The ISO received comments on the topics discussed at the, 2022 stakeholder call from the following:

- https://stakeholdercenter.caiso.com/Comments/AllComments/f19a7845-cd76-4d0c-9ebf-041832dbbe23#question-806567d4-5aad-47ec-86b8-38e140fc3c5b

Copies of the comments submitted are located on the 2022-2023 Transmission Planning Process page at:

- California ISO - 2022-2023 Transmission planning process (caiso.com)

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

1. Comment on chapter 1 Introduction:

No		Comment Submitted	CAISO Response
1	ACP-California	ACP-California is the voice of the clean power industry in California, focusing on California's market and policies for a reliable and affordable transition to 100% clean energy.1 We appreciate the opportunity to comment on the Draft Study Plan for the 2022-23 TPP. These brief comments support CAISO's plan for additional outreach on the 20-Year Outlook during the upcoming transmission planning cycle (and its plan to wait to conduct refinements to the Outlook until 2023). They also ask for consideration of Offshore Wind (OSW) resources and transmission solutions in the Aliso Canyon-related sensitivities. Finally, as ACP has highlighted in past TPP comments, these comments provide a reminder that new Inverter Based Resources (IBRs) may be required to be capable of providing frequency response; however, contractual modifications will be necessary to incent the provision of frequency response and other headroom services by these resources. We look forward to continuing to engage with the CAISO and other stakeholders on the 2022-23 TPP and associated activities.	Comment noted.
2	Arevia Power	none	
3	Bay Area Municipal Transmission group (BAMx)	The Bay Area Municipal Transmission group (BAMx)[1] appreciates the opportunity to comment on the California Independent System Operator (CAISO) Draft 2022-2023 Transmission Planning Process (TPP) Unified Planning Assumption and Study Plan (Study Plan). The comments and questions below address the Study Plan posted on February 18, 2022, and discussed during the February 28, 2022 stakeholder meeting. We applaud the CAISO's desire to work with Stakeholders to enhance each year's plan. We look forward to working with the CAISO on this collaborative process.	Comment noted.
4	California Community Choice Association	CESA continues to express our appreciation for the work and effort by the California Independent System Operator (CAISO) as part of the annual Transmission Planning Process (TPP), which will play a critical role in planning, identifying, and approving transmission buildout to accommodate resource buildout needs to meet our long-term decarbonization objectives. Overall, the Draft 2022-2023 TPP Study Plan is reasonable and smartly plans to conduct additional studies to address various reliability questions (frequency response, Aliso Canyon, high-electrification scenarios). We also continue to support and encourage the CAISO's assessment of non-wires alternatives like energy storage to meet transmission needs in a cost-effective way.	The CEC is currently developing a high electrification forecast that the CPUC will also use to develop a corresponding portfolio that the ISO will use for a special study. The forecast and portfolio are to be provided to the ISO by June 1.

No		Comment Submitted	CAISO Response
		In these comments, we focus on the need to conduct a policy-driven sensitivity scenario using the 30 million metric ton (MMT) greenhouse gas (GHG) emissions target in the 2022-2023 TPP cycle, as well as requesting clarification on one discrepancy identified by CESA in our review of the planned inputs and assumptions for the economic planning study.	
5	California Public Utilities Commission - Energy Division	•CPUC staff encourages the CAISO's involvement in establishing a smooth process for analyzing, approving, and ensuring reasonable cost recovery for storage and other non-wire alternatives which can ensure reliability in place of transmission, but at lower cost to ratepayers. (See question #2) •CPUC staff supports the planned study effort utilizing the base portfolio the CPUC transmitted to the CAISO and appreciates the CAISO's continued collaboration in developing the high electrification sensitivity portfolio. (See question #3) •CPUC staff seeks clarity on the on and off-peak maximum resource dispatch percentages that the CAISO will use for out-of-state wind in the policy driven transmission assessment study. (See question #3) •CPUC staff would like to clarify that there were no thermal generation retirements selected as part of the portfolio transmitted for the 22-23 TPP base case. (See question #3) •CPUC staff requests that the CAISO share more information in the final study plan about how out-of-state wind delivered to CAISO on new transmission developed outside of CAISO will be treated in the various TPP assessments. (See question #4) •CPUC staff urges the CAISO to consider how the 2022-2023 interregional transmission coordination cycle could or should interact with the findings of the 2021-2022 TPP cycle (See question #5) •CPUC staff appreciates the CAISO's willingness to examine the transmission implications of closing the Aliso Canyon natural gas facility and is available to provide support, if necessary. (See question #6) •CPUC staff appreciates the CAISO's inclusion of the MIC expansion requests special study as a useful addition to address the challenges in planning for new resources being procured outside the CAISO's BAA. (See question #6)	Comment noted and responded to in the identified questions below.. Comment noted This comment is addressed in the responses to comments on Chapter 3 of the study plan (policy-driven assessment) below Final study plan updated with notes on CPUC 40 year age based retirements. Comment noted
	California Public Utilities Commission - Public Advocates Office	The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) provides these comments on the 2022-2023 Transmission Planning Process (TPP) Unified Planning Assumptions and Study Plan (2022 Draft Study Plan). Cal Advocates is an independent consumer advocate with a mandate to obtain the	Comment noted.

No		Comment Submitted	CAISO Response
		lowest possible rates for utility services, consistent with reliable and safe service levels, and the state's environmental goals.[1] Recommendations on Transmission Planning Process Project Analysis and Descriptions As stated in the California Independent System Operator Corporation's (CAISO) Business Practice Manual (BPM) document for the CAISO TPP, one purpose of the TPP is to identify alternatives to proposed reliability and policy infrastructure solutions.[2] To confirm whether a proposed project is the low-cost, best-fit solution, it is necessary to evaluate and compare the proposed project to feasible alternatives. A policy-driven project can, in part, be justified based on its costs compared to alternatives.[3] Thus, to fully justify a policy-driven project, the CAISO should consider feasible alternatives and their associated costs. Cal Advocates also recommends the CAISO present its alternative analysis in a consistent manner for proposed reliability and policy projects in the 2022-2023 TPP cycle and future TPP cycles. As such, Cal Advocates recommends the following: A.Provide Non-Wire Alternative Analysis Alternative analysis should consider low-cost grid enhancing technologies, such as energy storage and reactive support devices consistent with the CAISO's Tariff.[4] The CAISO's BPM for the TPP requires that the CAISO to consider non-transmission alternatives as mitigation solutions for identified grid needs.[5], [6] Cal Advocates' comments on the 2021-2022 Draft Transmission Plan (2021 Draft Plan) noted that the CAISO's alternative analysis was limited to Remedial Action Schemes,[7] and the CAISO did not consider other grid enhancing technologies.[8] Remedial Action Schemes are system tools that do not add system capacity. The National Association of Regulatory Utility Commissioners (NARUC), in its comments on the Federal Energy Regulatory Commission (FERC) Advanced Notice of Proposed Rulemaking, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection (FERC RM21-17-000), stated support for providing a "clear pathway" for consideration of alternative transmission solutions, "including grid enhancing technologies, non-transmission technologies, and hybrid programs for efficiency, load control, distributed generation and storage in the regional planning process."[9]	

No		Comment Submitted	CAISO Response
		NARUC further stated that, transmission planning should focus on identifying multiple cost-effective possibilities to solve a need and should consider a portfolio of transmission projects, as well as non-wires alternatives to new transmission, to optimize efficiencies, facilitate interconnections and promote cost containment over a long-term planning horizon.[10] Cal Advocates agrees with these NARUC comments and requests that CAISO consider the range of feasible grid enhancing technologies, such as Smart Wires, as alternatives to proposed projects.[11] B.Require More Project Information Detail As specified in our 2021 Draft Plan comments, Cal Advocates recommends the CAISO and utilities provide more detailed information on the alternatives considered by the CAISO, their costs, and the costs for all the proposed project's major components including any contingency costs.[12] The Bay Area Municipal Transmission Group also raised similar concerns with the alternative analysis provided in the 2021-2022 TPP cycle stating that: In some cases, it appears the transmission alternatives have not yet been fully developed, screened, and analyzed. Alternatives are often discussed qualitatively but never quantitatively compared with the proposed alternative. For instance, the stakeholders do not have access to any "change" power flow cases for the policy-driven transmission analysis and documentation underlying the recommended projects' needs.[13] Typically, the TPP includes rough estimated project costs or book-end project costs. Cal Advocates recommends that the CAISO include a more substantial and detailed breakdown of the major project components' costs and contingency costs. Without this essential project information, the CAISO Board and stakeholders cannot confirm whether the proposed projects are justified based on their costs.	

No		Comment Submitted	CAISO Response
		To ensure that the 2022-2023 TPP cycle and future TPP cycles sufficiently consider project alternatives and provide adequate project information, Cal Advocates also recommends the following revisions to the CAISO's BPM document for the TPP. 4.3.3.1. Reliability-Driven Solutions, Merchant Solutions and Solutions Needed to Maintain the Feasibility of Long-Term CRRs Submissions (c) Planning Level Cost Data i.Project construction costs estimate with costs provided for each project component including contingencies, schedule, anticipated operations, and other data necessary for the study. Cost data is not necessary for merchant projects. ii.Alternative analysis illustrating the alternative's capacity to address the reliability, economic or policy need and estimated costs for all project components and reasons provided for any anticipated upgrades and associated costs to support the alternative.[14] C.Require Vetting of Project Cost Information Cal Advocates recommends that the CAISO, or a third party hired by the CAISO, vet incumbent utilities' project cost information to confirm that the costs for proposed utility projects and project alternatives are reasonable. D.Costs and Ratepayer Impact To improve the CAISO TPP stakeholder process, Cal Advocates recommends that the CAISO provide the costs and ratepayer impacts for all transmission projects recommended for approval in the 2022-2023 TPP cycle. The CAISO should analyze and formally present ratepayer cost impacts, such as cumulative additions to regional and local transmission revenue requirements and impacts to the transmission access charge (TAC), when discussing proposed projects. Merely providing estimated capital costs does not provide actionable information for meaningful stakeholder engagement on ratepayer impacts •	
	California Wind Energy Association	If the ISO develops a plan to integrate the annual TPP cycle with its conceptual 20-year plan, as discussed in response to question 3,	The comment has been noted.

No		Comment Submitted	CAISO Response
		below, it can add a discussion about how the ISO is getting in front of the acceleration of clean energy development.	
	CAlifornians for Renewable Energy, Inc. (CARE)	https://stakeholdercenter.caiso.com/Common/DownloadFile/b40c3240-5213-4890-b47e-1d7e5ee72e57	Behind-the-meter resources modeling approach is elaborated in the final study plan to clarify that contributions from these resources in reducing the net load that transmission system would see at the T & D interface is accounted for in the reliability assessment.
	CEERT, EDF	California's clean energy economy is going to need clean energy infrastructure. To power our homes and vehicles with renewables, we're going to need to build a lot of solar and wind, geothermal – and we're going to need transmission infrastructure to deliver it to customers and maintain a reliable grid. The Public Interest Organizations Center for Energy, Efficiency and Renewable Technologies (CEERT), Environmental Defense Fund (EDF)appreciate the opportunity to comment and the promoted timeline to participate in various stages of the development of the 10-year 2022-2023 transmission planning process. As mentioned in earlier comments: 1.We recommend CAISO and CPUC use the 30 MMT target since the Governor directed the agencies to consider adoption of more stringent GHG targets. 2.We appreciate the coordination but the models, procurement policies and planning must be better integrated with each agency to ensure consistent, efficient, and effective implementation of policies to meet SB 100 requirements. The PIOs support the recommendation by CAISO staff for the transmission upgrades (including strengthen the 230kV to 500kV reconducting) and the inclusion of new lines needed for the Base and additional Portfolios. 3.Short- and long-term planning components must be amalgamated to avoid taking too many small steps to fix all the needs. More in-depth analysis on how and when a larger project could be more cost effective over time while also addressing reliability and public policy needs. The PIOs support the recommendations for the transmission upgrades identified for the Base Portfolio in the off-peak assessment if they are found to be affordable and or meet public policy requirements.	The CEC is currently developing a high electrification forecast that the CPUC will also use to develop a corresponding portfolio that the ISO will use for a special study. The forecast and portfolio are to be provided to the ISO by June 1.

