N-1-1	131.0%	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	139.0%	Newark-Northern Receiving Station #2 115kV Line	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	127.0%	Newark 230/115kV Transformer #11	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	101.0%	Newark-Kifer 115kV Line	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	114.0%	<p>recommends SVP to work with CEC to include forecasted load growth in the CEC's forecast.</p>
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<p>In those remaining overloads, SVP found that adjusting the angle of phase shifter setting at SVP's SSS substation would not relieve all the overloads for 2027. Some relevant contingencies include the loss of the phase shifter path, that is, the outage of either SSS-NRS 230 kV, or SVP's PST.</p> <p>In order to mitigate the contingency overloads on the Newark-NRS 115kV, SVP believes the CAISO needs to study the reconductoring of the two existing Newark-NRS 115 kV lines. SVP studies indicate the reconductoring project would eliminate the major P7 and P6 overloads on the Newark-NRS 115 kV lines. To address the remaining P1 and P6 overloads on the other facilities included in Table 2, SVP suggests the CAISO explore additional mitigation measures. One should be the</p>																																																								

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>addition of series compensation to the reconductored lines. SVP believes that such devices, operating in a capacitive mode when needed, can be an effective, relatively low-cost additional mitigation measure. As an alternative to the installation of the series compensators, SVP suggests the CAISO explore the strategic installation of battery energy storage system on the SVP system. SVP believes that the CAISO should consider adding the mitigations above to projects included in this year's TPP.</p> <p>Value of Mid-Term Mitigation Solutions in the Long Term After the HVDC Project is Online</p> <p>Table 3 shows that there are two P6 contingency overloads on the Newark-NRS 115kV lines in 2032 after the Newark-NRS HVDC project is built.^[5] We expect that a higher load scenario assumed in the Additional Transportation Electrification (ATE) load sensitivity scenario in 2035 assessed by the CAISO in the current planning cycle will show higher P6 and even some new P7 overloads. With the additional hyperscale data center loads in SVP and the surrounding San Jose sub-area than anticipated earlier in conjunction with transportation electrification, such a high load scenario seems increasingly likely to materialize. Any combinations of transmission solutions found to be effective in the outer years, such as 2032, should also remain effective in the longer term. SVP believes that a combination of the reconductoring of the Newark-NRS 115kV project in combination with series compensation and/or BESS would be effective in the long-term. So, these solutions are not only effective in relieving overloads before the completion of the CAISO-approved HVDC lines but improve the capability to serve growing loads after their installation.</p> <p>Table 3: NERC and CAISO Planning Criteria Violations in long-term with both CAISO-Approved HVDC lines installed</p>	<p>As noted in the comment above, the CAISO approved near-term and long-term projects to address reliability needs in the area. For the remaining interim issues, the CAISO has been working with SVP in developing interim operating solutions. For future cycles, the CAISO recommends SVP to work with CEC to include forecasted load growth in the CEC's forecast.</p> <p>The CAISO will continue to evaluate if any other additional capacity increase projects would be needed in the area given the potential additional load increase in the area.</p>

No	Submitting Organization	Comment Submitted				CAISO Response
		Overloaded Facility	Contingency	Cat	2032 Summer Peak Baseline	
		Newark - Northern Receiving Station #1 115kV line	HVDC Newark-NRS (230kV AC line) and SSS-NRS 230kV same as outage of SVP's PST	P6	107%	
			HVDC Newark-NRS (230kV AC line) and Newark D 230/115 TB 7	P6	104%	
		<p>As stated above, SVP believes the added mitigations needed for mitigating 2027 assumed load levels should be approved in the current planning cycle. History shows it often takes significant time to complete approved projects. For example, the reconductoring of the 2.1-mile NRS-SRS 115kV circuits was approved in the 2012-2013 TPP and placed in service six years later in 2019. In SVP's comments on the 2020-2021 TPP Study Plan, dated February 28, 2020, we provided a table identifying examples of PG&E projects with long implementation lead times in the range of 6 to 15 years.^[6] We believe it is important to timely develop and approve a plan to relieve the overloads delineated above. SVP is eager to work with PG&E and CAISO staff to develop such solutions.</p>				
11	Transmission Agency of Northern California	<p>The Transmission Agency of Northern California ("TANC") appreciates this opportunity to provide comments on the California Independent System Operator's ("CAISO") 2022-2023 Transmission Planning Process ("TPP") preliminary reliability assessment results and proposed mitigations as presented at stakeholder calls on September 27 and 28, 2022. TANC's primary focus is to preserve and look for opportunities to maximize the transfer capability in both directions of the California-Oregon Transmission Project ("COTP") and California-Oregon Intertie ("COI"). TANC's comments focus on the studies</p>				

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>done for the Northern California (Pacific Gas and Electric – “PG&E”) Bulk System.</p> <ol style="list-style-type: none"> 1. According to the Bulk System presentation on page 4, the Round Mountain Statcom is identified as modeled in all the cases for the 2022-2023 TPP planning cycle. Why is the Statcom modeled in the 2024 Spring case when it is TANC’s understanding that the Statcom is not scheduled to be in service until the summer of 2024? Also, on page 9 of the presentation, the Round Mountain-Table Mountain #1 or #2 lines are identified as a contingency resulting in overloads. Why was such done if the Round Mountain Statcom was modeled correctly? Also, the Western Electricity Coordinating Council Project Coordination Review Group recently concluded that the Fern Road station cannot be installed until the Round Mountain-Table Mountain remedial action scheme is in-service. How will the CAISO deal with this apparent discrepancy? 2. According to the Bulk System presentation on page 11, a Round Mountain 500/230-kV bank overload was noted for an outage of the Olinda 500/230-kV transformer, but overloads on the Olinda 500/230-kV bank for the loss of the Round Mountain 500/230-kV bank were not. What is the reason for this discrepancy? Does the CAISO monitor power flows over non-CAISO facilities in the TPP studies? 3. Based on the low hydro conditions that have occurred this year, is the CAISO considering a sensitivity study of a low hydro condition in the TPP? With low hydro conditions affecting the COI total transfer capability, could projects be proposed to ensure that the COI total transfer capability is not impacted? 4. Why does the 2024 Spring Off-Peak case have COI flows at only 1,000 MW and why do the COI flows in the other Off-Peak cases exceed the south to north limit by as much as 300-400 MW? 	<p>The statcoms were added to the cases as per the information we had at the time the base cases were being set up. The Round Mountain statcom does not alleviate overload concerns of all contingencies; select P6 contingencies require system re-dispatch on loss of the first contingency. The RAS has been modeled as part of the relevant contingency scenarios.</p> <p>The CAISO monitors non-CAISO facility overloads but does not report them.</p> <p>A low hydro condition sensitivity scenario has not been included at this time; however may be incorporated into one base case in the upcoming planning cycle. COI TTC is an operational aspect that is not a primary focus of TPP studies. The latter check that all contingencies do not result in system violations.</p> <p>The 2024 Spring Off-Peak case was set up based on CAISO bulk system considerations. In next cycle TPP Off-peak case flows will be determined in the base case development.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ol style="list-style-type: none"> <li data-bbox="562 237 1192 334">5. The COI rating is expected to increase to 5,100 MW in the future. Is the CAISO taking this into consideration? If not, then when will the CAISO consider this rating? <li data-bbox="562 334 1192 764">6. According to the Bulk System presentation on page 14, reducing Colusa generation is the option for mitigating post-contingency overloads on the Delevan-Cortina 230-kV line. Previous TPP reports had indicated that this line would be reconductored by 2028. Therefore, why is it not mentioned in the presentation and modeled as part of the 2032 cases? Also, the Descendant Ranch Project (Q1496) is planned to be interconnected at Delevan in 2025. It is noted Descendant Ranch was not modeled in the 2027 and 2032 cases, even though there is an executed interconnection agreement in place. Why is this resource not modeled in the TPP cases? <li data-bbox="562 764 1192 935">7. While reviewing the cases, it was noticed that the Area 30 Swing is at Colusa. Because Colusa is in the Bulk System portion of the PG&E area, wouldn't it be more appropriate to locate the swing machine elsewhere for the Bulk System studies? <li data-bbox="562 935 1192 1032">8. Does the TPP set up the case for a COI pickup for the loss of two Palo Verde resources, as is common practice for most studies? 	<p data-bbox="1224 237 1955 334">The COI path flow is one consideration when setting up base cases. It is anticipated that the heavy winter cases may have COI flows increased within the next TPP cycle.</p> <p data-bbox="1224 367 1913 431">Omissions have been addressed and do not adversely affect the TPP results.</p> <p data-bbox="1224 773 1955 870">Consideration of alternative locations have been considered in the past, but the centralized location of Colusa works well for the studies we have conducted.</p> <p data-bbox="1224 935 1955 1000">Yes the loss of the Palo Verde plants is a consideration for all cases that have been set up.</p>