No		Comment Submitted	CAISO Response
		4.As the CAISO performs further evaluation of transmission alternatives to identify the preferred solutions including updates to the production cost modeling, it is imperative to incorporate all renewable energy targets looking at economy wide decarbonization for local and system wide needs. 5.We recommend a stronger integrated analysis to address the current disconnect between the enormous scale of renewable energy generation build needed with new and upgrades to the transmission system in the next -5-10 and 15 years and the current short-term view that can cost California millions of dollars.	
	Citizens Energy Corporation	None	
	City of Palo Alto Utilities	The City of Palo Alto Utilities (CPAU or the City) appreciates the opportunity to comment appreciates the opportunity to comment on the California Independent System Operator (CAISO) Draft 2022-2023 Transmission Planning Process (TPP) Unified Planning Assumption and Study Plan (Study Plan), dated February 18, 2022. CPAU acknowledges the significant efforts of the CAISO staff in developing the Study Plan.	Comment noted
	Fervo Energy Company	None	
	Friends of Minidoka	Thank you for the opportunity to submit comments regarding the 2022-2023 Transmission Planning Process (TPP) Draft Study Plan and CPUC Modeling Assumptions. The Friend of Minidoka is an Idaho non-profit corporation and official “friends” group of the National Park Service (NPS). We appreciate the opportunity to provide CAISO with information to support its decision-making regarding transmission planning for Out-of-State (OOS) Idaho wind. The Friends of Minidoka’s mission is to support public education and the preservation of the Minidoka National Historic Site (NHS), a unit of the National Park System located in southern Idaho. The Minidoka NHS site is sacred to Japanese Americans. It preserves the memories and tells the stories of Japanese American people who were wrongfully incarcerated during World War II. The Friends of Minidoka plan to participate in various forums, including CAISO's TPP, to express its support for maintaining the integrity of the Minidoka National Historic Site's fundamental	Comment noted.

No		Comment Submitted	CAISO Response
		resources and values as a place for learning and healing. FOM also plans to express its concerns about the racial justice impacts of the Lava Ridge Wind Project, which LS Power plans to connect to its proposed Southwest Intertie Project-North (SWIP-N). The National Park Service has described how the Lava Ridge Wind Project will adversely impact the Minidoka National Historic Site: "…the Lava Ridge Project would fundamentally change the psychological and physical feelings of remoteness and isolation one experiences when visiting Minidoka NHS, as the lands north would be transformed into a large-scale renewable energy site marked by hundreds of wind turbines, transmission towers and associated ancillary infrastructure. Approaching the site and walking its grounds, visitors would no longer experience the feeling of a rural, undeveloped landscape recalling what Minidoka was like during World War II." In 1942, the U.S. Government sited the Minidoka Relocation Center near a railroad line to transport U.S. citizens of Japanese descent from Assembly Centers located in California, Oregon and Washington State. Today, the railroad line parallels several east-west transmission lines in southern Idaho. Minidoka is located near Midpoint, Idaho, which is the proposed northern terminus of LS Power's SWIP-N line. Along with other projects, the SWIP-N line would connect LS Power's proposed Lava Ridge and Salmon Falls, Idaho wind projects to Robinson Summit, Nevada and the California grid via the ON Line-DesertLink (Eldorado). FOM is concerned that the Lava Ridge Wind Project would negatively impact Minidoka, which was added to the National Register of Historic Places in 1979. In 1986, the Bureau of Land Management (BLM) issued the Monument Resource Management Plan for the federal lands now proposed for the Lava Ridge Project. This plan is thirty-six years old. In 1994, the BLM issued a record-of-decision for the SWIP-N right-of-way, which routed the line through the middle of the Minidoka NHS. BLM's environmental impact statement and NEPA compliance for the SWIP line is 28 years old. Despite the fact that the Lava Ridge Wind	

No		Comment Submitted	CAISO Response
		Project would connect to SWIP-N, the BLM has not analyzed the environmental impacts of these two projects as connected actions under the National Environmental Policy Act (NEPA). In 2001, President Clinton designated Minidoka as a National Monument, and unit of the National Park System. The National Park Service is required by the Organic and Redwoods Acts to manage the park unimpaired for future generations. In 2005, the BLM completed its Wind Energy Development Programmatic EIS, which found that the site proposed for the Lava Ridge project has "low" wind energy potential. In 2008, the U.S. Congress passed bipartisan legislation to expand and redesignate the park as the Minidoka National Historic Site. In 2009, LS Power/Great Basin Transmission approached NPS to seek approval for the SWIP-N right-of-way that would have cut the Minidoka National Historic Site in two. Following NPS objections, the Department of the Interior relocated the line away from the Historic Site. As part of President's Biden's Fiscal Year 2022 budget request to Congress, last year, the Department of the Interior proposed a budget increase for Minidoka NHS, as part of its commitment to underserved communities. https://www.doi.gov/news/statement-secretary-haaland-presidents-fy22-discretionary-funding-request In August 2021, NEPA and other federal laws, the BLM announced the beginning of the public scoping and EIS process for the proposed Lava Ridge Wind Project, which includes 400 wind turbines, as tall as 740 feet. LS Power proposed to site the closest turbines within two miles of the park visitor center and on the historic footprint of the Minidoka Relocation Center. According to NPS, 340 turbines would be within the viewshed of the Minidoka National Historic Site and create a visual wall of towers that would occupy about one third of the park's 360 degrees of viewshed. In 2022, the BLM issued a summary of public comments received during the NEPA scoping process. These comments included opposition to the project based on impacts on the Japanese American community, treaty rights held by the Shoshone Bannock Tribes, visual	

No		Comment Submitted	CAISO Response
		impacts on historic sites and cultural resources, impacts to big game migratory corridors and winter habitat, impacts to bat and bird populations, potential conflicts with current livestock operations, negative effects to dispersed recreation opportunities, loss and fragmentation of sage grouse habitat, damage to local road systems, opposition to potential for a large non-local workforce and concerns about negative health effects. Some commenters supported the project's potential for new jobs. In October 2021, the California Public Utilities Commission (CPUC) issued a draft Environmental and Social Justice Action Plan (version 2.0), which included the following Goal and Objectives: "Goal 1: Consistently integrate equity and access considerations throughout CPUC regulatory activities. REVISED OBJECTIVES: 1.1 Build Systematic Approaches for ESJ Priorities: Continue building systematic approaches for considering ESJ issues in proceedings and decisions, as well as implementation processes included in advice letters, general orders, and resolutions. Build understanding of critical ESJ concepts and definitions to ensure alignment and deepen impact."	
	North Gila - Imperial Valley #2 Project	NGIV2, LLC appreciates the opportunity to provide comments on the CAISO's draft 2022-2023 Transmission Planning Process ("TPP") Study Plan. NGIV2, LLC is also submitting an Economic Planning Study Request, herewith, to the CAISO for the 2022-23 Transmission Plan. The request is for the CAISO to perform an economic analysis of its North Gila-Imperial Valley #2 ("NGIV2") transmission project at a cost of $271M to the CAISO, revising certain assumptions for the production cost models, and considering other multi-value benefits provided by the project, including potential partial ownership in the project by the Imperial Irrigation District ("IID"). We believe that the addition of the North Gila – Imperial Valley #2 Project will play a key role in meeting the broader reliability, policy and economic benefits, as well as additional transmission capacity for the region. Specifically: •NGIV2 is a multi-value transmission project providing economic, reliability and policy benefits for the regional transmission system. •Provide an incremental 1000-1250 MW of transmission capacity for the delivery of renewable resources (geothermal and solar) from Arizona and the Imperial Valley.	Incorporated in Economic study requests

No		Comment Submitted	CAISO Response
		•Increases the reliability and decreases the reliance of remedial action schemes for the broader San Diego/Imperial Valley region for loss of the existing North Gila – Imperial Valley 500 kV line. •Reduces carbon emissions by decreasing the San Diego area reliance on local gas capacity by as much as 865MW. •Reduces the congestion on the existing North Gila – Imperial Valley 500 kV line. •Unlocks stranded capacity west of North Gila under normal and contingency conditions. The current estimated timeframe for the North Gila – Imperial Valley #2 Project to be in-service is December 2026 would allow the Project Sponsors to potentially receive funds from the Infrastructure Investment and Jobs Act and provide further cost improvements	
	Silicon Valley Power	The City of Santa Clara dba Silicon Valley Power (SVP) appreciates the opportunity to comment on the California Independent System Operator (CAISO) Draft 2022-2023 Transmission Planning Process (TPP) Unified Planning Assumption and Study Plan (Study Plan, hereafter), dated February 18, 2022. SVP acknowledges the significant efforts of the CAISO staff in developing the Study Plan.	Comment Noted
	Vistra Corp.	Vistra Corp. respectfully submits these comments on the CAISO's 2022-2023 Transmission Planning Process ("TPP") Draft Study Plan posted on February 18, 2022 and discussed at a stakeholder call on February 28, 2021. We appreciate the CAISO's continued efforts to focus on advancing the effectiveness of its transmission planning processes in each iteration. Vistra requests the CAISO consider the following requests, detailed further below: •Economic Study Request for 2022-2023 TPP •Revise Section 2.7.1, New Generation Projects, to include projects in service in Years 1-5 •Revise cycle life assumption in storage replacement cost estimate •Provide transparency to difference in planning & operating cost parameters •Provide transparency into how seasonal line rating values are calculated	Incorporated in Economic study requests

2. Comment on chapter 2 Reliability Assessment:

No		Comment Submitted	CAISO Response
	Bay Area Municipal Transmission group (BAMx)	BAMx Supports the CAISO's Plan to Not Model the "On Hold" Projects There are some transmission projects "on hold," such as Moraga-Sobrante 115 kV Line Reconductor, North of Mesa Upgrade (formerly Midway-Andrew 230 kV Project), and Wheeler Ridge Junction Substation.[1] The Study Plan states that these projects put on hold will not be modeled in the starting base case. BAMx supports this process. While much work has been done to evaluate previously approved projects as a one-time effort, part of the next year's Study Plan should include a formal process to continually monitor such previously approved projects. BAMx's participation in the PG&E Stakeholder Transmission Asset Review (STAR) process has illustrated for us how PG&E evaluates which projects receive priority for funding and the many reasons projects can be delayed. Participating in that process makes BAMx even more convinced that the CAISO should reaffirm the continued need for previously approved projects, especially those that are not yet under construction.	Comment noted
	California Community Choice Association	No comments at this time.	
	California Public Utilities Commission	CPUC staff encourages the CAISO's involvement in establishing a smooth process for analyzing, approving, and ensuring reasonable cost recovery for storage and other non-wire alternatives which can ensure reliability in place of transmission, but at a potentially lower cost to ratepayers. In the "Preferred Resources" section (page 27) of the draft Study Plan, the CAISO notes that any portion of the 13.5 GW of storage resources in the CPUC's base portfolio for 2032 could be identified as options to mitigate transmission reliability issues. Such options could be "pursued through a resource procurement process. In some situations, the storage could be approved as a transmission asset." CPUC staff suggests that the Study Plan might explain the criteria or general principles that could justify the CAISO's approval of storage as a transmission asset, and whether such a situation could be reasonably expected to arise as part of this TPP cycle. In the 2020-2021 Transmission Plan the CAISO identified two storage projects that could resolve reliability issues and obviate the need for	Comment noted

No		Comment Submitted	CAISO Response
		certain transmission upgrades. The Commission ordered procurement of these two storage projects in D. 22-02-004 using established mechanisms that share costs by all benefiting customers in the PG&E service territory. That decision also noted the CPUC's intention "to establish a more predictable process for how similar transmission mitigation or other system benefit projects might be evaluated and approved." We expect the CAISO's engagement and focus will enable further opportunities to identify cost-effective reliability solutions.	
	California Public Utilities Commission - Public Advocates Office	Inverter-Based Resources Reliability Assessment Studies Cal Advocates recommends that the CAISO provide more detail regarding the small signal stability analysis studies described in Section 2.14 of the 2022 Draft Study Plan.[1] This analysis will contribute to a better understanding of potential control instability of inverter-based resources under the given resource portfolios. The resource portfolios will likely have transient periods dominated by power generation by inverter-based resources such as wind, solar, or energy storage. Greater detail is necessary to fully understand how much frequency response or voltage support can be reliably provided by inverter-based resources without the use of grid-forming inverters (GFMI) or synchronous machines.[2] The Western Electricity Coordinating Council (WECC),[3] Electric Power Research Institute (EPRI),[4] and National Renewable Energy Lab (NREL)[5] have started studies and processes to identify GFMI requirements and costs. The CAISO should outline explicit study parameters to determine the limitations of current inverter technology as well as the potential cost impacts of GFMI to fulfill future frequency response and voltage support requirements with decreasing system inertia. Integrated Resource Portfolio Resources Considered Per CPUC Decision (D.) 22-02-004, the CAISO should factor in the uncertainty associated with the busbar mapping results for out-of-state (OOS) wind as provided in the Modeling Assumptions for the 2022-2023 TPP. Cal Advocates recommends the CAISO compare the proposed selection of 1,062 MW to 1,500 MW of Wyoming wind	Comment noted. The ISO will be modeling the resources as indicated in the Decision and Attachment A to the decision with the final bus-bar mapping.

No		Comment Submitted	CAISO Response
		resources with feasible alternatives to determine the most cost-efficient option. D.22-02-004 acknowledges "uncertainty around the exact amount of [OOS] resources that will ultimately be needed, and also the amount that can be imported through existing transmission." [6] To account for this uncertainty, the CPUC states, "should additional information from the 2021-2022 TPP prove useful, [CPUC] staff could consider an addendum to the busbar mapping produced with this proposed decision, to take into account identification of preferable specific locations and injection points for the mapping of the 1,500 MW of out of state (OOS) wind resource."[7] Evidence was provided during the 2021-2022 TPP that demonstrated that there are potentially lower cost options to access OOS wind. In its comments on the November 18, 2021, stakeholder meeting and on the 2021 Draft Plan, Pattern Energy stated that its SunZia project can deliver "2 to 3 GW of New Mexico wind to the CAISO grid by 2026." [8] SunZia is a subscriber-based (merchant) project that provides access to New Mexico wind through a combination of existing and new transmission. Merchant transmission projects are projects that do not seek cost recovery through the CAISO transmission access charge (TAC) and are funded by the project sponsor instead.[9] Cal Advocates recommends that CAISO consider the SunZia project to access the proposed amount of OOS because it is likely a lower cost option to new transmission that is rate-based in CAISO transmission rates. To explain, the SunZia project's economic viability depends on offering competitive services to load-serving entities (LSEs).[10] This could apply downward pressure on transmission costs. Rate-based projects such as the SWIP-North project, alternatively, would receive a guaranteed rate of return that would be incorporated into the CAISO transmission access charge, which has increased over 255% since 2009.[11] Cal Advocates also recommends that the CAISO provide an apples-to-apples comparison of all available options (merchant-based versus CAISO rate-based) to access 1,500 MW of out of state wind. Recommendation: The CAISO's assessment 1,500 MW of "Wind on New Out-of-State Transmission,"[12] as stated in its 2022 Draft Study Plan, should include an apples-to-apples comparison with all the feasible and likely lower costs options, such as out of state wind from New Mexico.	

No		Comment Submitted	CAISO Response
	California Wind Energy Association	We strongly encourage the ISO to propose more incremental upgrades, taking take into account needed upgrades that repeatedly arise in GIDAP studies and consider them as alternative, more cost-effective solutions to reliability or economic problems that are being addressed in the TPP. An example is the Gates 500/230-kV transformer bank #13, which has shown up in GIDAP for many years, and would also address resource curtailments while providing RA capacity for many additional resources.	Comment noted
	CEERT EDF	Regarding Extreme Events, Requirement R4.5 of the NERC Standard requires that extreme events that are "expected to produce more severe System impacts" are solved through transmission planning, so it would be prudent for CAISO to consider both reliability and public policy options to address extreme event risk mitigation and highlight in upcoming stakeholder meetings. Also, CAISO should consider implications of the transmission plan for changes to assumed transmission line ratings to reflect FERC 2021 ruling. Given potential wholesale energy market offerings to be available in the West and the recent FERC rulings on transmission ratings modeling and impacts to transmission availability, there could be long-term impacts to transmission planning for interregional investments and line rating capacity should be discussed in stakeholder forums. The PIOs support the base scenarios adapting to include more summer and winter peak inputs for 2032 and encourage additional study areas to the four mentioned. This reliance on the reliability case for the policy-driven base case does not benefit the state in better understanding how to meet it climate goals by 2032.	The CAISO does conduct extreme event analysis as part of the ISO transmission planning analysis. Extreme event analysis is only included in the annual transmission planning process, with the exception of the recent wildfire assessments, if mitigation has been identified to be recommended for approval. Comment noted.
	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 concern 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.	Comment noted and the ISO plans to work with CPAU and PG&E in 2022-2023 TPP to evaluate the risk associated with the N-3.

<table>
<tr><th>No</th><th></th><th>Comment Submitted</th><th>CAISO Response</th></tr>
<tr><td></td><td></td><td>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 approval of the Ames-Palo Alto/Adobe Creek 115kV project.</td><td></td></tr>
<tr><td></td><td>Friends of Minidoka</td><td>The Draft Study Plan includes Table 2.7-1, which "shows the new resource buildout of 38 MMT Core with 2020 IEPR Demand and High EV Penetration (Cumulative MW)."

Table 2.7-1: New Resource Buildout of 38 MMT Core with 2020 IEPR Demand and High EV Penetration (Cumulative MW) includes a line for 1,500 MW from out-of-state wind.

Regarding the Lava Ridge and SWIP-N projects, the Friends of Minidoka recommends that CAISO consider CPUC's ESJ Action Plan in the 2022-2023 TPP. The CAISO should also consider the status and timing of the federal and state permitting decisions and approval processes relating to Idaho wind generation and transmission.</td><td>Comment noted.</td></tr>
<tr><td></td><td>North Gila - Imperial Valley #2 Project</td><td>WECC Path Re rating request due to change in reliability criteria

Several Path owners have expressed interest in re-rating Paths due to the change in reliability criteria around multiple lines in a common corridor. Specifically, the following are proposed to be re-rated:

<table><tr><td></td><td>Existing Rating</td><td>Proposed Rating</td></tr><tr><td>Path 15 - Midway – Los Banos</td><td>2,000 - 3,265 MW North to South</td><td>3,700 MW - 4,600 MW North to South</td></tr><tr><td>Path 17 - Borah West</td><td>2,557 MW East to West</td><td>2,800 MW East to West</td></tr><tr><td>Path 26 - Northern – Southern California</td><td>3,000 MW South to North
4,000 MW North to South</td><td>4,400 MW South to North
5,000 MW North to South</td></tr><tr><td>Path 66 – California Oregon Intertie (COI)</td><td>4,800 MW North to South</td><td>5,100 MW North to South</td></tr></table></td><td>Comment noted and will be considered</td></tr>
</table>

No		Comment Submitted	CAISO Response
		As evident from past studies, most of these paths are often times the congested elements. While the path re-rating studies have not been completed, we request that CAISO perform sensitivities on some, if not all paths that could have an impact on the regional analysis.	
	Pacific Gas and Electric Company	Load Forecast Assumptions: PG&E appreciates the effort CAISO and the State agencies, notably the CEC, have made to improve the granular quality of load forecasts in support of the TPP. Given California and Federal policy, as well as market trends, PG&E recommends the CAISO use the CEC's IEPR high EV load forecast as part of the 2022-2023 TPP base case and for TPP sensitivity analysis. PG&E anticipates that EV demand will continue to accelerate upwards in coming years and supports the CEC's IEPR high EV forecast as being representative of that trend. The use of the IEPR high EV forecast will help identify transmission investments necessary to support the increase in load from charging EVs. Reliability Assessment, Generally Sensitivity Studies: The 2024 spring sensitivity case calls for high renewable dispatch at hour ending 8pm in spring. As a majority of the renewable generation in PG&E is solar, such dispatch appears not aligned with the time assumed in the case. Possible alternatives to the base line and sensitivity case selections: • If the CAISO sees a strong need to have a heavy spring scenario for 2024 spring base line case, stressing COI flow to high N-S level can be an alternative for the sensitivity case. Right now, all the spring cases for PG&E area studies are assuming high S-N flow on COI. While this may be likely in light spring and high solar scenario, such as the 2027 and 2032 spring off peak cases, it is possible, in heavy spring scenario, such as the current 2024 spring case, COI flow can be north to south. In past CAISO special study (COI rating) and recent path rating studies, it was known that high N-S flow on COI in the spring case would be a more severe scenario for transient stability test than summer peak. • If the CAISO doesn't have to keep the current 2024 spring baseline case as is, one alternative can be setting the 2024 baseline case to mimic the gross peak load in a spring day. A sensitivity case will be largely reducing or turning off solar in PG&E to mimic a cloudy day in Northern California or other exceptional weather condition and reveal the high demand that is offset from DG to the transmission grid. The overall PG&E load in this sensitivity case could be higher than the net peak at 8pm.	Comment noted. The 2024 Spring sensitivity case is modified in the final Study Plan making it more generic in terms of the change from the baseline scenario that could include change in renewable dispatch, change in path flows or modeling local area storage in charging mode depending upon the area need.

No		Comment Submitted	CAISO Response
		Known Outages: PG&E recommends that the CAISO still include any known outages of generation and transmission facilities longer than six months regardless of single or double outages in the Study Plan's outage table. That is to meet the TPL-001-4 in 2022 while preparing for the TPL-001-5 reliability standard. 2023 Local Capacity Technical Studies: The CAISO studies identify deficiencies on a local and sub-local area basis. For any LCR area or sub-local area that is deficient, PG&E encourages that in the TPP the CAISO review the limiting contingency in LCR studies, and ensure mitigations are in place for any reliability standard deficiencies identified. Transmission Service and Market Scheduling Priorities: PG&E requests the CAISO conduct a preliminary assessment of native load needs in the TPP. The CAISO has requested that FERC approve a two-year extension of the interim wheel-through priorities until June 2024. This additional time will be used to create a forward transmission reservation process to allocate capacity between native load and external entities for wheel-throughs, with an implementation schedule expected for early 2024. In the Draft 2021-2022 Transmission Plan, CAISO recognized that the potential for firm service offerings for wheel-throughs "may have significant impacts on transmission planning."[1] Prior to implementation of a new framework for wheel-throughs in 2024[2], PG&E is requesting a preliminary assessment within the current 2022-2023 TPP on what the native load transmission needs might be to ensure a reliable California grid on a long-term basis.	As outlined in the ISO's TPL-001-5 Implementation Plan, the CAISO will utilize studies of category P1, P3 and P6 events on the near-term system off-peak load cases to assess impact of planned outages. All multiple facility outages will be included in the outage table if identified. Your comment is noted. The ISO is undertaking wheel through in a separate stakeholder initiative and will be incorporated into future transmission planning process as appropriate based upon the outcome of this initiative.
	SEIA	CAISO models new and existing protection systems as part of its transmission assumptions for the reliability assessment. SEIA understands and appreciates the importance of accurately modeling the existing transmission system to identify areas of weakness on the grid. Further, SEIA understands that protection systems provide a more affordable measure of system reliability compared with transmission solutions. SEIA believes, however, that these protection systems often serve as a "band-aid" and do not address or resolve the underlying reliability issue(s) that could be better served by a robust transmission solution. SEIA believes that, while costlier, a transmission solution often provides additional system benefits like enhanced deliverability and reduced congestion which a protection	Comment noted.

No		Comment Submitted	CAISO Response
		system cannot provide. Additionally, SEIA supports the continued exploration of battery storage as another solution to meet these needs. SEIA would appreciate clarification on the types of analysis CAISO performs when considering the implementation of a protection system, and suggests CAISO perform a sensitivity analysis excluding system protections to identify potential transmission solutions. SEIA supports CAISO's use of the Additional Achievable Fuel Substitution (AAFS) metric in conjunction with the Additional Achievable Energy Efficiency (AAEE) in the energy and demand forecast. SEIA believes the AAFS and AAEE will help CAISO more accurately forecast future load, changes to load shape (i.e., peak periods), and ultimately identify reliability needs resulting from electrification.	
	Silicon Valley Power	SVP supports the Study Plan's assumption that all transmission projects that the CAISO has approved, including those in the 2021-2022 Transmission Plan, will be modeled in the reliability study.[1] 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 Estero 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. The CAISO has recognized other improvements to the capability of the transmission system to serve load reliably will be needed before the HVDC projects are able to be constructed. The CAISO is also recommending approval of adding series compensation devices be added on one of the 115 kV lines serving the SVP load. SVP supports this short-term mitigation.[2] The CAISO 2021-2022 Transmission Plan correctly recognizes that this solution, by itself, would not be adequate to address the near-term reliability issues for the SVP system. Similarly, energy storage by itself probably cannot provide sufficient capacity to serve the load reliably. However, some additional mitigations, such as an amount of energy storage that is consistent with the charging capabilities of the area, would be effective mitigation in the interim to reduce the overloads, if not eliminate them. Therefore, we urge the CAISO to evaluate further	Thank you for the comment! The ISO's assessment shows that the series compensation, along with the planned storage in the SVP system and running higher flow on the PST provide sufficient capacity to serve SVP area load in the near-term. The ISO will continue to assess sufficiency of the interim solution in this cycle.