2. Please provide comments on CAISO reliability assessment for the South area (SCE, SDG&E, VE/GLWS)

No	Submitting Organization	Comment Submitted	CAISO Response
2a	AES Clean Energy	No comments	
2b	Bay Area Municipal Transmission Group (BAMx)	<p>SCE Area</p> <p><i>Serrano Banks 500/230 kV Thermal Overloads</i></p> <p>CAISO's preliminary reliability assessment has found Serrano 500/230 kV Transformers overloaded for the loss of any other two Serrano transformer banks (P6) in the 2032 Spring Off-peak case.^[1] BAMx agrees with the CAISO that reliability-driven transmission mitigation for the Serrano bank overloads needs to coordinate with the area's policy and economic transmission needs. BAMx applauds the CAISO analysis that analyzed how energy storage can be utilized as alternative transmission mitigation up to the portfolio amount or the long-duration BESS charging capability. The CAISO's analysis has determined that</p> <p style="padding-left: 40px;">"The 4-hour energy storage for system-wide resource adequacy can be used for local reliability up to the 4-hour charging limit for free. However, it is costly to use the 4-hour energy storage above the 4-hour charging limit as mitigating for the Serrano bank issue, as additional storage MWh needs to be added for achieving LDES capability, compared with its transmission mitigation."</p> <p>BAMx believes that the CAISO does not necessarily need to add the cost of incremental 4-hour battery storage to mitigate the Serrano bank issue. The load-serving entities (LSE) have procured long-duration energy storage in response to the CPUC's Reference System Plan issued in 2020.^[2] Given the CPUC</p>	The comment has been note.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>procurement guidance, CAISO should provide Long Duration Energy Storage (LDES) recommendations to the LSEs for the most effective areas like the Western LA Basin. Given that the Serrano Bank overloads are identified only in the long-term (2032), the required LDES resources that address the Serrano Bank issues could be developed given the CPUC procurement guidance.</p> <p>In addition, SCE’s projected short circuit duty (SCD) increase on all of its 230 kV circuit breakers at Serrano Substation is only 0.7% from 95.2% in 2024 to 95.9% in 2032; it would be premature for the CAISO to approve SCE’s proposal to rebuild its Serrano 230 kV GIS to 80 kA in the current planning cycle.</p> <p>BAMx urges the CAISO not to approve any capital projects, such as adding a new Serrano 4AA 500/230 kV transformer bank in the current planning cycle.</p>	
2c	California Energy Storage Alliance	<p>As noted above, CESA appreciates and continues to encourage the ISO to look at energy storage as non-wires alternative (NWA) mitigation measures. In particular, for the Metro 230 kV and Serrano Banks 500/230 kV thermal overloads in Southern California Edison (SCE) territory, the results show that the implementation of a portfolio of energy storage resources in the Western Los Angeles (LA) Basin and San Diego Gas and Electric (SDG&E) area can address the issue. However, the results show that the energy storage resources need to have 8-hour generating capability to meet peak load that lasts 8 hours in Western LA Basin, but the cost of additional duration beyond the 4-hour minimum must be taken into account. One of the cited reasons for only “monitoring” the situation is the cost of additional duration beyond the 4-hour Resource</p>	<p>The comment on the energy mitigation addressing the Serrano banks overloads has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Adequacy (RA) minimum, which is not valued to offset the added cost.</p> <p>To this point, CESA recommends that cost assumptions be solicited from long-duration energy storage (LDES) providers and to evaluate the economic assessment assuming RA value for the incremental four hours of duration. As the CPUC moves toward a slice-of-day (SOD) framework, there will be RA value for the incremental duration beyond the 4-hour minimum since RA obligations will need to be met for all 24 hours of the day. If a load-serving entity (LSE) has a residual RA obligation for eight or more hours, the LDES resource can be accounted for, and RA benefits will be ascribed to the incremental four hours of duration.</p> <p>Furthermore, CESA requests that the ISO reexamine the San Luis Rey-San Onofre Area constraint, which appears to only occur under a P7 condition. This is notable for the impact on the deliverability to energy storage projects in the area, where such conservative N-2 contingency assumptions are not typical in other balancing areas. While the current TPP cycle revised the long-term energy storage dispatch assumption to 50% in the Secondary System Need (SSN) scenario, CESA maintains our concerns (expressed previously during the June 2022 stakeholder call on the matter) that dispatchable energy storage should not be modeled as competing with solar during these hours but rather as one that complements them. The ISO is also in the process of simplifying assumptions for remedial action schemes (RAS) in order to ease their market modeling, but the relaxing of its use may overlook the ability to take advantage of one of the cheapest forms of NWAs. There should be some appropriate medium between its simplification and limited use versus the complex or overreliance on RAS to address local area constraints.</p>	<p>The CAISO provided its costs assumption, so it would be most helpful and appropriate for stakeholders to either concur with the CAISO's assumption or provide their proposed cost assumptions and source documents during the CAISO comment request period.</p> <p>P7 contingency analysis is required to be part of compliance with NERC's mandatory transmission planning standard TPL-001. In addition, other ISO's/RTO's also include P7 contingencies in their generation deliverability studies, as required by NERC.</p> <p>The 2022 actual operating data continues to support the CAISO's latest SSN study assumption for storage.</p> <p>The comment is noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
2d	California Public Utilities Commission - Public Advocates Office	<p>Contact</p> <p>Kanya Dorland (kanya.dorland@cpuc.ca.gov)</p> <p>Cal Advocates provides its comments on CAISO's reliability assessment for the South area in its responses to questions 4,5 and 6.</p>	The comment has been noted
2e	City of Palo Alto	No comments	
2f	EDF-Renewables	No comments	
2g	Imperial Irrigation District	<p>Contact</p> <p>Jesus Alberto Martinez (jamartinez@iid.com)</p> <p>IID supports the use of the Path 42 RAS to mitigate for the system deficiencies identified. When the Path 42 RAS is mentioned as a potential mitigating solution does this require further modifications to the RAS or does its current/planned scope cover these scenarios?</p>	The existing RAS addressed all the identified concerns.
2h	New Leaf Energy, Inc.	No comments	
2i	NGIV2, LLC	<p>Contact</p> <p>Mark Etherton (mark.etherton@transco.energy)</p> <p>Regarding the overloads noted along Path 42 (Ramon-Mirage, etc.), NGIV2 believes that a 500/230kV connection at the proposed Dunes substation (interconnecting to the IID Highline 230kV substation) will not only provide an additional outlet of resources from the IID area but also help to reduce the overloads noted along Path 42 and an reduction to the Path 42 RAS.</p>	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
2j	Northern CA Power Agency	No comments	
2k	Silicon Valley Power	No comments	
2l	Transmission Agency of Northern California	No comments	

3. Please provide comments on PG&E proposed mitigation alternatives.			
No	Submitting Organization	Comment Submitted	CAISO Response
3a	AES Clean Energy	No comments	
3b	Bay Area Municipal Transmission Group (BAMx)	<p>Contact</p> <p>Paulo Apolinario (papolinario@svpower.com)</p> <p>North-East Kern 115 kV Reconductoring Project</p> <p>BAMx appreciates PG&E considering the energy storage alternative to reconductoring several 115kV lines in the North-East Kern area to address the P1, P2, and P3 overloads. According to PG&E, adding 10 to 20 MW of BESS at Lerdo, Rio Bravo, Shafter, Ganso, and Goose Lake substations needs further investigation. [1] We encourage the CAISO to explore these and any other reasonable energy storage options in terms of their feasibility, size, and charging requirements before approving the PG&E-proposed North-East Kern 115 kV Reconductoring Project.</p> <p>Cortina 60 kV Line and Garberville Area Reinforcement Projects</p> <p>Similarly, BAMx encourages the CAISO to explore other options for PG&E’s Cortina and Garberville areas, where PG&E is proposing capital-intensive projects (\$300 million) to accommodate small incremental demand increases. Specifically, PG&E anticipated demand increases of 10 MW and 16 MW, respectively, for these two areas. The CAISO and PG&E should explore options, including distributed generation and energy storage facilities, to meet this small demand increase, similar to the Oakland Clean Energy Initiative</p>	<p>Energy storage will be evaluated as a potential mitigation solution.</p> <p>The energy storage is not recommended at this time as the charging capability may be limited by the existing line capacity and will be further limited by the future load increase at Dunnigan Substation.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>(OCEI) project approved by the CAISO in 2017-2018 TPP to address Oakland area reliability needs.[2]</p> <hr/> <p>[1] PG&E September 28th Presentation, p.48.</p> <p>[2] CAISO 2017-2018 Transmission Plan, pp. 128-129.</p>	
3c	California Energy Storage Alliance	No comments	
3d	California Public Utilities Commission - Public Advocates Office	<p>Contact</p> <p>Kanya Dorland (kanya.dorland@cpuc.ca.gov)</p> <p>The following are descriptions of the reliability issues CAISO identifies in PG&E's service area, CAISO and PG&E's proposed solutions to address these issues, and Cal Advocates' recommendations.</p> <p><u>Redwood City Area System Reinforcement</u></p> <p>CAISO's reliability assessment for the Redwood City Area identifies overloaded lines during all the studied summer peak scenarios. To address these overloads, CAISO recommends increasing the Ravenswood-Bair line capacity and continuing to monitor the Ravenswood 230/115 kV Transformer #2. CAISO also stated that overloads on some of the lines could be mitigated by operating solutions.[1]</p> <p>In contrast, PG&E proposes to reconnector the Ravenswood-Bair 115 kV line and install a new transformer. During the September 28, 2022, CAISO 2022-2023 reliability assessment project meeting, PG&E states that the load growth in the project area is</p>	<p>The CAISO is currently reviewing the project and will consider the comments provided.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>due to new data centers, which are driving the need for this system upgrade, rather than general population growth and higher electrification. PG&E's proposed mitigations have a cost estimate of \$55.4 million to \$110.8 million.[2]</p> <p>Since this project is only needed because of a few large data center customers, it is unreasonable to require all PG&E customers to bear these costs. Specific upgrades that are needed to support the demands of a single customer or industry should be paid for by that customer or industry.[3]</p> <p><u>Cortina 60 kV Reconductoring</u></p> <p>CAISO identifies overloads on the Cortina 230/115/60 kV Transformer in the base and sensitive scenarios and overloads on the Cortina 60 kV line No. 2 in the 2035 Additional Transportation Electrification (ATE) demand scenario. CAISO recommends that the approved Cortina 230/115/60 Transformer Bank No. Replacement project serve as a mitigation for the observed overloads as well as the 2017-2018 TPP recommended Special Protection Scheme (SPS).[4]</p> <p>PG&E observes that in addition to the North America Electric Reliability Corporation (NERC) thermal overload issue there are low voltage issues on the Cortina line. PG&E proposes to remedy this issue by reconductoring the Cortina 60 kV line with project costs ranging between \$47.14 million to \$94.28 million. PG&E alternative option analysis included energy storage, but the results find that energy storage is not a viable option due to charging limitations in the project area.[5]</p> <p>Cal Advocates recommends the CAISO not approve the proposed project and requests additional study on lower cost solutions to address the noted reliability</p>	<p>The energy storage is not recommended at this time as the charging capability may be limited by the existing line capacity and will be further limited by the future load increase at Dunnigan Substation.</p>