No		Comment Submitted	CAISO Response
		additional mitigations to meet the CAISO planning criteria as part of the short-term solution in the 2022-2023 planning cycle. The Study Plan envisions a sensitivity scenario for the PG&E area, called "Summer Peak with high CEC forecasted load."[3] This scenario seems to assume "Load increased by turning off AAEE." It is possible that SVP's load will be even higher than the one reflected in the 2021 IEPR adopted by the CEC on January 26, 2022, chiefly due to further interest in hyper-scale data centers to be located in the City of Santa Clara. It is pertinent that the proposed mitigations be assessed to address CAISO planning criteria violations which should reduce the probability of load curtailment by SVP under these higher than expected load conditions. Therefore, SVP requests that CAISO also study a sensitivity scenario entailing a higher level of SVP load in the 2022-2023 planning cycle. SVP will be glad to meet with the CAISO staff to explain the latest information regarding this expected data center load the CAISO staff may need to develop this sensitivity scenario.	High electrification sensitivity will accommodate high loading scenario. The ISO will work with SVP for any additional sensitivity study need as part of the Planning Coordinator assessment for the SVP system.
	Vistra Corp.	Revise Section 2.7.1, New Generation Projects, to include projects in service in Years 1-5 Vistra requests the CAISO clarify or where appropriate update the criteria for the first two levels as follows: •Level 1: Under construction (for Years 1-5 study case with applicable in-service dates) Vistra requests the CAISO clarify that to meet the criteria for "under construction" is that construction has begun on any work necessary to complete the project, whether this be interconnection facilities, network upgrade facility, or generating facilities. This clarification is essential to provide clarity that when construction begins on necessary work included in the Interconnection Agreement, that the CAISO begins to model the project in its Level 1 category. •Level 2: Regulatory approval but not yet under construction (i.e., having Power Purchase Agreement approved by the CPUC or other regulatory agencies with applicable in-service dates for Year 5) Vistra requests the CAISO add two levels to Level 2 – "Regulatory approval but not yet under construction" and "Pending Regulatory Approval". CAISO could implement this by adding a level in between the current 2 and 3 or by creating levels 2a and 2b. What is important is that if projects have an executed long-term agreement that has	Comment noted. As we understand the IRP process, the CPUC created the in-development resource list based on LSEs' resources plans, which include the resources they have contracted from developers. If you have a contract with an LSE for their project, that LSE would include the project in its resource plans. So,

No		Comment Submitted	CAISO Response
		been awarded and filed for approval, this means the project has begun to move on the necessary actions needed to achieve the applicable in-service dates in the executed contract pending approval, the same as if it had achieved regulatory approval. In our experience, there is not a meaningful difference between executing an agreement and having it approved, other than there is a risk the project could be rejected, but while that risk exists the development activities cannot wait for the approvals before commencing to ensure the project can achieve commercial operations. Consequently, it is inappropriate for the CAISO to not include projects that have executed agreements since pre-construction activities have likely already commenced. Vistra requests the CAISO seriously consider these suggestions. We are certain that the 2022-2023 TPP study will not accurately reflect projects for years 1-5 because even with the above request, the Moss Landing Energy Storage 3 project that has an Initial Delivery Date of August 1, 2023 that has been filed for approval by Pacific Gas & Electric (Advice 6477-E[1]) will not be modeled in the Year 1 cases. This means this project that is to achieve commercial operations in 2023 will not be reflected in the local capacity requirements study for 2023 even though it will be in operations either. We put forward this modest request to at least include this project in level 2 for Year 5 case, even though it should be modelled in the cases for Year 1, in an attempt to try to seek a marginal improvement to the CAISO's modeling approach. This will ensure that at least the CAISO modeling for planning year 10 will be able to reflect the impact of this project that will achieve commercial operations next year. Finally, Vistra requests clarity on how the CAISO expects Interconnection Customers to communicate to it that the IC has begun construction activities on any necessary work to support the project. Please clarify if the CAISO expects us to communicate this status to the planning group.	Vistra should ideally contact the contracting LSE to ensure the project is included in the CPUC in-development resource list before the CPUC performs the resource optimization/bus bar mapping. Only projects coming online before June of that year will be considered in LCR cases.

3. Comment on chapter 3 Policy-Driven RPS Transmission Plan Analysis:

No		Comment Submitted	CAISO Response
	Arevia Power	No comment	
	Bay Area Municipal Transmission group (BAMx)	Proposed Policy-Driven Scenario Assessment Appears to Be Very Limited The Study Plan indicates that in the 2022-2023 transmission planning cycle, the CAISO will undertake a special study to evaluate the potential reliability impacts to the transmission facilities based on a high electrification scenario.[1] CAISO's February 28th presentation at the stakeholder meeting indicates that this "sensitivity" portfolio will be a special study, which appears to give the impression that it will not be used for the policy-driven assessment in the current planning cycle. However, a follow-up discussion with the CAISO during the February 28th stakeholder meeting led BAMx to believe that the "High Electrification" sensitivity scenario will be indeed used for the policy-driven assessment. BAMx urges that the Final Transmission Study Plan clearly state how the "High Electrification" sensitivity scenario will be used for the policy-driven assessment. Even if the CAISO chooses to use the "High Electrification" sensitivity scenario, the policy-driven assessment in the current planning cycle seems to be very limited. Per the CAISO's FERC-approved tariff, a Category 1 policy-driven transmission solution has to be identified to be needed "in the baseline scenario and at least a significant percentage of the stress scenarios."[2] Historically, the CAISO has studied at least two sensitivity portfolios in its policy-driven assessment. How does the CAISO plan to identify a Category 1 policy-driven transmission project with a base portfolio and a single sensitivity portfolio? BAMx urges the CAISO to clearly lay out its Final Study Plan proposal on this issue. In the absence of multiple sensitivity portfolios, BAMx suggests that any policy-driven transmission project identified in the current transmission planning cycle be designated as only a Category 2 transmission project consistent with the CAISO tariff and the transmission planning Business Practice Manual (BPM).	The 2022-2023 TPP will study both the base and sensitivity portfolios that are provided/to be provided by the CPUC with the sensitivity portfolio to be assessed in the identified special study. In response to the comment, we have added in the final study plan language indicating that the results of the sensitivity study will be used the same way as any policy driven sensitivity study in accordance with the ISO Tariff, despite its treatment as a special study in the TPP. The following is from Section 24.4.6.6 of the ISO Tariff [emphasis added]. "The CAISO will create **a baseline scenario** reflecting the assumptions about resource locations that are most likely to occur **and one or more reasonable stress scenarios** that will be compared to the baseline scenario. Any transmission solutions that are in the baseline scenario and at least a significant percentage of the stress scenarios may be Category 1 transmission solutions. Transmission solutions that are included in the baseline scenario but which are not included in any of the stress scenarios or are included in an insignificant percentage of the stress scenarios, generally will be Category 2 transmission solutions, **unless the CAISO finds that sufficient analytic justification exists to designate them as Category 1 transmission solutions**. In such cases, the ISO will make public the analysis upon which it based its justification for designating such transmission solutions as Category 1 rather than Category 2. In this process, the CAISO will consider the following criteria:..." It goes on to lay out ten criteria the ISO will consider in the process. Based on the above provisions, the tariff: - does not require more than one sensitivity scenario for approval of Category 1 transmission solutions - provides for approval of transmission solutions that are included only in the baseline scenario or an insignificant percentage of the stress scenarios if the CAISO finds sufficient analytic justification. - lays out the criteria the ISO will consider in the process

No		Comment Submitted	CAISO Response
			For these reasons, BMAx's suggestion to designate any policy-driven transmission project identified in the current transmission planning cycle as only a Category 2 transmission project is not consistent with the ISO Tariff.
		Locational Guidance, Effectiveness, and Duration of Battery Storage Resources	
		BAMx has been promoting the remapping of battery storage to very congested areas with high renewable curtailment - as this can help to reduce congestion and curtailment of renewable resources.[3] BAMx agrees with the CAISO that the role of battery storage is expected to continue to grow as a complement to renewable generation and also as a key source of capacity meeting both system capacity needs and local needs.[4] Ultimately, storage resources will be available to meet energy needs during most periods when renewable resources are not available to generate. BAMx agrees that only the incremental interconnection cost for storage projects should be compared to transmission costs when the batteries are located in locally constrained areas. BAMx applauds the CAISO staff's efforts in relying on the implementation of Remedial Action Schemes (RAS) and storage solutions in its Preliminary Policy Assessment. As shown in Table 1 (compiled by BAMx)below, the CAISO has effectively and rightfully utilized the existing/planned RAS dispatching portfolio battery storage in charging mode and includes new battery storage as mitigations wherever applicable to mitigate the contingency overloads. Table 1: Recommended Non-Wires Mitigations* image(31).png *Source: November 18th Presentation, "2021-2022 TPP Policy-driven Assessment," pp. 30-55. As included in the CAISO's February 28th presentation[5], "To the extent that storage resources are required for mitigation of transmission issues identified in the CAISO's 2021-2022	Your comment is noted Your comment is noted. Your comment is noted.

No		Comment Submitted	CAISO Response
		Transmission Plan, CPUC staff would expect to coordinate with CAISO to enable small adjustments in the CPUC's mapping of storage resources to allow for the inclusion of these storage resources in the CAISO's analysis of the 2022-2023 TPP portfolios." BAMx supports the CAISO's plans to transfer such valuable feedback to the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) so that it is incorporated as part of the battery storage mapping exercise in the 2022-2023 TPP cycle. BAMx requests that the CAISO share its suggested incremental changes to the CPUC's mapping of storage resources with stakeholders as part of the Final Transmission Study Plan. The resource to Busbar Mapping and Transmission Limit Calculations Need to Take Into Account Prior Project Approvals As the Study Plan indicates, "(T)he transmission projects that the CAISO has approved will be modeled in the study. This includes existing transmission projects that have been in service and future transmission projects that have received CAISO approval in the 2021-2022 or earlier CAISO transmission plans."[6] BAMx recognizes the timing issues concerning the Study Plan being developed before the CAISO Board approval of the 2021-2022 TPP. But if the CAISO Board approves certain projects in the 2021-2022 TPP, they will probably have a major effect on the transmission limit calculations and the selection of resources and their mapping. BAMx questions whether the "final" resource to busbar mapping provided by the CPUC for the base portfolio for the 2022-2023 TPP is accurate if certain projects get approval in the 2021-2022 TPP. For example, the Los Banos 500/230kV Transformer Bank constraint is addressed by an Area Delivery Network Upgrade (ADNU), i.e., the Manning 500/230kV substation project that is expected to increase the expected on-peak full capacity deliverability (FCDS) capability in the Westlands zone by 446MW.[7] See the screenshot included in Figure 1 below. Furthermore, the Manning substation may potentially eliminate the Wilson-Storey-Borden 230 kV constraint within Westlands.[8] However, the final mapping does not seem to map the resources recognizing this additional available FCDS capacity. If the CAISO Board approves the new Manning 500/230 kV substation and other transmission projects recommended for approval in the Draft 2021-2022 Transmission Plan, the CAISO needs to update the	The ISO did not identify new battery storage resources, other than those that were included in the portfolio, to mitigate transmission issues identified in the CAISO's 2021-2022 Transmission Plan. As noted in the comment there are timing issues. The CPUC portfolio and bus bar mapping for the 2022-2023 TPP was finalized before the approval of the 2021-2022 transmission plan by the ISO Board so that the portfolio is available in time for the 2022-2023 TPP. If there were no timing constraints, the incremental capacity provided in the transmission capability white paper could have been used for those projects that are identified in the white paper, such as the Manning 500/230 kV Project. We understand the CPUC will be using this already available information in developing the sensitivity portfolio and the portfolios for the next TPP cycle. As the GIP process is the primary source for transmission capability estimates, for those projects that are not identified as deliverability upgrades in the white paper, the ISO will normally need to complete a GIP cluster study with the approved projects modeled in order to capture their impact on transmission capability. While the approved projects are not modeled in C14 Phase 1 studies due to timing, it is expected that the projects approved in the 2021-2022 TPP will be studied as mitigation in the study and the incremental deliverability of the projects will be provided.

No		Comment Submitted	CAISO Response
		transmission limit calculations and the resource to busbar mapping accordingly. Figure 1: Transmission Capability Estimates For Use In The CPUC's IRP Process image(32).png BAMx's review of the transmission capability document provided to the CPUC for the resource to busbar mapping finds that the costs for transmission upgrades are likely underestimated. For instance, in the Busbar Mapping of the Policy and Reliability Base Case Portfolio, the Manning 500/230 kV substation upgrade is estimated at $370 million as shown in Figure 1 above.[9] However, the Draft 2021-2022 Transmission Plan estimates that the high-cost range for this project would be as high as $485 million. Given the history of cost overruns of the major transmission projects after CAISO approval, BAMx recommends that transmission capability calculations - used for busbar mapping and resource selection in the CPUC's RESOLVE model - should consistently use the higher range of the capital cost estimates.	The comment is noted.
		Generation Retirements In the past few TPP cycles, the CAISO has been assuming an arbitrary amount of retirements of generating resources aged 40 years or more.[10] In the Study Plan, the CAISO has indicated that it will not assume retirement based on a resource aged 40 years or more in order to align with the latest CPUC portfolio information. BAMx supports this decision. However, the CPUC Thermal Age Based Retirements Assumptions document includes a list of thermal projects that are assumed to be retired at the age of 40 years.[11] We	The ISO has corrected the inconsistency in the final study plan. The ISO will apply the same retirement assumptions as the assumptions the CPUC used in the development of the resource portfolio.

No		Comment Submitted	CAISO Response
		request the CAISO to provide a clarification on this apparent discrepancy.	
		Since the continued availability of generation resources is a critical assumption now and likely will get even more critical as time goes by, BAMx suggests a separate stakeholder process covering this topic needs to occur soon. CPUC input in this process will be vital. Alternatives to the retirement of aged generation resources should be generically investigated as part of this process. Since age is only one indicator of the continued viability of a generator, BAMx opposes arbitrarily capping the thermal generators at 40 years in the current planning cycle.	Your comment is noted
	California Community Choice Association	Consideration of Long-Lead-Time Resources The California Community Choice Association (CalCCA) is encouraged to see the 440 megawatts (MW) of geothermal in southern Nevada included in the Preferred System Plan (PSP) busbar mapping and the California Independent System Operator's (CAISO's) draft study plan. Significant additional potential for long lead time resources in the state of Nevada exists beyond what was included in the PSP, however. Such resources should be included in this cycle of the Transmission Planning Process (TPP) to allow for the development of significant amounts of cost-effective resources in line with the California Public Utilities Commission's (CPUC's) procurement requirements and to avoid stranded resource investments. Within the Integrated Resource Plan (IRP) proceeding, CalCCA asked that the CPUC update the PSP Core Portfolio to plan for at least 2,000 MW of further incremental renewable resources imported from Nevada to allow the CAISO to study necessary import expansion in that region. The CPUC's Preferred System Plan Decision (D.22-02-004) stated that this request can be addressed in the next TPP portfolio.[1] It is critical for the CAISO to conduct this study in this TPP cycle as a sensitivity to reflect the availability and location of cost-effective resources (i.e., "long-lead-time resources" that can fulfill the CPUC's Mid-term Reliability (MTR) requirements). Failure to do so	Since resource planning is under the CPUC's jurisdiction, the ISO does not intend to study resource portfolios other than those provided by the CPUC.

No		Comment Submitted	CAISO Response
		could impact the ability for load-serving entities (LSEs) with out-of-state (OOS) RA contracts to receive Maxim Import Capability (MIC) in those areas because a study is needed for the CAISO to approve policy-driven projects associated with a MIC expansion request.	
		CalCCA also encourages the CAISO to complete a more comprehensive analysis of the location of expected near-term geothermal resources in Nevada as part of the TPP. The busbar mapping in the PSP Core Portfolio places 440 MW of geothermal resources at the Beatty substation in southern Nevada. However, CCAs are observing that many geothermal resources available in the near-term are located in northern or western Nevada and not easily delivered at the Beatty substation or other southern Nevada transmission paths. Rather, they are relying on paths like Summit or Gonder IPP which have limited headroom for imports to CAISO. The TPP should evaluate cost-effective solutions for enabling transmission for these resources to the CAISO — some of which may reach commercial operations date (COD) as early as 2024. Long-term, the TPP should also evaluate how projects like Greenlink Nevada, the TransCanyon Cross-tie, and GridLiance West projects may improve the accessibility of geothermal power in Nevada.	See response above
		Market Outreach on OOS Resource Potential	
		In the 2021-2022 TPP cycle, the CAISO indicated it plans to conduct market outreach regarding market interest in OOS resources, specifically OOS wind in Idaho. The CAISO should broaden this outreach to gauge market interest for other OOS resources to inform transmission needed to deliver projects LSEs are pursuing.	The CAISO initiated the process in the stakeholder call on June 27.
		Maximum Import Capability Improvements	
		LSEs are increasingly finding opportunities to contract with resources outside of the CAISO Balancing Authority Area (BAA) in order to meet state climate objectives and procurement mandates. Given a significant risk in contracting with OOS resources is the ability to obtain MIC, the CAISO should provide additional transparency on how transmission upgrades identified in the TPP will affect MIC needed for LSEs to show resources out of state as resource adequacy (RA). Because LSEs must secure MIC at the right nodes to be able to use out-of-state resources like Nevada geothermal to provide RA capacity, they must be able to understand how projects in	Thank you for your suggestion. The ISO plans to provide the appropriate data for the valid MIC expansion requests."

No		Comment Submitted	CAISO Response
		the transmission plan will affect import capability at specific nodes. The CAISO should provide data on deliverability or other technical limitations that would limit the ability for the CAISO to approve MIC expansions at specific branches. This transparency will minimize the risk of planned projects failing to materialize and minimize costs associated with the uncertainty around available MIC..	
	California Energy Storage Alliance	CESA has no comment at this time on the CAISO's proposed study plan for the policy-driven analysis, which leverage the portfolios transmitted by the CPUC (38 MMT using 2020 IEPR High EV base case portfolio) in accordance with Decision (D.) 22-02-004. Notably, Ordering Paragraph (OP) 8 of D.22-02-004 also delegated to the CPUC Energy Division, in collaboration with the California Energy Commission (CEC) and CAISO, the development of a policy-driven sensitivity portfolio based on the 30 MMT GHG emissions target, along with associated busbar mapping. In light of the CAISO's Draft 20-Year Transmission Outlook, we strongly encourage the CAISO to work with the other agencies to make this portfolio a reality and be produced within the next few months to be incorporated in the 2022-2023 TPP cycle. While the development of such a portfolio is not within the CAISO's control, we request that the CAISO provide as much assistance as possible to make this a reality because it could potentially make the CAISO's Draft 20-Year Transmission Outlook more actionable and/or help meet the intent of developing that outlook in the first place by assessing a longer-term timeframe. As noted by the CAISO in its rollout, the Draft 20-Year Transmission Outlook is largely conceptual and will be incorporated in the Senate Bill (SB) 100 modeling and stakeholder process, but the development of the 30 MMT sensitivity portfolio presents an opportunity to make the long-term outlook more actionable. Short of modifying the CAISO's current tariff authority to study and approve transmission needs in the TPP under a 10-year outlook, the sensitivity study of a more aggressive 10-year portfolio could help identify transmission investments that may be co-optimized for both a 10-year and long-term outlook, avoiding the year-by-year incremental approve and build in the TPP. For example, the 2022-2023 TPP could identify transmission investments that are larger in nature that could be approved in the near term but are not necessarily cost-effective or needed until later dates, thus recognizing the lumpy and long lead-time nature of transmission investments. In other cases, there may be transmission investments that could be identified that present potential option value, which could be canceled or	The comment is noted

No		Comment Submitted	CAISO Response
		modified in future TPP cycles. In essence, by looking at a more aggressive sensitivity scenario, we can gain an additional data point to assess transmission needs and solutions that captures long-term needs but do not bind the CAISO to approve projects to those long-term needs within their tariff-based 10-year planning process, especially given the uncertainties associated with longer-term forecasts.	
	California Public Utilities Commission	A.CPUC staff supports the CAISO's planned effort to this policy driven transmission assessment utilizing the base case portfolio the CPUC transmitted to the CAISO and appreciate the CAISO's continued collaboration in developing the 30 MMT GHG target with the IEPR high electrification demand scenario sensitivity portfolio. B.CPUC staff seeks clarity on the maximum resource dispatch percentages for out-of-state wind shared in the presentation. Will these be used for all out-of-state wind resources regardless of location or will the CAISO utilize different dispatch percentages corresponding with the source location of the out-of-state wind resource? C.CPUC staff would like to clarify that there were no thermal generation retirements selected as part of the portfolio transmitted for the 22-23 TPP base case. In the CAISO's presentation, PDF slide 55 within the "Policy-driven Assessment" section presents a table of "total and FCDS base portfolio resource additions" that includes (1,055 MW) of "retirements." This is not necessarily incorrect, but CPUC staff want to ensure that this input into CAISO's TPP process is well understood by stakeholders. One of the requirements in the Mid-Term Reliability Decision (D.21-06-035) is for the 40-year age-based retirement of thermal generators (CHP and Peakers) applied up to and including 2026. An analysis of the generators in the master generator list used for RESOLVE analysis shows that a total of 1,055 MW of nameplate capacity of the CHP and Peakers would be retired to fulfill this requirement. These retirements were assumed as an input into the RESOLVE capacity expansion model rather than considered an output of RESOLVE analysis. The CPUC has transmitted to the CAISO a workbook showing which units are affected by the age-based retirement input assumption.[1]	The comment is noted. The maximum dispatch percentages presented are for New Mexico and Wyoming Wind, which were developed and used in the 2021-2022 TPP based on data from NREL for wind resources in those locations. The ISO intends to develop maximum dispatch factors for other out-of-state resource locations in the portfolio using available data, as needed. Note added in the final study plan indicating that these retirements were assumed by the CPUC as an input into the RESOLVE capacity expansion model and are not an output of the RESOLVE analysis. The ISO will assume the list of units provided to be unavailable consistent with the CPUC's assumption.
	California Public Utilities Commission - Public Advocates Office	Proposed Base Case, Sensitivity and Stress Scenario Analysis	

No		Comment Submitted	CAISO Response
		The CAISO indicated in the 2022 Draft Study Plan and associated presentation that it will evaluate the base case and one sensitivity portfolio that the CPUC will provide for the 2022-2023 TPP.[1] The base case is designed to meet a 38 million metric ton (MMT) greenhouse gas (GHG) emission reduction target that assumes a high electric vehicle demand forecast.[2] The single proposed sensitivity portfolio is designed to meet a 30 MMT GHG emission reduction target and is still under development.[3] This year, the CAISO will also evaluate the reliability impacts with a high electrification scenario.[4] Cal Advocates strongly supports CAISO's plan to also conduct separate winter, summer, and spring peak studies for areas that experience high demand during these time frames historically and/or where such scenarios result in more stress on the system.[5], [6], [7] Cal Advocates also supports the CAISO's proposal to study heavy renewable output, high load, and minimum gas generation scenarios.[8], [9] Recommendations: 1.Request that the additional sensitivities differ from the 38 MMT scenario portfolio. Cal Advocates requests confirmation that the proposed additional sensitivities for study in the 2022 TPP will differ from the 38 MMT base case resource portfolio. In the 2021 TPP cycle, the base and sensitivity resource portfolios studied differed in the amount of out of state wind and offshore wind selected. For the 2022 TPP cycle, Cal Advocates requests that the CAISO and CPUC consider a sensitivity that selects a greater amount of at least one of the selected preferred resources in the 38 MMT portfolio such as solar plus storage to meet the 2032 state goals. 2.Recommendation for a corrective action sensitivity scenario. The proposed 38 MMT base case assumes that no corrective actions will be taken to address the expected growth in peak load over the next 10-year period. However, the implementation of corrective actions, such as time-of-use rates (TOU) and demand response programs, can put a downward pressure on load growth, and indirectly reduce the need for new transmission investment. Thus, Cal Advocates also recommends that the CAISO evaluate a scenario that evaluates the impacts of possible corrective actions to reduce	The comment is noted. As indicated in the CPUC decision adopting the portfolios for the 2022-2023 TPP and in the ISO study plan, the sensitivity portfolio that will be studied in the 2022-2023 TPP will be based on a 30 MMT GHG target with the IEPR high electrification demand scenario. Given the higher load and lower GHG target, the ISO expects the portfolio will have a greater amount of renewable and storage resources. The ISO understands the type of resources that will be selected will be primarily a result of the resource optimization performed by the CPUC using RESOLVE. Load forecasting is under the jurisdiction of the CEC. The ISO's working assumption is that the impacts of time-of-use rates on load are appropriately captured in the CEC's load forecast, as are the impacts of other load management programs such as energy efficiency and BTM solar programs.

No		Comment Submitted	CAISO Response
		anticipated growth in peak load. For example, recent findings from an Electric Power Research Institute (EPRI) electric vehicle (EV) tracking study demonstrated that TOU rates are "very effective in shifting peak loads" from EV,[10] and thus have the capacity to reduce the anticipated growth in peak load from EV.	
	California Wind Energy Association	It is not sound to assume, in the SSN deliverability study, that all non-wind and non-solar resources simultaneously produce up to their full NQC. CalWEA previously proposed that the SSN test be eliminated altogether. In the 20-year Transmission Outlook, the ISO at least improved on the methodology by assuming that energy storage resources do not produce under the SSN (gross peak) condition (when solar generation is high and storage resources will generally be charging). The ISO should likewise make this important modification to the on-peak deliverability assessment methodology in the current TPP cycle. While this modification is still insufficient, since all non-wind and non-solar resources are still assumed to produce up to their full NQC, it should substantially increase available transmission capacity while maintaining system reliability. Further, it is critical that ISO develop a means of explicitly connecting its 20-year conceptual transmission plan with the annual TPP cycle so that we can make continual progress toward the long-term plan. To do that, as we explained in our comments on the ISO's first 20-year conceptual plan, CalWEA urges the ISO to work in the SB 100 Joint Agency process to develop a least-regrets (perhaps no-regrets) 20-year planning process in which three significantly different, but plausible, 2040 resource scenarios are created for which actual (rather than conceptual) transmission plans are independently developed. Those upgrades that are common to all three scenarios should move forward in the annual TPP cycle for presentation to the CAISO board for approval because they will facilitate most any potential build-out plan. Those upgrades that are common to two out of the three scenarios should be closely monitored as part of the annual TPP cycle as replacement (potentially more costly replacement) solutions to address reliability, economic and/or policy upgrades that are identified in the TPP. This least-regrets process would ideally commence in the current 2022-23 cycle.	The comment is noted. The comment is noted.
	CEERT, EDF	As the base portfolio, the CPUC transmitted a PSP portfolio based on the 38 MMT GHG target by 2030 and the 2020 IEPR demand forecast utilizing the high electric vehicle assumptions.	