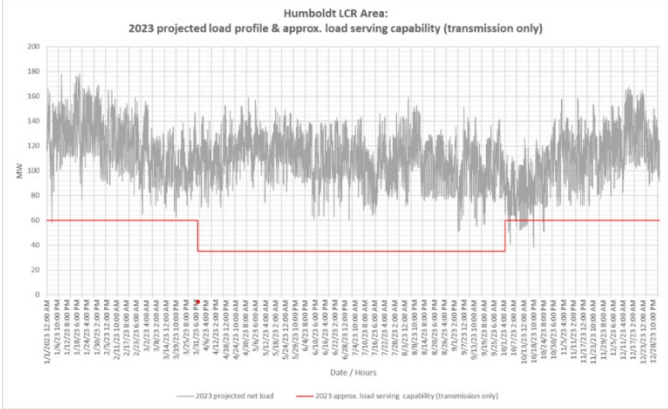
No	Submitting Organization	Comment Submitted	CAISO Response
		<p>issues. To address the observed voltage issues, a reactive support solution should be considered as a lower cost solution. Since PG&E states that the load growth in this area is due to one distribution-level electric vehicle (EV) charging customer,[6] Cal Advocates also requests a study on options to reduce the load at the EV charging customer site with behind-the-meter solar or other distributed energy resources (DERs). This study should determine if targeted DERs in the area could address any future reliability issues and avoid consideration of the proposed costly reconductoring project.</p> <p><u>Tesla 115 kV Bus Reconfiguration</u></p> <p>CAISO notes overloads in the Stockton/Stanislaus area including on the Tesla 115 kV line that could be mitigated with existing operating procedures, a Tesla 115 kV Bus upgrade, SPS, or system upgrade as needed. CAISO also mentions that Tesla 230 kV Bus Series Reactor is expected to be in place by August 2023.[7] PG&E's reliability assessment identifies voltage collapse issues that occur because of the breaker configuration at the Tesla 115 kV bus. PG&E proposes to mitigate this issue by reconfiguring the existing Double Bus Single Breaker (DBSB) configuration to a Breaker and a Half (BAAH) configuration, which has a cost estimate of \$27.5 million to \$55 million, and to discard CAISO's recommended mitigation solutions, which include an SPS.[8]</p> <p>Cal Advocates recommends CAISO not approve the proposed project and requests further study on the effectiveness of CAISO's proposed mitigations which include an existing operating procedure and SPS as an alternative to the bus reconfiguration. It may be possible to install a more cost effective SPS that would address the noted voltage issues without spending the</p>	<p>This project is still under review.</p> <p>As for the proposed project, it is designed to address the overloads issues in the Tracy, Lammers, Vierra, Salado and Kasson load pockets for long term. SPS and operating procedure for the mitigation of these overloads will be very complex. In addition, more load will need to shed in the area.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>estimated \$27.5 million to \$55 million on the bus reconfiguration. If an SPS alternative is more cost-effective, then it would be in PG&E customers' interests to ensure that the most cost-effective solution is pursued.</p> <p><u>Los Banos 70 kV Area Reinforcement</u></p> <p>CAISO's reliability assessment for the Los Banos 70 kV Area identifies overloads in the 2027 and 2032 peak case. CAISO suggests increasing the substation's bank capacity and reviewing the existing Oro Loma reinforcement project to mitigate the potential overload issues.</p> <p>In contrast, PG&E proposes a new substation and to align the existing Oro Loma reinforcement project in-service-date with the new substation in-service-date. PG&E did not provide power flow and voltage results at the Los Banos 230/70 kV facilities with the previously-approved Oro Loma reinforcement project. PG&E also mentions a new 230 kV switching station project in the area and similarly did not explain the impact of this existing project on the identified overloads. Thus, PG&E's presented analysis did not confirm that the proposed project would still be needed after the mentioned approved projects are in place. PG&E also presents no information on its consideration of a possible lower cost operational change, or the CAISO suggested substation bank capacity increase. Therefore, PG&E's consideration of alternatives to address the noted overload issue is incomplete and the identified issues may be addressed with the implementation of the approved investments in the area including the Oro Loma reinforcement project. For this reasons, Cal Advocates recommends that the CAISO not approve the proposed project and</p>	<p>The comment has been noted and the CAISO is continuing to review the alternatives to mitigate the identified constraints.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>that PG&E provide a complete assessment of the impact of the mentioned project alternatives.</p> <p>North-East Kern 115kV Reinforcement</p> <p>CAISO's reliability results identifies line overloads on the following lines: Midway-Shafter 115kV, Midway-Tupman-Rio Bravo-Renfro 115kV, and Semitropic-Famoso 115kV lines, and long-term line overloads on Kern-Lamont and Kern-Stockdale 115kV line under various scenarios. CAISO recommends reevaluating the previously proposed Wheel Ridge substation project, new Kern 115 kV area reconductoring, and the Lamont energy storage projects to address these issues.[9]</p> <p>However, PG&E's reliability assessment shows overloads on the following lines: Rio Bravo-Renfro J 115kV line, Midway-Ganso 115kV Line, Midway-Shafter 115kV line, Shafter-Rio-Bravo 115kV line, Midway-Semitropic-E 115kV line, and the Lerdo J-Kern Oil 115kV line under various contingencies. PG&E proposes to reconductor all these lines, as well as to convert existing control points to a summer setup to open lines sections to mitigate the line overloads.[10] PG&E states that project load growth in the area is due to EV charging stations, warehouses, business parks and agricultural loads.[11] PG&E's cost estimate for this project ranges between \$128 million to \$256 million.</p> <p>Cal Advocates recommends CAISO not approve this project in the 2022-2023 TPP cycle and conduct further study to determine if this project is the lowest cost alternative. Specifically, Cal Advocates recommends CAISO evaluate the Lamont Battery Energy Storage System (BESS) alternative to address the overload issues. Since PG&E did not mention the consideration of targeted energy efficiency (EE) or the other behind-</p>	<p>The comment has been noted and the CAISO is continuing to review the alternatives to mitigate the identified constraints.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>the-meter solutions to reduce load growth in the project area, Cal Advocates requests that PG&E investigate options to reduce the anticipated load growth with targeted DER programs.</p> <p>Cal Advocates also requests that either PG&E or CAISO provide clarification on the following project analysis details:</p> <ol style="list-style-type: none"> 1. <u>Explain the differences between the CAISO and PG&E reliability study results.</u> PG&E's pre-project overloads, provided with their power flow results, are significantly higher than the overloads CAISO identified in its preliminary reliability assessment. Cal Advocates recommends PG&E re-scope the North-East Kern 115 kV Reconductoring Project as necessary to resolve this discrepancy in reliability results. 2. <u>Explore additional BESS options.</u> Cal Advocates recommends the CAISO and PG&E explore a BESS alternative that involves adding 10 to 20 megawatts (MW) of BESS at Lerdo, Rio Bravo, Shafter, Ganso, and Goose Lake Substations^[12] in addition to previously approved Lamont BESS that is currently under review.^[13] <p><u>PG&E Garberville Reinforcement Project</u></p> <p>CAISO's reliability assessment for the Bridgeville-Garberville-Laytonville 60 kV system identifies overloads and recommends a line capacity increase. CAISO also notes a low voltage issues in Garberville area. CAISO asserts that the recommended line capacity mitigation could address both the overloads and low voltage issues and if not,</p>	<p>The comment has been noted and the CAISO is continuing to review the alternatives to mitigate the identified constraints.</p>

No	Submitting Organization	Comment Submitted	CAISO Response												
		<p>CAISO suggests adding reactive support in Garberville 60 kV area.[14]</p> <p>PG&E, in contrast, propose a Garberville Reinforcement project that has a cost estimate of \$102 million and \$204 million.[15] CAISO and PG&E’s reliability assessment analyses are based on assumptions and conditions that should be reexamined for the following reasons:</p> <ol style="list-style-type: none"> 1. The Humboldt Area is a winter peaking area. CAISO’s reliability analysis is based on a projected 2032 summer peak of 163 megawatt (MW), a projected 2032 winter peak of 125 MW as shown in Table 1.[16] <p style="text-align: center;">Table 1. CAISO Reliability Assessment 2032 Humboldt Area System Peaks[17]</p> <table border="1" data-bbox="514 862 1199 1317"> <thead> <tr> <th data-bbox="514 862 642 976">Study Case</th> <th data-bbox="642 862 989 976">Description</th> <th data-bbox="989 862 1110 976">Scenario Type</th> <th data-bbox="1110 862 1199 976">Gross Load (MW)</th> </tr> </thead> <tbody> <tr> <td data-bbox="514 976 642 1162">HUMB-2032-SP</td> <td data-bbox="642 976 989 1162">2032 Summer Peak load condition. Peak load time -hours ending 21:00</td> <td data-bbox="989 976 1110 1162">Baseline</td> <td data-bbox="1110 976 1199 1162">163</td> </tr> <tr> <td data-bbox="514 1162 642 1317">2032-WPK</td> <td data-bbox="642 1162 989 1317">2032 Winter Peak load condition. Winter Peak load time -hours ending 19:00</td> <td data-bbox="989 1162 1110 1317">Baseline</td> <td data-bbox="1110 1162 1199 1317">125</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. The summer peak in the Humboldt area is not larger than the winter peak in the Humboldt area as is 	Study Case	Description	Scenario Type	Gross Load (MW)	HUMB-2032-SP	2032 Summer Peak load condition. Peak load time -hours ending 21:00	Baseline	163	2032-WPK	2032 Winter Peak load condition. Winter Peak load time -hours ending 19:00	Baseline	125	
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HUMB-2032-SP	2032 Summer Peak load condition. Peak load time -hours ending 21:00	Baseline	163												
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No	Submitting Organization	Comment Submitted	CAISO Response
		<p>documented in the 2023 and 2027 CAISO Local Capacity Technical Studies.[18],[19]</p> <p>Figure 1. CAISO Local Capacity Report Results Humboldt 2023 Forecast Hourly Profile[20]</p>  <p>3. The projected load growth of 50% to 100% is due to agricultural business in Humboldt, but this load growth does not reflect changes in the current cannabis market, which should have an impact on load growth in southern Humboldt County. [21],[22]</p> <p>Cal Advocates recommends that CAISO not approve the proposed project in the 2022-2023 TPP cycle and instead use an independent power system consultant to confirm the Garberville Area growth assumptions and projected system needs, including the need for dynamic reactive support. Cal Advocates also requests that PG&E consider targeted energy efficiency (EE) programs for cannabis growers in the Humboldt area to address the Humboldt load growth needs as part of the mitigation strategy. The Sonoma Clean Energy program, for example, is aiming to reduce the energy intensive nature of cannabis cultivation with targeted EE programs that include retrofitting existing lighting to LEDs, upgrading HVAC systems with monitoring</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>controls, and installing energy storage to prevent outages and reduce demand charges.</p> <p>Since this project is only needed to serve the load needs of a few large customers, it is unreasonable that these costs be borne by the average PG&E customer. Upgrades that are needed to support the demands of a single customer or industry should be paid for by that customer or industry and not be passed on to other PG&E customers.</p> <p>Project Budget Contingency – Project Estimate Accuracy Range</p> <p>PG&E provides project cost estimate ranges for all their projects; this range allows for a budget contingency of 100%. In PG&E’s presentation they state “[Association for the Advancement of Cost Engineering (AACE)] Level 5 quality estimates include a 100% contingency.”[23] Per ACCE, Class 5/Level 5 cost estimates can have an estimated accuracy range of up to 100% because Class 5 estimates “are generally prepared based on very limited information.”[24]</p> <p>To address the project definition, design and scope unknowns, Cal Advocates requests the Participating Transmission Owners (PTO) in the CAISO balancing authority area provide better defined projects prior to requesting project approval. With better defined projects, the range of project budget estimates should be significantly narrower and ideally be no higher than 50%. Cal Advocates requests all PTOs provide accurate representations of the project budget contingency versus the project cost estimate, as the project cost estimates should become more accurate as the project scope definition improves.[25]</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
3e	City of Palo Alto	CPAU notes that none of PG&E's proposed mitigation alternatives presented during the September 28 th stakeholder meeting are expected to address CPAU issues in the interim described in its response to Q.1 above.	The CAISO is currently reviewing the project and will consider the comments provided
3f	EDF-Renewables	No comments	
3g	Imperial Irrigation District	No comments	
3h	New Leaf Energy, Inc.	No comments	
3i	NGIV2, LLC	No comments	
3j	Northern CA Power Agency	No comments	
3k	Silicon Valley Power	SVP notes that none of PG&E's proposed mitigation alternatives presented during the September 28 th stakeholder meeting are expected to address SVP issues in the interim described in its response to Q.1 above.	The comment has been noted.
3l	Transmission Agency of Northern California	No comments	

4. Please provide comments on SDG&E proposed mitigation alternatives.

No	Submitting Organization	Comment Submitted	CAISO Response
4a	AES Clean Energy	No comments	
4b	Bay Area Municipal Transmission Group (BAMx)	<p>San Diego Gas and Electric (SDG&E) has proposed the following three groups of projects.[1]</p> <ol style="list-style-type: none"> 1. Proposed projects in Suncrest / Miguel area (Cost \$275 – \$375 M) 2. Proposed projects in the Old Town / Silvergate area (\$620 - \$750M) 3. Proposed projects in the San Luis Rey/ San Onofre area (\$110 - \$150M). <p>None of the contingency overloads driving the need for any of the above-mentioned proposed projects are identified in the CAISO preliminary reliability assessments. For instance, SDG&E claims to have the following three overloads.[2]</p> <ul style="list-style-type: none"> • P-1 (N-1) - Outage of TL23003 Overload TL23011 • P-1 (N-1) - Outage of TL23011 Overload TL23003; and • P-7 (N-2) - Outage of TL23002 & TL23010 Overload TL23006 <p>However, none of these overloads were identified in the CAISO's reliability assessment for the SDG&E area. Upon probing during the September 28 stakeholder meeting, BAMx discovered that the underlying cases used by SDG&E are considerably different from the cases used by the CAISO, driving the discrepancies in SDG&E's findings. BAMX believes it is imperative that the PTOs not deviate from the study assumptions CAISO has developed in coordination with the California Public Utility Commission (CPUC) and the California Energy Commission (CEC). BAMx, therefore, urges the CAISO to reject the analysis provided by</p>	<p>The CAISO primarily relies on its own analysis to determine the need transmission upgrades.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		SDG&E. BAMx also urges the CAISO to direct SDG&E to follow the CEC and CPUC directives and align SDG&E's studies with the CAISO TPP assumptions if SDG&E wants its request window applications to be considered.	SDG&E is a NERC Registered Transmission Planner and has a responsibility to perform its own reliability analysis. The CAISO works with SDG&E, so that each of us understands each other's analyses and any differences in assumptions and findings.
4c	California Energy Storage Alliance	No comments	
4d	California Public Utilities Commission - Public Advocates Office	<p>San Diego Gas & Electric Company's (SDG&E) service area reliability assessment, in contrast to the assessments provided by PG&E and SCE, does not include power flow results to demonstrate the need and effectiveness of the solutions SDG&E proposes. SDG&E also states that its proposed transmission mitigations for its service area are reliability and policy-driven and aimed at increasing import capacity.^[1] SDG&E also did not demonstrate that it considered CAISO's recommended operational solutions or non-wire alternatives to address observed issues. Cal Advocates concludes that SDG&E's presentation do not demonstrate the need for its proposed projects. Therefore, Cal Advocates recommends that none of SDG&E's proposed projects be approved in the 2022-2023 TPP cycle.</p> <p>The following are descriptions of the reliability issues CAISO identifies in SDG&E's service area, CAISO and SDG&E's proposed solutions to address these issues, and Cal Advocates recommendations.</p> <p><u>San Luis Rey/San Onofre Area</u></p> <p>For the reliability assessment for the San Onofre area on the San Onofre – Capistrano line and the San Onofre – Talega line, CAISO identifies overloads in the in the spring-off peak scenarios.^[2] CAISO recommends both short and long-term mitigation options. For the short-term, CAISO states that opening any segment of the 69 kV system during an overload would mitigate the observed overload. Regarding the long-term, CAISO</p>	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>refers to the previously-approved Japanese Mesa-Talega Tap and the Stuart Tap-Las Pulgas 69 kV Reconductor projects as solutions, which are expected to be in place in 2025 and 2026 respectively.[3]</p> <p>In contrast, SDG&E recommends a new 230 kV line with a total cost of \$110 million to 150 million, and only identifies the types of outages and overloads that are occurring and where the proposed investment would be located.[4] SDG&E provides no analysis of the impact of the approved projects on the observed overloads to demonstrate the remaining need for SDG&E's proposed additional investment in the project area. Without this analysis, there is no evidence that the proposed project is needed or that it would be effective at addressing any remaining issues in the area. For these reasons, Cal Advocates recommends that this project not be approved.</p> <p><u>Suncrest/Miguel Area</u></p> <p>For the reliability assessment for the Suncrest/Miguel area, CAISO identified system overloads in the base and sensitivity scenarios . CAISO recommends a suite of solutions which include an existing Remedial Action Scheme (RAS), relying on a 30-minute emergency rating, and relying on system adjustments and operational actions.[5]</p> <p>In contrast, SDG&E proposes two 230 kV lines and two new 500/230 kV Banks at Miguel with a cost of \$275 million to \$375 million.[6] SDG&E provides neither evidence that system readjustments and operational actions are not capable of mitigating the identified overloads nor analysis on the effectiveness of their proposed project. Cal Advocates recommends that the CAISO not approve this proposed \$275 million to \$375 million investment because SDG&E provides no project analysis and specifically no evidence on why CAISO's</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>recommended system readjustments and operational actions are not capable of mitigating the identified overloads. Cal Advocates requests SDG&E evaluate the impact of CAISO's lower cost solutions on the identified overloads and provide the results to stakeholders.</p> <p><u>Old Town/Silvergate area</u></p> <p>For the reliability assessment for the the Old Town – Mission and Silver gate area, CAISO identifies overloads . CAISO recommends relying on the 2-hour emergency rating and system adjustments, which could include either reducing generation output at the Otay Mesa substation or dispatch some sort of battery storage north of the Old Town substation area.^[7] CAISO adds that energy storage as mitigation requires verification of sufficient megawatt-hour capacity to address the reliability issue and confirmation that it can be fully charged when needed.^[8]</p> <p>SDG&E proposes to rebuild the transmission line between Sycamore Canyon and Mission substations and to install two new phase shifter transformers at Mission 230 kV substation at a cost of \$620 million to \$750 million.^[9] Here again, SDG&E provides no evidence that CAISO's recommended operational solutions would not address the observed overloads effectively. Instead, SDG&E proposes an exceptionally costly project and provides no analysis demonstrating the need for the project and its effectiveness at addressing the identified need. Cal Advocates requests that SDG&E provide stakeholders an analysis that illustrates the impact of CAISO's proposed solutions on the observed overloads as well as the possible impact of targeted DERs and EE programs on the anticipated overloads.</p>	
4e	City of Palo Alto	No comments	
4f	EDF-Renewables	No comments	