No		Comment Submitted	CAISO Response
		The PIOs strongly urge the CPUC and the CAISO to support the staff development of a policy-driven sensitivity portfolio in consultation with the CEC and CAISO based on a 30 MMT GHG target, and associated busbar mapping.	The ISO is committed to supporting CPUC and CEC staff in the development of the sensitivity portfolio. Work on the development of the sensitivity portfolio based on a 30 MMT GHG target and the high IEPR electrification demand scenario is underway. CPUC staff's current target to provide the portfolio to the ISO complete with bus bar mapping is June 1st.
		The PIOs support the necessity of the 30 MMT GHG target as a portfolio for inclusion.	The comment is noted.
		As the CAISO and the CPUC collaborate on new policy-driven transmission upgrades associated specifically with storage mapping in this planning cycle, and when storage resources are required for mitigation of transmission issues identified in the CAISO's 2021-2022 Transmission Plan, the coordination also includes stakeholder input to help guide the adjustments in the CPUC's mapping of storage resources to allow for the inclusion in the CAISO's analysis of the 2022-2023 TPP portfolios.	The comment is noted.
		As noted, the BTM-PV will be modeled explicitly in the 2022- 2023 TPP base cases, and we agree with the 2021 IEPR data source.	The comment is noted.
	Friends of Minidoka	The Friends of Minidoka encourages CAISO to consider including CPUC ESJ Action Plan goals, once finalized, in its transmission planning analysis as policy goals. The Draft Study Plan includes Table 3.3-1, which shows "the new resource buildout of 38 MMT Core with 2020 IEPR Demand and High EV Penetration (Cumulative MW)" Table 3.3-1: New Resource Buildout of 38 MMT Core with 2020 IE includes a line for Resource Type: "Wind on New Out-of-State Transmission," 1,500 MW.	The comment is noted.
		Regarding the Lava Ridge and SWIP-N projects, the Friends of Minidoka recommends that CAISO consider CPUC's ESJ Action Plan in the 2022-2023 TPP. The CAISO should also consider the status	The comment is noted.

No		Comment Submitted	CAISO Response
		and timing of the federal and state permitting decisions and approval processes relating to Idaho wind generation and transmission.	
	LS Power	LS Power offers the following comments on Chapter 3 of the draft study plan: •CAISO should expand the study plan to include the details of out-of-state (OOS) wind evaluation. The methodology should address the details such as: ◦OOS transmission and wind assumptions for base case portfolio; ◦Definition of any additional cases derived for performing any comparison of transmission alternatives; and ◦Criteria for comparison of alternative solutions. •LS Power understands that the 2021-22 TPP will be extended past March 2022 to enable CAISO to have further discussions with stakeholders related to market interest for Idaho wind for the policy study for OOS transmission and the economic study for SWIP North. CAISO should update this study plan after the 2021-22 TPP is complete to include any relevant steps or methodologies identified in that process that could also be applicable to the 2022-23 TPP cycle. •As LS Power commented during the 2021-22 TPP[1], studying OOS wind at the CAISO injection point for the policy study does not provide a complete response to the CPUC directive. The deliverability analysis under the policy study should address both in-state and OOS constraints to deliver OOS wind to Eldorado substation.	The ISO has expanded Chapter 3 of the study plan to include the overall deliverability study methodology. In policy-driven deliverability assessment, the ISO's analysis will be limited to analyzing the need for upgrades inside CAISO controlled grid to accommodate OOS wind. This comment has been noted. The ISO is not in a position to perform deliverability studies outside its controlled grid. However, the ISO has used and will continue to use PCM studies to evaluate OOS transmission alternatives, as needed.
	LSA/SEIA	LSA/SEIA's recommendations are discussed below. Deliverability Assessment updates The assumptions for the Deliverability Assessment methodologies – including the Off-Peak Deliverability Assessment – were established based on 2018 data and have not been updated since. Renewable-energy curtailments have increased substantially since then, and the mix and locations of renewable and preferred resources on the system have changed, so LSA/SEIA believe that the CAISO should re-examine the analysis assumptions and update them where appropriate. LSA/SEIA also request that the CAISO consider more granular areas for the Off-Peak Deliverability Assessment, to better reflect the diverse output profiles of resources in different areas. A starting point might be these areas: PG&E North, PG&E Fresno, PG&E Kern, SCE Northern, SCE North of Lugo, SCE East of Pisgah, SCE DCRT	The comment is noted. LSA/SEIA suggestion is consistent with the ISO's approach as outlined on pages 61 and 62 of the final study plan.

No		Comment Submitted	CAISO Response
		Eastern, SDG&E Inland and SDG&E East. There may be smaller generation pockets that also need to be studied. LSA/SEIA also ask the CAISO to consider (and approve) the Gates 500/230 KV transformer bank #13 specifically. This upgrade is the least-cost solution to unlock an incremental capacity to interconnect several renewable projects in the PG&E area. This project was evaluated in the 2021-2022 TPP (see the September 2021 TPP stakeholder meetings, Day 2 presentation) but not approved. However, it is a critical upgrade for interconnecting several queued projects prior Cluster 14. The CEC SB 100 starting point indicated over 7,000 MW of capacity in the Kern and Westlands areas, but these projects can only be advanced if this upgrade is approved in the 2022-2023 TPP.. Busbar mapping The Study Plan would use the CPUC resource portfolios without modification, including the busbar mapping. (The 38 MMT base portfolio is mentioned, and the Plan states that a 30 MMT plan will be developed as well.) LSA/SEIA submitted comments on the Proposed Decision for CPUC Rulemaking 20-05-003[1] (Integrated Resource Planning). Among other things, LSA/SEIA's comments listed several unanswered questions about the busbar mapping methodology used to develop the base portfolio for the CAISO TPP, and requested a public workshop on busbar mapping of preferred and storage resources: [LSA/SEIA] appreciate that the concern we expressed about the need for more consideration of commercial interest has been included in the busbar mapping methodology. However, we remain concerned about the lack of clarity about how the commercial interest criterion is applied and how it interacts with "consistency" with prior year's mapping which did not adequately include commercial interest. We are further concerned that the application of commercial interest appears to exclude deliverability elements of the queue data, which leads to problematic and inaccurate results for the TPP. We believe that the best way to clarify how the busbar mapping methodology was applied would be for the Commission to immediately schedule a workshop on this topic. (pp. 6-7)	Manning 500/230 kV substation project is expected to provide similar benefit along with alleviating some of the nested constraints within the Gates bank area constraint. These benefits will be evaluated in the upcoming GIP and TPP studies. Questions related to the busbar mapping process should be submitted to the CPUC.

No		Comment Submitted	CAISO Response
		LSA/SEIA request that the CAISO do the following: •Work with the CPUC staff to arrange this workshop; and •Allow an opportunity in the CAISO TPP studies to incorporate any revised mapping methodology that could result from such a workshop, and from subsequent submitted comments. Transmission Plan (TP) Deliverability The Plan states at p.54: Transmission Planning Deliverability Section 8.9 of the GIDAP specifies that an estimate of the generation deliverability supported by the existing system and approved transmission upgrades will be determined from the most recent Transmission Plan. Transmission plan deliverability (TPD) is estimated based on the area deliverability constraints identified in recent generation interconnection studies without considering local deliverability constraints. For study areas in which the TPD is greater than the MW amount of generation in the CAISO interconnection queue, TPD is not quantified. LSA/SEIA believe that the CAISO should quantify TPD in all areas, including those where TPD is greater than the MW amount of generation in the CAISO interconnection queue, so developers know how much is still available in each area.	Please submit your comment regarding such a workshop to the CPUC. The ISO is willing to provide support to the CPUC, as needed. The ISO will incorporate revised mappings as long as they are transmitted in a timely fashion. TPD can widely vary, among other things, based on the location and type of resources modeled in the study. In order to quantify TPD in areas where TPD is greater than the MW amount of generation in the CAISO interconnection queue, the ISO will need to make random assumptions regarding the location and type of resources. As a result, TPD produced in such a manner can be misleading to developers and is hardly a good use of the ISO's limited resources.
	California Western Grid Development, LLC	We request CAISO again study the benefits provided by the Pacific Transmission Expansion Project (PTEP) to support the state's mandate for meeting renewable energy targets and greenhouse gas reduction targets by 2030. We further elaborate on the benefits of PTEP in the attached file https://stakeholdercenter.caiso.com/Common/DownloadFile/ac2de98e-ecda-49a5-afff-1bc9188799f3	Comment noted
	North Gila - Imperial Valley #2 Project	Imperial Valley Geothermal MW, Bus Bar Mapping and Dispatch CAISO's draft 2022-2023 Study Plan presentation slide 57/86 'Non Storage resources by location' shows only 600 MW of geothermal	

No		Comment Submitted	CAISO Response
		when compared to 700 MW shown in Table 14, pg. 46/67 of the CPUC Staff Report Attachment A: Modeling Assumptions for the 2022-2023 Transmission Planning Process filed December 22, 2021. Can you please explain if this is intentional? The CPUC report on the Modeling Assumptions for the 2022-2023 Transmission Planning Process also note the following in Section 7.5 Transmission Implications of the Final Mapped Portfolio on pages 58 and 67: Thus, although the 700 MW of geothermal resources mapped to the Bannister substation within the Imperial Irrigation District's (IID's) BAA are unlikely to require any upgrades within the CAISO transmission system, assuming the resources interconnect with the CAISO to the north in the Riverside area, the impacts on the IID's system are unknown, as are the type and cost of any upgrades that may be required to successfully interconnect the resources to deliver to the CAISO.	North Gila - Imperial Valley #2 Project is not referring to the final version of the Modeling Assumptions for the 2022-2023 Transmission Planning Process filed February 2022. Table 20: Summary of the final mapping of geothermal resources and their compliance with the mapping criteria on page 61 of the final version of the document shows 600 MW for Bannister, which is consistent with the ISO 2022-2023 Study Plan
		Can CAISO please comment on why the geothermal resources are assumed to interconnect with CAISO to the north in the Riverside area? As described in the following Economic Study Request for NGIV2 project, we believe our project would provide a connection into CAISO through the new 500/230 kV Dunes Substation that connects into IID's 230 kV Highline Substation. We request CAISO to consider moving geothermal resources to interconnect to the IID system with an opportunity to deliver to the CAISO at Imperial Valley, Mirage/Devers and the new Dunes Substation.	The IID geothermal resource is mapped to Banister based on input from IID. Also, our modeling criteria does not allow inclusion of non-approved projects.
	Pacific Gas and Electric Company	Offshore Wind contributing to Policy-Driven Transmission Projects: The TPP base case scenario includes significant amounts of offshore wind ("OSW") in the statewide resource portfolio, with planned online dates in the latter part of the planning horizon. PG&E is technology and resource-type agnostic but notes the robust interest among many stakeholders (including state and federal agencies) to encourage development of OSW in California. PG&E acknowledges that the scale of OSW in the base case could result in policy-driven transmission projects as part of the TPP.[1] Given the long development time and complex multi-agency processes, as outlined in several OSW-focused workshops held by the CPUC, CEC, and BOEM in recent months, PG&E encourages CAISO to continue to	Comment noted.

No		Comment Submitted	CAISO Response
		evaluate and consider transmission solutions that could flexibly integrate OSW resources and other technologies should these resource types be procured. Resource planning activities, such as the CPUC's IRP, will need clear signals regarding feasibility, timelines, and costs for transmission projects that are needed to make OSW a significant contributor to the State's resource mix.	
	SDGE	As CAISO analyzes the portfolio being communicated from the CPUC, it is important to consider that SB100 goals will result in increasingly stringent climate goals until 2045. Thus, it is important to consider longer term solutions as opposed to short term fixes (such as RAS), as this will reduce the instances where solutions are approved and implemented only to be revisited a few years later when load forecasts increase or additional resources require deliverability for example. SDG&E suggests that the CAISO modify the tariff such that 20-year outlook study projects with long lead times can be approved via the TPP. This will ensure that the transmission will be available by the time it is needed.	Comment noted
	SEIA	SEIA supports the stated public policy objectives of accommodating the economic delivery and deliverability of renewable energy to meet the state's GHG emissions target of 38 MMT by 2030. SEIA believes the CPUC's recommended base portfolio is a good starting point for evaluating the transmission needs resulting from the anticipated increase in renewable energy and storage resource penetration. It is unclear from the draft plan if this assessment will also consider the effects of electrification, gas-fired generation retirements, and reduced reliance on the Aliso Canyon gas storage facilities like the sensitivity study described in section 6.5. SEIA believes this is an important factor to consider when evaluating CAISO's GHG emissions targets and renewable integration, and recommends CAISO incorporate these types of scenarios in its policy-driven assessment. SEIA also supports the sensitivity study that will be based on a 30 MMT GHG target with the IEPR high electrification demand scenario and looks forward to the publishing of the sensitivity portfolio. Electrification of transportation and other loads is a variable that has the potential to influence the load forecast by a significant degree, and state agencies should be careful to study scenarios that capture the	The ISO uses the resource portfolios and assumptions developed by the CPUC and demand forecast developed by the CEC. As indicated in the study plan and noted in the comment, the ISO will be studying a sensitivity portfolio based on a 30 MMT GHG target with the CEC high electrification demand scenario in addition to the base portfolio, which is based on 38 MMT GHG target and the CEC 2020 demand forecast utilizing the high electric vehicle assumptions. As further indicated in the study plan, the ISO will also be using the same retirement assumptions as used by the CPUC in developing the resource portfolios. Comment noted.