No	Submitting Organization	Comment Submitted	CAISO Response
4g	Imperial Irrigation District	IID supports SDG&E's BES project proposals. IID also agrees with SDG&E on the benefits of the projects, including maximizing import capability and minimizing congestion from the Imperial Valley area, providing reliability and operational flexibility in SDG&E's service territory and the broader Southern CAISO area.	The comment has been noted.
4h	New Leaf Energy, Inc.	No comments	
4i	NGIV2, LLC	NGIV2 is very familiar with the constraints identified west of Miguel and greatly supports SDG&E's proposed mitigation alternatives and ideally increase the import capability to the east of Miguel from the Imperial Valley.	The comment has been noted.
4j	Northern CA Power Agency	No comments	
4k	Silicon Valley Power	No comments	
4l	Transmission Agency of Northern California	No comments	

5. Please provide comments on SCE proposed mitigation alternatives.			
No	Submitting Organization	Comment Submitted	CAISO Response
5a	AES Clean Energy	No comments	
5b	Bay Area Municipal Transmission Group (BAMx)	Please refer to the BAMx comments on the SCE proposed mitigation alternatives in response to Q.2 above.	The comment has been noted.
5c	California Energy Storage Alliance	No comments	
5d	California Public Utilities Commission - Public Advocates Office	<p><u>SCE Serrano 4 AA 500/230 kV bank and 230 kV GIS rebuild</u></p> <p>CAISO's reliability assessment for the Serrano Substation area identifies overloads that occur if multiple transformers are lost. CAISO recommends dispatching available resources, including energy storage, demand response, and specified operational controls to address these possible overloads. Going forward, CAISO encourages further evaluation to determine whether the overload concern in the West Los Angeles basin can be eliminated and whether utilization of the portfolio of energy storage in the area can eliminate the overloads.[1]</p> <p>Southern California Edison Company's (SCE's) proposal is to add a fourth transformer at the Serrano substation and rebuild 230 kilovolt (kV) gas-insulated switchgear (GIS) to 80 kA capacity. SCE explains that the Serrano 500/230 kV substation is the main 500 kV hub for bringing renewable resources into the Los Angeles (LA) Basin/Orange County area. SCE states that adding the 4th AA bank will "facilitate more flow into Orange County but cause the existing 230 kV GIS switchback to exceed its rated Short Circuit Duty (SCD) limit." [2]</p> <p>Further study is needed to determine if this is the best course of action for this substation. CAISO's suggested operational control temporarily mitigates the overloading, which allows time to explore the potential for more cost-effective alternatives. Regarding a</p>	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>storage alternative, CAISO states that the current portfolio of storage in the area is limited to four-hour battery storage systems, and that an eight-hour storage solution is needed and that it could be more costly. [3] However, the CPUC's 2032 Preferred System Plan requires SCE to add 500 MW of new long-duration storage to its portfolio by 2032.[4] Therefore, Cal Advocates recommends that CAISO not approve SCE's proposed solution in the 2022 TPP and instead requests that SCE evaluate a long duration energy storage alternative for the noted reliability issue.</p>	
5e	City of Palo Alto	No comments	
5f	EDF-Renewables	<p>EDF-R supports SCE's New Colorado River 3AA/ 500/ 230 kV bank project proposal. As EDF-R has mentioned in other stakeholder commenting opportunities, this corridor is a priority resource area and congestion in this area appears to be proportionally higher than other areas. EDF-R requests CAISO and SCE review this proposal with the lens of how it may lead to additional congestion/curtailment on this corridor without additional transmission from Colorado River to Devers or Mira Loma, and expand the proposed solution to a solution that mitigates for that concern as well.</p> <p>Similarly, EDF-R believes Remedial Action Schemes (RAS) in the area may be inadvertently masking the need for transmission upgrades in the area. EDF-R suggests that given that there is specific focus on this area is happening now, this is also a good opportunity to consider detangling overlapping RAS and shifting RAS subscription to amounts that align with CAISO's new standards and guidelines.</p>	The comment has been noted.
5g	Imperial Irrigation District	No comments	
5h	New Leaf Energy, Inc.	No comments	
5i	NGIV2, LLC	No comments	
5j	Northern CA Power Agency	No comments	
5k	Silicon Valley Power	No comments	

No	Submitting Organization	Comment Submitted	CAISO Response
51	Transmission Agency of Northern California	No comments	

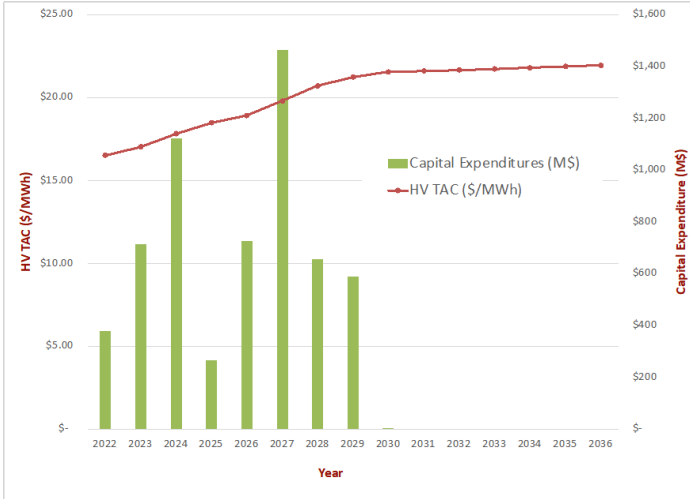
6. Please provide comments on VEA/GLW proposed mitigation alternatives.			
No	Submitting Organization	Comment Submitted	CAISO Response
6a	AES Clean Energy	No comments	
6b	Bay Area Municipal Transmission Group (BAMx)	<p>Similar to SDG&E, as described above (Q.4), GridLiance West (GLW) also appears to be using power flow cases that deviate from the CAISO base cases to try to justify the need for its proposed projects, including but not limited to rebuilding the existing 230 kV circuit from Innovation to Desert View to match the second circuit project approved in the 2021-2022 TPP.^[1] The CAISO's reliability assessment presented on September 27 identified no such need. Therefore, the CAISO should not consider GLW's proposed project on a reliability basis in this year's TPP. If this project has any policy or economic merit, it needs to be separately studied for those attributes. BAMx also urges the CAISO to direct GLW to follow the CEC and CPUC directives and align GLW's studies with the CAISO TPP assumptions if GLW wants its request window applications to be considered.</p>	The comment has been noted.
6c	California Energy Storage Alliance	No comments	
6d	California Public Utilities Commission - Public Advocates Office	<p>CAISO's reliability assessment for the Valley Electric Association (VEA) service area indicates that both short- and long-term solutions are available to address observed overloads in this service area. These short-term solutions include the Sloan Canyon RAS and congestion management, and a long-term solution, which is the 2021 approved \$278 million Gridliance West (GLW) upgrade project.^[1]</p> <p>The 2021 GLW upgrade project consists of rebuilding certain sections of the VEA 230 kV system and adding and upgrading transformers. CAISO's economic assessment results for this project estimates that the project has a benefit-to-cost ratio of 1.77. CAISO also identifies the 2021 GLW upgrade project as a policy deliverability mitigation that is needed to provide sufficient transmission capability to deliver the</p>	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>renewable generation in the CPUC integrated resource plan portfolio in the GLW/VEA area to CAISO system load.[2]</p> <p>This year GLW proposes additional transmission upgrades with a cost estimate of \$305 million for a region that represents about 0.28% of CAISO’s grid load.[3] GLW did not provide any evidence that there are overloads in its service area that cannot be addressed with the previously approved project and CAISO’s identified RAS. Thus the proposed mitigations are not justified based on CAISO’s reliability assessment. The 2022 GLW upgrade project is similar in scope as the approved upgrade project and includes additional 230 kV circuit section rebuilds and replacements and adding three new 500/230 kV transformer banks and two new switching stations.</p> <p>As Cal Advocates notes in previous comments, should GLW seek to justify upgrades on the premise that they are needed for reliability, GLW should provide evidence that the existing system design fails to meet NERC planning standards.[4] In this TPP cycle, VEA again did not provide any evidence that its proposed upgrades are needed to meet a reliability need and thus should not be approved.[5] To better understand the issues in the VEA area and possible alternatives, Cal Advocates recommends that the CAISO provide an assessment of Nevada Energy’s GreenLink West project, (which is expected to be on line by the end of 2025), possible impact on the VEA system with this project, and if this project could also provide California access to southern Nevada’s geothermal and other renewable resources.</p>	
6e	City of Palo Alto	No comments	
6f	EDF-Renewables	No comments	
6g	Imperial Irrigation District	No comments	
6h	New Leaf Energy, Inc.	No comments	
6i	NGIV2, LLC	No comments	