No		Comment Submitted	CAISO Response
		possible range of load increases. In particular, electrification of heavy-duty trucks could drive significant charging needs along transportation corridors where current transmission infrastructure is not sufficient to serve the load. SEIA suggests that the sensitivity portfolio recognize the 400-plus active in-progress interconnection requests for renewable or storage currently reported by CAISO. These projects total over 130,000 MWs with expected CODs prior to 2030. Recognizing that not all these projects will reach COD, SEIA believes it would be prudent for CAISO to perform a sensitivity study with a resource portfolio that, to some degree, reflects CAISO's current queue. This should, at the very least, identify geographic areas with future development that would benefit from additional deliverability.	As noted in the response above, the ISO uses resource portfolios that are developed by the CPUC taking into account the ISO Queue as a criterion in the resource to bus bar mapping process once the amount, type and general location of resources that are needed to meet policy and reliability needs have been determined through resource optimization. The ISO believes this approach works well in identifying geographic areas with future development that would benefit from additional deliverability.
	Vistra Corp	Please see below Vistra's feedback on methodology in response to Question #4, economic planning study. While our methodology comments are included in this response it is critical to recognize that the Production Cost Model (PCM) used in the planning studies are used in economic studies as well. Consequently, Vistra's requests on improvements to PCM used in economic assessments should also apply to the PCM used for policy-driven assessments.	The ISO uses the same PCM models for the policy-driven and economic assessments. As such any changes made to the PCM model based on Vistra's comments in the economic section will apply to the PCM model used in the policy-driven assessment.

4. Comment on chapter 4 Economic Planning Study:

No		Comment Submitted	CAISO Response
a	ACP-California	See attachment in sect 1 and 2	
b	Arevia Power	No comment	
c	Bay Area Municipal Transmission group (BAMx)	The Study Plan states that the economic planning study will quantify the economic benefits for the CAISO ratepayers based on Transmission Economic Assessment Methodology (TEAM).[1] Although the Study Plan does not make it clear, it appears that the TEAM analysis will be applied only to the Base portfolio. An analysis based upon a single baseline scenario is inconsistent with CAISO's TEAM principles to account for risk and uncertainty.[2] BAMx requests that the Study Plan clearly lays out the broad scope of the Production Cost Modeling (PCM) entailing multiple scenarios as envisioned under TEAM that would be conducted in the determination of the economic-driven transmission projects in the current planning cycle. These scenarios should capture varying levels of load growth, gas prices, hydrological conditions, and different resource plans including varying levels of fossil-fired retirements as envisioned under TEAM.[3]	The CAISO's economic planning study follows TEAM methodology. One of the principles of TEAM methodology is to assess sensitivities of critical parameters of the study. Please refer to the TEAM document posted on the CAISO website for details. (http://www.caiso.com/Documents/TransmissionEconomicAssessmentMethodology-Nov2_2017.pdf)
d	California Energy Storage Alliance	CESA appreciate the approach of the CAISO for the economic assessment for the 2022-2023 TPP cycle and understand that this type of analysis is challenging to model accurately and computationally intensive. Yet, detailed modeling sends adequate signals to the industry to motivate investment and deployment while also achieving the state clean energy goals. Furthermore, it identifies commercial opportunities for stakeholders that ultimately will identify key projects or measures to reduce transmission congestion and renewable curtailment. CESA, as the voice of energy storage in California, highlights that well-placed energy storage paired with renewable generation can reduce curtailment and potentially reduce congestion levels at a lower cost. In the aim of improving both modeling and send adequate market signals, CESA identified that there is mismatch of the expected storage capacity input for the proposed production cost model (PCM). Using the current 38 MMT base case scenario (also cited in the material for this initiative), the total amount of storage capacity for California is expected to be close to 13,800 MW. However, as also stated in the materials presented, the economic study will use the anchor dataset (ADS) developed by the Western Electricity Coordinating Council (WECC) as the starting database. From the documentation of this dataset, the expected amount of storage is 5,921 MW for the California balancing zones (see Table below). Both datasets differ by 7,879 MW that could potentially change the results	The WECC ADS PCM is only used as a starting point for developing the CAISO's planning PCM. The CAISO will use the unified study assumption laid out in the study plan to update the CAISO system models in the planning PCM, including the battery storage models.

No		Comment Submitted	CAISO Response
		of this modeling effort drastically. Given the huge capacity difference, CESA requests that the CAISO clarify the decision of using the ADS as starting point. Table 1. Expected storage fleet in California for the 2030 modeling period from SB100 38 MMT portfolio and ADS *Table 1. Expected storage fleet in California for the 2030 modeling period from SB100 38 MMT portfolio and ADS* 38 MMT Base Case Scenario: 13,800 MW; ADS: 5,921 MW; Difference: 7,879 MW	
e	California Public Utilities Commission	CPUC staff requests that the CAISO share more information in the final study plan about how out-of-state wind delivered to CAISO on new transmission developed outside of CAISO will be treated in the various assessments, and whether it will depend on the outcomes of the 21-22 TPP cycle extension including the Idaho wind market test. For example, will the CAISO be producing multiple benefit-to-cost ratios in the economic assessment?	In deliverability assessments, out-of-state wind resources delivered to CAISO on new transmission developed outside of CAISO will be modeled at the delivery inter-tie buses the CPUC mapped them to. Since the resources are outside the ISO controlled grid, the ISO will perform calculations in accordance with its BPM to determine the resources' impact on the MIC of the inter-tie. The ISO will then dispatch import on the inter-tie to reflect any required increases to MIC. The OOS study in the last cycle is extended to 2022. An updated results will be treated as a part of 2021-2022 TPP.
f	California Public Utilities Commission - Public Advocates Office	As stated in the Draft Study Plan, the CAISO intends to use the Transmission Economic Assessment Methodology (TEAM) to quantify the economic benefits of proposed transmission projects. [1] According to its Tariff, the CAISO is required to consider the degree to which, if any, the benefits of a transmission solution outweigh its costs. If a transmission solution generates a benefit-cost ratio greater than 1.0, the CAISO may conclude that its benefits outweigh its costs. The CAISO's TEAM framework for economic assessments requires an analysis of the effects of uncertainty on the proposed project's expected economic benefits. This requirement recognizes that a project's benefits may change in the future based on certain factors, including load, natural gas prices, new power plants, retired power plants, plant locations, and the future growth of the electrical network. TEAM requires a range of sensitivities to be performed as stated in Section 5 of the CAISO's TEAM document.[2]	This comment has been noted

No		Comment Submitted	CAISO Response
		Sensitivity Case Selection is illustrated in CAISO's TPP, Table 5-1: Typical sensitivity analyses. The CAISO economic analysis, thus, should not be limited to the CPUC base portfolio and the policy-driven sensitivity portfolios provided by the CPUC for study purposes. This extremely limited evaluation differs significantly from the multiple scenarios the CAISO is required to perform for sensitivity analysis under TEAM. The CAISO has placed more emphasis on careful consideration of robust baseline assumptions rather than conducting a broader range of sensitivity case studies. Recommendation: Cal Advocates recommends the CAISO perform analysis on the entire suite of sensitivity case studies that are required for the TEAM process. In addition, the CAISO should provide details and results on the range of sensitivity case studies as required under TEAM and provide the benefit-cost ratios to stakeholders. Rebuttable Presumption For economic evaluations of transmission projects that may go before the CPUC for a Certificate of Public Convenience and Necessity or a Permit to Construct, Cal Advocates recommends that the CAISO Board make the findings required by D.06-11-018 with regards to the economic evaluation: •During the TPP, the CAISO sponsors at least two meetings with an opportunity for public input and comment. The first meeting would occur sufficiently early in the CAISO's assessment process to provide an opportunity to discuss the scope of the proposed economic assessment, including identification of the base case and other relevant assumptions, as well as resource alternatives. The second meeting would take public comment on the draft economic evaluation prior to its submission to the CAISO Board. •The final economic evaluation that is submitted to the CAISO Board includes CAISO staff's reasoned responses to all public comments (verbal and written) that explain how the comments were addressed in the final evaluation, either through incorporation of stakeholders' comments in full, modification, or rejection, and the reasons, therefore. •The public participation process has provided interested parties with sufficient time and opportunity (including sufficient access to information) to adequately review and comment on the draft TPP plan.	

No		Comment Submitted	CAISO Response
		•The final economic evaluation meets all the requirements of D.06-11-018, as it may be amended by future Commission decisions, including the Principles and Minimum Requirements for the Economic Evaluation of Proposed Transmission Projects set forth as Attachment A to D.06-11-018. •The final economic evaluation determines if the proposed transmission project promotes economic efficiency in that it constitutes a cost-effective upgrade to the CAISO Controlled Grid based on clearly defined information, assumptions, and weighting or combination of the relevant benefit-cost ratios and other economic criteria, including (but not limited to) difficult to quantify economic benefits, such as system operational benefits.	
	Imperial Irrigation District	Imperial Irrigation District (IID) appreciates the opportunity to provide comments on the CAISO's draft 2022-2023 Transmission Planning Process (TPP) Study Plan based on the information presented at the March 1, 2022 stakeholder meeting. IID is reviewing benefits to potential participation in the North Gila to Imperial Valley #2 Project (NGIV2) and has included a similar project in West Connect planning process. IID believes NGIV2 will be a benefit to IID ratepayers both near and long term to help IID continue to be deliver low-cost energy. The project would also be a major step towards achieving California's goals related to renewable energy integration and Greenhouse Gas (GHG) reductions. Specifically, IID expects NGIV2 will benefit IID by: •Increasing reliability for the greater Imperial Valley area and providing an additional import/export outlet through the interconnection of the NGIV2 Project to the IID Highline 230kV substation; • ◦Reduce RAS arming requirements for generation scheduled into the CAISO Balancing Authority and thus facilitating adherence to CAISO ISO Planning Standards, ISO SPS3 RAS guidelines. This would allow for additional generation assets within IID's footprint. •Providing access to IID's currently stranded bi-directional transmission capacity on the Palo Verde to North Gila path (SWPL) and IID's ownership stake in the Hassayampa – North Gila #2 (HANG2) and; •Further, strengthen the IID transmission system to enhance Maximum Import Capability by providing deliverability of both In-State Solar and Geothermal and Out of State Wind through the Palo Verde Hub.	This comment has been noted.

No		Comment Submitted	CAISO Response
		While IID has not yet executed a full participation agreement with the NGIV2 Project development team, IID is considering and evaluating potential ownership in the project as well as other potential solutions that could allow IID to leverage the benefits listed above by other means (IID has submitted a 230kV North Gila – Highline into the West Connect Planning process as a conceptual project to be assessed). For planning purposes only at this time, the IID is requesting that the CAISO's Economic Modeling include a scenario with an up to 20% ownership of the 500 kV facilities of NGIV2 by IID with the remainder of the 500 kV facilities recovered as requested with the CAISO. In addition, IID would be allocated 100% of the cost for the230 kV facilities including the 500/230 kV transformer and 230 kV line into IID's Highline Substation. IID would also operate and maintain all 230kV equipment within the Dune substation Please refer to the NGIV2 economic study request for more specific details. Please note the 20% is a high-level estimate for purposes of modeling only; although IID is exploring potential ownership, no definitive agreements have been negotiated and any such agreements would be subject to review and approval by the IID Board of Directors.	
	LS Power	LS Power had submitted an economic study request for SWIP North in the 2021-22 TPP which is currently under further evaluation by CAISO as an extension to the 2021-22 TPP cycle. If SWIP North is not approved under the extended 2021-22 TPP, LS Power hereby requests CAISO to study SWIP North as an economic project (as submitted during 2021-22 TPP cycle) in 2022-23 TPP. Should this situation arises, LS Power will work with CAISO staff to submit any updated information, as appropriate, prior to CAISO commencing the study.	This comment has been noted.
	California Western Grid Development, LLC	We disagree with CAISO's proposed approach for the 2022-2023 TPP to continue using conservative valuations for LCR benefits for purposes of valuing such benefits in economic assessments. We discuss this topic further along with our request to again study the benefits of PTEP as an economic project in the attached file, "Request_for_Economic_Study_in_2022-2023 TPP_CWGD_20220314.pdf"	This comment has been noted.
	North Gila - Imperial Valley #2 Project	High Priority Economic Study Request for the North Gila – Imperial Valley #2 Project On behalf of the project sponsors, NGIV2 LLC, Citizens Energy Corporation, Grid United LLC, and the IID, we are pleased to submit the North Gila – Imperial Valley #2 Project ("NGIV2") to the CAISO for	This comment has been noted.