No	Submitting Organization	Comment Submitted	CAISO Response
6j	Northern CA Power Agency	No comments	
6k	Silicon Valley Power	No comments	
6l	Transmission Agency of Northern California	No comments	

7. Please provide comments on CAISO high voltage TAC presentation.

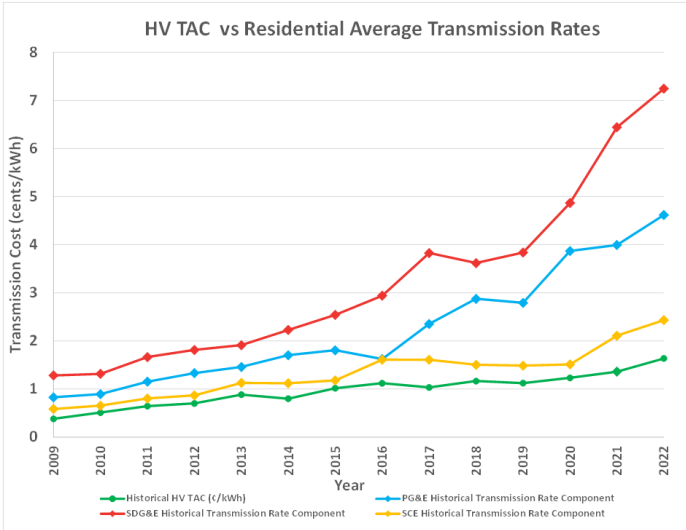
No	Submitting Organization	Comment Submitted	CAISO Response
7a	AES Clean Energy	No comments	
7b	Bay Area Municipal Transmission Group (BAMx)	<p>BAMx appreciates the continued work of the CAISO in keeping the stakeholders updated about the likely impact of its decision to approve transmission projects affecting the High Voltage (HV) Transmission Access Charge (TAC). BAMx appreciates the opportunity to comment on the CAISO's 2022 HV TAC Estimating Model ("TAC" Model" hereafter) that was posted on the CAISO website on September 23, 2022. We hope that the CAISO addresses the issues raised by BAMx below in the next update of the TAC Model.</p> <p style="padding-left: 40px;">1. Caveat the TAC forecast as it does not provide an accurate signal for the outer years, i.e., 2024-2029, and does not address additional wildfire mitigation costs</p> <p>BAMx notes that the tapering of the CAISO's TAC forecast in the outer years, that is, during 2027-2035, is primarily driven by the very low (or no) levels of transmission capital expenditures assumed in the HV TAC forecasting model. As shown in Figure 1, the HV TAC forecasting model assumes that the HV capital expenditures¹ will occur during 2022-2029, primarily driven by the CAISO-approved reliability-driven and policy-driven transmission projects.</p> <p style="text-align: center;">Figure 1: A Comparison of the CAISO's TAC (\$/MWh) and Assumed Capital Expenditures (M\$)</p>	<p>As indicated in the CAISO's presentation, the goal is to estimate future high voltage transmission access costs in an objective and transparent manner and is not a precise forecast of any individual PTO's revenue requirement or any individual project's revenue requirement.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		 <p>As shown in Figure 1, no capital expenditures are assumed in the outer years (2030-2036) in the TAC Forecasting Model, as it does not include capital expenditures in the CAISO's upcoming TPP cycles. In other words, the HV TAC rates, especially for 2030-2036, will likely be higher than those depicted in the current version of the HV TAC Forecasting Model.</p> <p>BAMx appreciates the CAISO providing a separate spreadsheet comprising the capital costs documented for several capital projects with high voltage components²⁴. This spreadsheet (Capital Costs Estimates) helps the CAISO and stakeholders to easily modify the transmission projects, their commercial operation dates, and related capital costs going forward.</p> <p>2. Capital projects questions</p> <p>BAMx has the following questions and comments on some of the capital transmission projects included in</p>	<p>The goal is to provide estimated upward pressure on transmission cost due to current and past TPP projects approval. It is obvious that is doesn't include future approvals, which will be captured in the future cycles' update.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>the TAC Model. We hope the CAISO addresses them in the next revision of the TAC Model. All the recommended corrections below are expected to increase the projected HV TAC further.</p> <ul style="list-style-type: none"> • Riverside Transmission Reliability Project (RTRP): We noticed that the latest TAC model continues to exclude the capital expenditure associated with Riverside Transmission Reliability Project (formerly Jurupa 230kV Sub). According to SCE's AB 970 quarterly report (Q1 2021), this project was approved by the CAISO in 2007 with a current planned in-service date of 10/15/2026. A Certificate of Public Convenience and Necessity (CPCN) for this project was granted on 03/12/2020 and indicates that its capital cost is approximately \$450M. Please explain why the capital expenditures associated with the RTRP were excluded from the TAC Model. • Alberhill Transmission Project: The TAC model continues to assume the old capital cost of \$314M. This amount needs to be updated to \$545M to reflect SCE's updated cost estimate.[3] • Warnerville-Bellota 230 kV Line Reconductoring: The TAC model assumes a capital cost of \$107M; however, based on the CAISO's reporting, the capital cost is expected to be as high as \$151.6M.[4] Furthermore, the TAC model assumes a part of the capital expenditures (\$19M) to be incurred in 2025; however, the CAISO has reported the in-service date for this project to be earlier, that is, 2024. Therefore, it appears the capital expenditures need to be adjusted to be consistent with the latest schedule. 	<p>It is same as Method of Service for Wildlife 230/66 kV Substation, which is included.</p> <p>The comment has been noted.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
7c	California Energy Storage Alliance	<p>CESA appreciates the inclusion of the study on high-voltage transmission access charge (TAC) trends and presentation. Notably, CESA seeks further information and justification on the maintenance of the assumption to maintain gross load growth at -0.05% even though high transportation electrification loads should be assumed going forward, which should have some counter effect of increasing the GWh base for the TAC costs.</p>	<p>The gross load growth assumption will be reevaluated in the next update.</p>
7d	California Public Utilities Commission - Public Advocates Office	<p>Cal Advocates appreciates CAISO's updated high voltage (HV) transmission access charge (TAC) forecast based on the capital projects approved in the 2021-2022 transmission planning process (TPP).</p> <p>However, Cal Advocates is concerned that the proposed \$2.9 billion in capital expenditures for the proposed reliability projects presented at the September 2022 TPP meetings[1] may not be needed, as explained in these comments and that these possible new costs were not considered in CAISO's forecast amongst other potential costs. In addition, Cal Advocates is concerned about the escalating cost of transmission as a portion of the total ratepayer energy bills. To illustrate the impacts of the presented 2022-2023 TPP reliability projects, Cal Advocates updated CAISO's 2021-2022 HV TAC forecast, shown in Figure 2., to include the revenue from all PTO-proposed reliability projects and additional capital expenditures included in CAISO's 20-Year Transmission Outlook, issued in 2021, and estimated at \$30.5 billion.[2]</p> <p>Figure 2.: Cal Advocates' Supplemental HV TAC Forecast[3]</p>	<p>The CAISO will include all the projects recommended for approval in the 2022-2023 transmission planning process as a part of the planning cycle.</p>

No	Submitting Organization	Comment Submitted	CAISO Response																																								
		<div data-bbox="514 240 1201 673" data-label="Figure"> <table border="1"> <caption>HV TAC Forecast Data (Estimated from Chart)</caption> <thead> <tr> <th>Year</th> <th>2021-2022 HV TAC Forecast (\$/MWh)</th> <th>HV TAC Forecast Incl. 2023 Reliability Proposals (\$/MWh)</th> <th>HV TAC Forecast Incl. 20-Year Outlook (\$/MWh)</th> </tr> </thead> <tbody> <tr> <td>2022</td> <td>16.5</td> <td>16.5</td> <td>16.5</td> </tr> <tr> <td>2024</td> <td>18.5</td> <td>18.5</td> <td>18.5</td> </tr> <tr> <td>2026</td> <td>20.0</td> <td>20.0</td> <td>20.0</td> </tr> <tr> <td>2028</td> <td>21.5</td> <td>21.5</td> <td>22.5</td> </tr> <tr> <td>2030</td> <td>22.0</td> <td>22.0</td> <td>23.5</td> </tr> <tr> <td>2032</td> <td>22.0</td> <td>22.5</td> <td>25.5</td> </tr> <tr> <td>2034</td> <td>22.0</td> <td>23.0</td> <td>28.5</td> </tr> <tr> <td>2036</td> <td>22.0</td> <td>23.4</td> <td>31.4</td> </tr> <tr> <td>2038</td> <td>22.0</td> <td>21.9</td> <td>-</td> </tr> </tbody> </table> </div> <p data-bbox="514 714 1201 1323"> As shown in Cal Advocates' forecast above, approval of the proposed reliability projects would result in an approximately 6.5% increase in the already historically high HV TAC. CAISO's 2021 HV TAC forecast is likely an underestimate of possible future TAC increases. Given the staggering estimated \$30.5 billion needed in transmission investment from the CAISO's 20-Year Transmission Outlook,^[4] the HV TAC can only be expected to increase further as new transmission investments are constructed and come on-line. This projection of capital expenditures does not even include the historical cost increases of 41% above the CAISO's upper end estimates.^[5] If this cost escalation trend persists, it will further increase the burden on ratepayers. Cal Advocates also notes that the CAISO HV TAC forecast stops at year 2036 and does not extend to 2042 and, thus, leaves out the remaining capital expenditures in the 20-Year Outlook that Cal Advocates estimates at approximately \$10 billion. </p> <p data-bbox="514 1356 1201 1518"> To further emphasize ratepayer impacts, Figure 3. below presents a comparison of the historical HV TAC to the residential average transmission rate components for the three major PTOs in the CAISO's balancing authority area. As seen in Figure 3., there </p>	Year	2021-2022 HV TAC Forecast (\$/MWh)	HV TAC Forecast Incl. 2023 Reliability Proposals (\$/MWh)	HV TAC Forecast Incl. 20-Year Outlook (\$/MWh)	2022	16.5	16.5	16.5	2024	18.5	18.5	18.5	2026	20.0	20.0	20.0	2028	21.5	21.5	22.5	2030	22.0	22.0	23.5	2032	22.0	22.5	25.5	2034	22.0	23.0	28.5	2036	22.0	23.4	31.4	2038	22.0	21.9	-	<p data-bbox="1228 868 1963 966"> The current scope of the TAC update covers for the 10-year planning horizon. The CAISO will look into possibility of expanding the outlook horizon in future updates. </p>
Year	2021-2022 HV TAC Forecast (\$/MWh)	HV TAC Forecast Incl. 2023 Reliability Proposals (\$/MWh)	HV TAC Forecast Incl. 20-Year Outlook (\$/MWh)																																								
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		<p>are modest increases expected in the HV TAC in comparison to the significant increases in transmission charges to SDG&E and PG&E ratepayers. The actual transmission cost increases for residential average ratepayers in 2022 ranged from 150% to 440% of the HV TAC value, and the portion of residential average utility bills dedicated to transmission charges increased by 6% to 12.3% between 2009 and 2022.^[6] This steep increase in transmission costs deserves consideration along with the evaluation of the proposed projects specifically for those projects that have no justification.</p> <p>Figure 3: Historical HV TAC vs Residential Average Transmission Rates^[7]</p>  <p>The chart shows a significant upward trend in transmission costs over the period. The SDG&E component shows the most dramatic increase, rising from approximately 1.2 cents/kWh in 2009 to over 7 cents/kWh in 2022. The PG&E component also shows a steady increase, reaching about 4.5 cents/kWh by 2022. The SCE component increases from about 0.5 cents/kWh to 2.5 cents/kWh. The historical HV TAC remains the lowest, ending at approximately 1.5 cents/kWh in 2022.</p> <p>To address these rising transmission costs, Cal Advocates recommends CAISO pursue the most cost-efficient solutions, and fully explore non-wire alternatives and CAISO's mitigation suggestions contained in these comments to address the projected reliability issues in the 2022-2023 TPP. Cal Advocates also requests CAISO identify the investments that are in-line with the 20-Year Outlook and identify</p>	<p>The comment has been noted. The CAISO does explore non-wire and cost effective alternatives and will continue to do that.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		investments that are in addition to the 20-Year Outlook's \$30.5 billion investment estimate.	
7e	City of Palo Alto	No comments	
7f	EDF-Renewables	No comments	
7g	Imperial Irrigation District	No comments	
7h	New Leaf Energy, Inc.	No comments	
7i	NGV2, LLC	No comments	
7j	Northern CA Power Agency	No comments	
7k	Silicon Valley Power	No comments	
7l	Transmission Agency of Northern California	No comments	

8. Please provide comments on CAISO policy assessment update.

No	Submitting Organization	Comment Submitted	CAISO Response
8a	AES Clean Energy	No comments	
8b	Bay Area Municipal Transmission Group (BAMx)	CAISO staff collaborated with CPUC staff in identifying resource portfolio adjustments (reductions) that were needed to account for additional in-development resources PTOs modeled that were not included in the CPUC’s in-development resources list (possibly due to time lag). ^[1] BAMx appreciates the CAISO providing the details on the portfolio adjustments made to account for additional in-development resources. BAMx found the underlying spreadsheets provided by the CPUC and CAISO to be most helpful in understanding the adjustment process. BAMx endorses the CAISO-proposed future improvements that are being considered to minimize similar post-transmittal portfolio adjustments. ^[2] BAMx looks forward to reviewing the preliminary results of the policy-driven assessment at the November 17 stakeholder meeting.	The comment and support has been noted..
8c	California Energy Storage Alliance	CESA has no comment at this time. We look forward to reviewing the preliminary policy assessment that will be shared at the November 17, 2022 stakeholder meeting.	
8d	California Public Utilities Commission - Public Advocates Office	No comments	
8e	City of Palo Alto	No comments	
8f	EDF-Renewables	No comments	
8g	Imperial Irrigation District	IID respectfully requests that CAISO evaluate the NGIV2 project and SDG&E proposed reliability and policy upgrades from a holistic planning perspective. Both sets of projects enable CAISO’s broader transmission policy objectives as discussed in February 2022, especially, as it relates to MIC expansion opportunities, LCR enhancements, and integration of CAISO geothermal imports as well as other resources. The proposed SDG&E BES project proposals will have a substantial influence on the value of the NGIV2 project and conversely, the economic and policy benefits provided by the NGIV2 project produces	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		additional value for CAISO ratepayer investment in those upgrades.	
8h	New Leaf Energy, Inc.	No comments	
8i	NGIV2, LLC	NGIV2 supports the proposed MIC enhancements and believe that the NGIV2 Project can be a positive enhancement for the southern part of the CAISO to import out-of-state resources, as well as achieving the 30MMT High Electrification Scenario. NGIV2 looks forward to reviewing the results of this critical portion of the 2022-2023 TPP.	The comment and support has been noted.
8j	Northern CA Power Agency	No comments	
8k	Silicon Valley Power	No comments	
8l	Transmission Agency of Northern California	No comments	

9. Please provide comments on CAISO economic assessment update.			
No	Submitting Organization	Comment Submitted	CAISO Response
9a	AES Clean Energy	No comments	
9b	Bay Area Municipal Transmission Group (BAMx)	<p>CAISO Net Export Limit Assumption</p> <p>The net export limit for the CAISO system is considered in CAISO's production cost simulation (PCM) studies and CPUC's IRP studies. BAMx believes that the net export limit is neither a transmission constraint nor a market constraint imposed by the CAISO in operation. BAMx understands that the CAISO plans to model the net export limit at 5,000 MW in the 2032 planning PCM for the 2022-2023 transmission planning study. We question why it should be limited to 5,000 MW. Having CPUC's IRP and CAISO's renewable studies use a 5,000 MW limit in and itself should not be the reason for the CAISO to restrict it to 5,000 MW. BAMx, therefore, encourages the CAISO not to model any net export limit in its PCM studies in the current planning cycle.</p>	<p>The CAISO Net Export Limit is considered based on historical data and trend. This limit is neither a transmission constraint nor a market constraint in operation. However, the planning PCM uses the Net Export Limit to reflect the market hurdle between the CAISO and the rest of Western Interconnection systems, which can be because the willingness or policy of other BAAs to receive CAISO's energy surplus, or can be other BAAs operational and reliability requirements.</p>
9c	California Energy Storage Alliance	CESA has no comment at this time. We look forward to reviewing the preliminary economic assessment that will be shared at the November 17, 2022 stakeholder meeting.	
9d	California Public Utilities Commission - Public Advocates Office	No comments	
9e	City of Palo Alto	No comments	
9f	EDF-Renewables	No comments	
9g	Imperial Irrigation District	IID respectfully request the CAISO perform a sensitivity of the economic analysis for the NGIV2 project that includes the SDG&E BES project proposals. IID believes the synergy between projects and the associated topology changes will enhance and highlight the economic benefits provided by the NGIV2 project.	This comment has been noted.
9h	New Leaf Energy, Inc.	No comments	

No	Submitting Organization	Comment Submitted	CAISO Response
9i	NGIV2, LLC	Per the 2022-2023 TPP Study Plan, NGIV2 looks forward to the evaluation of the North Gila - Imperial Valley #2 Project and also suggest that the proposed SDGE proposed projects be included as an additional sensitivity.	This comment has been noted.
9j	Northern CA Power Agency	No comments	
9k	Silicon Valley Power	No comments	
9l	Transmission Agency of Northern California	No comments	

10. Any additional comments			
No	Submitting Organization	Comment Submitted	CAISO Response
10a	AES Clean Energy	No comments	
10b	Bay Area Municipal Transmission Group (BAMx)	BAMx appreciates the opportunity to comment on the 2022-23 Transmission Plan Reliability Assessment Results and the PTO Request window submissions and acknowledges the significant effort of the CAISO and PTO staffs to develop this material.	The comment has been noted.
10c	California Energy Storage Alliance	No comments	
10d	California Public Utilities Commission - Public Advocates Office	<p>CAISO's reliability assessments consider the impact of California Energy Commission (CEC) 2021 demand forecasts under different scenarios⁽¹⁾ as well as an additional CEC transportation electrification (ATE) demand scenario for 2035. However, CAISO only provided its reliability assessment results for years 2024, 2027 and 2032. CAISO did not provide similar results using the ATE demand scenario for 2035. Cal Advocates requests that the CAISO posts its reliability assessment results using the (ATE) demand scenario for 2035.</p> <p>PG&E's presentation on reliability issues and proposed mitigations in its service area identifies specific customers that are driving load growth in certain load pockets such as cannabis growers, data centers, and business parks. When specific industries can be identified as the sole drivers of needed new upgrades, PTOs should approach these customers with targeted programs to reduce their load; if these customers are seeking interconnection, these customers should contribute to needed upgrades to serve their load to ensure that project cost allocation is consistent with the cost drivers and beneficiaries.</p> <p>Cal Advocates also notes that none of the PTOs listed consideration of lower-cost behind-the-meter solutions as part of their mitigation strategies in</p>	<p>The CAISO is looking into including 2035 results in the final reliability assessment results posting.</p> <p>The CAISO is currently reviewing the projects and have reached out to the PTO for comment on consideration of demand-side programs to reduce load.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Background</p> <p>Prior to the CAISO's 2021-2022 TPP, the CAISO approved two energy storage non-transmission solutions: a 10MW/51MWh battery at Dinuba Substation (Reedley 70 kV Reinforcement) and a 10MW/40MWh battery at Oakland C Substation (Oakland Clean Energy Initiative). [2] FERC directives later motivated the CAISO to initiate the SATA stakeholder process to explore how reliability-based storage assets could participate in CAISO markets without jeopardizing their primary purpose. The CAISO and stakeholders worked hard to develop a framework (the "Second Revised Straw Proposal") that included the following features: [3]</p> <ul style="list-style-type: none"> • Determination of transmission need: The CAISO would determine on a daily basis when it expected to need the SATA as transmission. If the CAISO determined that the SATA would be needed for reliability, the resource would be reserved for transmission use and could not participate in the market. If the CAISO determined that the SATA would not be needed for reliability, the resource could bid into the Day Ahead or Real-Time market. • No GIDAP requirement: SATA resources would not be required to go through the generator interconnection process (GIDAP) but would be studied in the TPP (and modeled in later generator interconnection studies) as a transmission addition. • No Resource Adequacy (RA) Net Qualifying Capacity (NQC) requirement: SATA resources would be modeled as transmission in determining local capacity area needs and thus 	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>would not have a deliverability requirement or count for RA.</p> <p>During the SATA initiative, the CAISO indicated its preference that procurement of storage assets for reliability needs would be procured by Load-Serving Entities (LSE) through their market contracting and purchases^[4] and that such resources should be treated as Non-Generator Resources to the extent possible.^[5]</p> <p>The CAISO never completed the SATA initiative. It was suspended pending further CAISO development of storage rules in the Energy Storage and Distributed Energy Resources (ESDER) initiative and never resumed.^[6]</p> <p>Unresolved Issues</p> <p>Because the SATA initiative was suspended, key issues remain unresolved related to SATAs and to resources approved as transmission substitutes but procured by LSEs as market resources. It is critical for the success of the transmission-alternative approach that the CAISO address these issues expeditiously in the SATA forum, where stakeholders can provide input and the framework can be finalized.</p> <p>The nexus between reliability needs and market participation is one issue that is currently unresolved. For example, when the CAISO identifies a battery storage resource as a transmission substitute, clearly the battery must be available whenever needed by the CAISO to fulfill the reliability need for which it was identified. If the resource has been procured as a SATA, it is not clear whether or how the resource could also participate in CAISO markets. If the resource is procured by an LSE as a market resource, it is not clear</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>how the transmission reliability need would be met given the resource’s market activity, or how meeting that reliability need could constrain the resource’s market activities.</p> <p>Moreover, issues relating to participation in the GIDAP, including RA deliverability, are an integral part of the CAISO’s assessment of the alternative. The last determination in the SATA initiative was that SATAs need not participate in the GIDAP process nor have RA deliverability, because those resources would be modeled and included in CAISO base cases as transmission (essentially the same as a transmission line or transformer).[7]</p> <p>The same basic concept should apply to resources identified to meet a reliability need but procured by LSEs. The funding mechanism may be different, but the modeling issue would be the same. This is a critical issue because there are significant consequences to requiring market resources procured to meet an identified reliability need to go through the GIDAP and/or to have RA deliverability. These consequences include:</p> <ul style="list-style-type: none"> • The time lag for the Interconnection Studies (two to three years or more, depending on whether any resources that could meet the reliability need are already in the queue). If there are no resources in the queue in these specific locations, then new Interconnection Requests would have to be submitted in Cluster 15, and the distinct possibility of a large cluster could lengthen the study process even further, similar to the situation for Cluster 14. • The likely time lag for construction of identified Distribution and/or Network Upgrades, at a time when PTO construction durations seem to be continually lengthening, 	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>including the delays and additional requirements now commonly included in annual Reassessment Reports.</p> <ul style="list-style-type: none"> • The increasing possibility that there may be no deliverability available in the project area, in which case it would be impossible for the resource to meet this requirement, at least in any timely fashion and perhaps never. <p>The latter consequence is existential. The very purpose of the resources selected as non-transmission reliability solutions is to address local reliability needs in areas of significant constraint. It follows that these areas are very unlikely to have available deliverability for a new resource. Requiring a transmission solution intended to support areas with low or no deliverability to be deliverable is illogical and increases the probability that energy storage will not be a feasible reliability solution.</p> <p>Lamont Battery</p> <p>The lack of guidance is already having a negative real-world impact. In the 2021-2022 TPP, after suspending the SATA initiative, the CAISO recommended a 95MW/380MWh energy storage system to be sited at Lamont Substation as a non-transmission alternative to specific identified transmission upgrades (the “Lamont Battery”). The energy storage system would provide protection against several contingencies (including two P2 contingencies).[8]</p> <p>In Decision (D.) 22-02-004, the CPUC directed PG&E to conduct a competitive solicitation to procure the Lamont Battery in its capacity as the Central Procurement Entity (CPE).[9] However, because the SATA initiative was never completed, PG&E has no official guidance in the CAISO tariff or market rules on</p>	<p>Lamont 115 kV area load forecast decreased, which resulted in reduced reliability issues in the area. The CAISO is currently working with PG&E to take a closer look in the future load forecast and distribution planning needs in the area. The Lamont resource is supposed to be a local RA resource and was identified as such Transmission Plan by way of requiring a 4-hour storage.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>how it should proceed with this procurement, including any rules regarding reliability limitations on market activity or any GIDAP or RA requirements.</p> <p>The CAISO should inform the CPUC and PG&E that deliverability is not necessary for the Lamont Battery to be able to serve the reliability need identified in the 2021-2022 TPP. The reason that the Lamont Battery was recommended was to address local reliability needs in a constrained area. As contemplated, the Lamont Battery would address the local reliability need by effectively reducing the amount of NQC required in the local capacity area.</p> <p>D. 22-02-004 required PG&E to report on its progress toward procuring the Lamont Battery by December 31, 2022.^[10] PG&E's reporting deadline is less than three months away. If sufficient progress is not made, the non-transmission approach will fail, and the transmission project will be selected instead.</p> <p>Conclusion</p> <p>Key issues raised in the SATA initiative for SATAs and market-based resources that would meet reliability needs in place of transmission upgrades remain unresolved. As a result, non-transmission alternatives identified by the CAISO in the 2022-2023 TPP will likely face significant uncertainties and delays. Therefore, New Leaf reiterates its recommendations:</p> <ul style="list-style-type: none"> • On an interim basis, for purposes of meeting the needs identified in this TPP cycle, the CAISO should allow for the procurement of non-transmission storage solutions without requiring deliverability; and • The CAISO should revive its work, begun in the Storage as a Transmission Asset (SATA) initiative, on creating a durable framework for 	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>SATAs and market-based resources that would meet reliability needs in place of transmission upgrades.</p> <p>New Leaf thanks the CAISO for the opportunity to provide these comments.</p>	
10i	NGIV2, LLC	NGIV2 appreciates the continued stakeholder involvement in the annual TPP and the opportunity to submit these comments.	The comment has been noted.
10j	Northern CA Power Agency	<p>The Northern California Power Agency appreciates the opportunity to comment on CAISO's 2022-23 Transmission Planning Process. The comments below address the reliability assessment results material presented at the CAISO Stakeholder meeting on September 27-28, 2022.</p> <p>The ISO is using Additional Transportation Electrification (ATE) demand forecast in the 2032 baseline scenarios. NCPA urges the ISO to identify those reliability projects that would not be needed under a lower demand forecast, such as SCE's Serrano Banks 500/230 kV Thermal Overloads. Stakeholders should, at minimum, be made aware of those capital investments that could be delayed or be rendered unnecessary in the event that ATE demand forecast does not actually materialize.</p> <p>NCPA is also concerned that some transmission owners may be using study assumptions that differ from CAISO's study assumptions, resulting in contingency overloads in their studies that do not appear in CAISO's own reliability assessments. NCPA urges CAISO to give greater scrutiny to reliability projects proposed by those transmission owners to determine whether, under CAISO's study assumptions, those projects would be needed. Transmission-owner proposed projects that are not needed to meet contingency overloads under CAISO's assumptions should not be included in CAISO's transmission plan.</p>	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
10k	Silicon Valley Power	No comments	
10l	Transmission Agency of Northern California	No comments	