No		Comment Submitted	CAISO Response
		consideration as a high-priority economic study request in the 2022-2023 Transmission Planning Process. Collectively, the project sponsors propose to have 80% of the 500kV line costs recovered via a CAISO PTO, at a cost of $271M, and the remaining 20% via the IID transmission tariff. The NGIV2 Project will create an opportunity for a new CAISO delivery point at the proposed Dunes 500 kV substation, reduce Local Capacity Requirements ("LCR") for the greater Imperial Valley/San Diego region, and provide a major import and export transmission path with an incremental 1,250 MW of capacity to deliver both In-State solar and geothermal resources from the Imperial County, and out of state resources, particularly wind resources delivered from the Palo Verde Hub. Lastly, the NGIV2 Project will provide additional transmission capacity for the IID for their stranded capacity at North Gila from the Hassayampa – North Gila #2 ("HANG2") 500 kV line. Project configuration The 85 mile long North Gila – Imperial Valley #2 Project is a new 500 kV line generally paralleling the existing North Gila – Imperial Valley #1 500 kV line (also known as the Southwest Power Link, or "SWPL"). For this submittal as a high-priority economic study request by the CAISO, the Project Sponsors propose the following project facility additions: A new 500 kV termination at the existing CAISO North Gila 500 kV Substation (operated by APS). A new 85-mile, 500 kV line between the North Gila 500 kV Substation to the Imperial Valley 500kV Substation. While the IID is proposing to be a 20% owner in this line, the remaining 80% is to be owned and costs recovered by a CAISO PTO. A new 500 kV termination at the existing CAISO Imperial Valley 500KV Substation (operated by SDGE). Contingent Facilities: Series compensation located at a proposed intermediate substation (known as Dunes), located approximately 56 miles west from North Gila, the location is electrically near the IID Highline 230 kV Substation. Note that the existing North Gila – Imperial Valley #1 line includes 50% series compensation, but is	

No		Comment Submitted	CAISO Response
		currently operated bypassed. The cost of these contingent facilities are included in the cost of the NGIV2 Project. Facilities to be owned and operated by the IID: A new 500 kV termination at the 500 kV Dunes Substation (initially only a contingent series compensation station) for the termination of a 1120 MVA 500/230 kV transformer. New Dunes 230 kV Switching Station. A new 6.6-mile, 230 kV segment from the 230 kV Dunes Switching Station terminating into IID's existing 230 kV Highline Substation. IID will Own 100% and operate the Dunes 500/230 kV transformer and the 230 kV transmission line between Dunes and Highline substations. Figure 1 represents a simplified single-line diagram of the proposed facilities and ownership. image-20220314144535-1.png Figure 1: Simplified Single Line Diagram of the North Gila – Imperial Valley #2 Project Facilities NGIV2 has an Accepted Rating via the WECC Path Rating Process The NGIV2 project has completed Phase 2 of the WECC Path Rating Process and has been granted an Accepted Rating for an incremental 1,250 MW of transfer capability on the West of Colorado ("WOR") or Path 46, increasing the Path 46 rating from 11,200 MW to 12,450 MW. The Hassayampa- North Gila #2 Project is now in-service but limited to only 500 MW of scheduling capability, with an incremental 100 MW planned with the addition of the Arizona Public Service's	

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		("APS") 230 kV Orchard Project. Refer to Figure 2 for the facilities that make up the WECC Path 46 or WOR. image-20220314144535-2.png Project Cost Sharing with Imperial Irrigation District Participation IID has submitted a conceptual project into the WestConnect transmission planning process consisting of approximately 60 miles of new 230 kV transmission line and associated facilities between North Gila and Highline 230 kV substations, at a cost of approximately $140M to meet IID's resource and load serving obligations. However, the proposed NGIV2 Project configuration fulfills IIDs expected future needs, provides several benefits to the CAISO ratepayers, and furthers the State of California's SB100 and Imperial County's policy goals (Imperial County Lithium Valley Economic Opportunity Investment Plan' ("LVIP")1. Therefore, IID proposes to participate with the NGIV2 Project co-sponsors to allocate 100% of the cost of 230 kV facilities i.e., the 230 kV Dunes to Highline 6.6-mile segment, including the Dunes 500/230 kV transformer and approximately 20% of the cost of the 500 kV facilities to IID tariff. The remaining 80% of the costs of the 500 kV facilities are proposed to be recovered via a CAISO PTO. Please note for the total NGIV2 project cost, this amounts to an approximate cost split of 20% (IID) / 80% (CAISO). Based on the past CAISO evaluations and before considering any benefits that will be assessed in the upcoming 2022-2023 TPP, we expect the Project with its reduced cost, CAISO ratepayers will be found to meet CAISO's economic and policy criteria. NGIV2 project sponsors want to highlight that the project is NOT requesting Interregional Cost Allocation and request that CAISO evaluate the project to fulfill its own regional transmission needs as described previously and similar to the Delaney to Colorado River, Harry Allen to Eldorado, and SWIP North projects. The Project Sponsor proposes that the CAISO be the BAA for the 500 kV transmission line facilities (including the contingent series compensation facilities).	

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		CAISO Policy Benefits We understand and acknowledge that assessing and quantifying all the benefits that a proposed 500 kV transmission project might offer in the future based on current assumptions is very challenging, especially with the ever evolving and increasingly complex grid. However, CAISO's tariff Section 24.4.6.6 notes that "CAISO will determine the need for, and identify such policy-driven transmission solutions that efficiently and effectively meet applicable policies under alternative resource location and integration assumptions and scenarios, while mitigating the risk of stranded investment"2. We strongly believe the risk of NGIV2 becoming a stranded asset is minimal to zero because of a) its strategic location in Imperial County with access to both in-state and out-of-state renewable resources through the Palo Verde Hub and b) tremendous commercial interest as evident from the CAISO, IID, and APS generation queues and documented potential for load growth in the San Diego - Imperial Valley CEC Docket no: 20-LITHIUM-01, Document Title: Lithium Valley Economic Opportunity Investment Plan (Imperial County LVIP),TN# 241584, Docketed Date: 02/18/2022 https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-LITHIUM-01 https://www.caiso.com/Documents/Section24-ComprehensiveTransmissionPlanningProcess-asof-Sep9-2020.pdf Hence, we request that in addition to the economic benefits that can be practically quantified, CAISO also consider the policy and long-term benefits that such a strategically located transmission line would provide to meet both the current 2022-2023 Transmission Plan's base portfolio target of 38 MMT GHG emissions and California's SB100 goals in the longer term. Regional Public Policy Benefits of NGIV2 In addition to being a step towards the State of California's SB100 goals, as noted previously, we also wanted to stress both local county level and national public policy benefits of NGIV2. As stated above	

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		commercial interest in both geothermal generation and lithium extraction in the Salton Sea area has exploded. In addition to the potential for geothermal production between 1500-3000 MW over the next 10-15 years, Imperial County staff also estimate that the county may hold as much as 15 MMT of lithium in addition to other rare earth materials. NGIV2, therefore, has a direct impact on ramping up new development in the area and creating economic growth and job opportunities for a Disadvantaged Community. Due to the forecasted demand for electric vehicles, Battery Energy Storage Systems ("BESS"), and other electronic devices, access to lithium and rare earth resources is also widely considered key to the National Security Interests of the United States. Local Capacity/Resource Adequacy Benefit As noted above, based on CAISO's evaluation of NGIV2 in the 2018-2019 TPP3, the project is expected to provide more than 865 MW reduction in LCR in the San Diego-Imperial Valley area with the net present value of the savings calculated to be more than $329M. We request CAISO to please refresh this analysis with the latest resource plan and topology assumptions including the NGIV2 Project. Production Cost Benefit Similar to the LCR benefits, we are confident that the trend of production cost benefits (or net CAISO load payment savings) realized from the project as summarized in Section 5.7.5 of the 2013-2014 TPP4 and Section 5.4.1.3 of the 2018-2019 TPP3 will continue due to increased use of more efficient resources in the Imperial Valley, Arizona Public Service ("APS"), Palo Verde trading Hub and Salt River Project ("SRP"), displacing more expensive generation in Southern California. We would also like to note that the existing North Gila – Imperial Valley #1 transmission line, SWPL, has consistently shown up as a congested element in CAISO's TPP in recent years including both the 2021-2023 TPP and even in the 20-year Transmission Outlook Study.	

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		Integration & Deliverability of geographically diverse Renewable Resources including Out of State Wind from the Palo Verde Hub The NGIV2 Project will be a major transmission expansion between the Southern Arizona area and Southern California area. As noted above, it has already been granted a WECC Accepted Path Rating that adds 1,250 MW incremental transfer capability to the WOR Path, or WECC Path 46, increasing the interregional transfer capability between Arizona and California, specifically between the Palo Verde hub and load centers in Southern California. In addition to the In-State solar and geothermal additions enabled by the project, we also request CAISO consider the integration and deliverability potential for geographically diverse Out of State solar and wind, especially the 438 MW of New Mexico wind included in the current 2022-2023 TPP Base Portfolio proposed to be delivered at Palo Verde. Although not part of the current study plan, we implore CAISO to reexamine the Out of State wind study conducted as part of the 2021-2022 year TPP which included 1,500 MWs of New Mexico wind at Pinal Central (CAISO Palo Verde Hub). We believe the incremental 1,250 MW of WOR path rating achieved by NGIV2 would provide better production cost and deliverability to Southern California load than what was achieved in the 2021-2022 TPP analysis. Local Gas Fired Generation Reduction Benefit In the recent years the CPUC and CAISO have had to balance the reliability needs of local inefficient gas units against its associated GHG emissions. CAISO noted in the Draft 2021-2022 TPP pages 335 and 391 “In particular, the longer-term requirements for gas-fired generation for system and flexible capacity requirements continue to be examined, in the CPUC’s integrated resource planning process, but actionable direction regarding the need for these resources for those purposes is not yet available”. CPUC staff noted in Section 6 of the CPUC Staff paper published on October 2021 titled “Considering Gas Capacity Upgrades to Address Reliability Risk in Integrated Resource Planning”8 that “ Further, to shed light on related, long-term questions regarding the CAISO gas fleet, the next IRP cycle could	

No		Comment Submitted	CAISO Response
		study the existing fleet and emerging technologies in more detail. This could provide more insight into the appropriate role of the gas fleet in moving towards a decarbonized electricity system. As one example of potential work to support this, the IRP could explore an expansion of its system and local reliability modeling capabilities to further consider when storage technologies or emerging technology resources may economically displace gas generators from their local capacity provision". NGIV2 project sponsors want to note that the Salton Sea region of California is home to some of the best untapped geothermal resources in the country. We appreciate that the CPUC and CAISO have included 700 MW of geothermal mapped to the Imperial Valley area in the current base portfolio. However, Imperial County staff, who are much closer to gauging actual commercial interest in geothermal and lithium extraction development within the county, expect between 1500-3000 MWs of geothermal in the next 10-15 years as stated in the 'Imperial County Lithium Valley Economic Opportunity Investment Plan ("LVIP).'1 https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/cpuc-gas-upgrades-staff-paper-october-2021.pdf With IID's intention for an interconnection between the NGIV2 Project into IID's 230 kV Highline Substation would provide an additional parallel path to the IID 230 kV "S" line project interconnection from IID's El Centro 230 kV to Imperial Valley 230 kV substations to enable dispatchable renewable FCDS Geothermal to reduce reliance on local gas fired generation in the San Diego – Imperial Valley area. A future 500 kV interconnection between Dunes – Midway - Devers could also potentially provide similar benefits in the LA basin and the region. Reliability Benefits of NGIV2	

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		The NGIV2 project would increase the reliability benefits for the CAISO, IID and broader southern WECC area for loss of the existing North Gila - Imperial Valley #1 500 kV segment of the Southwest Power Link ("SWPL") line. While the primary focus of this high-priority economic study request to the CAISO for the NGIV2 Project, the Project Sponsors request the CAISO to also consider the invaluable operational flexibility, potential elimination or substantial reduction of existing Remedial Action Schemes (RAS's") in the San Diego and Imperial Valley areas, operating reserve requirements, and frequency reserve margins that might be achieved by the addition of the NGIV2 Project. Comments on CAISO economic modeling assumptions and methodology We request CAISO to consider these specific comments and assumptions as it relates to the NGIV2 Project high-priority economic study request. Include an incremental 1,250 MW transfer capability on WECC Path 46, or the WOR Path, for the post-project NGIV2 Project case bringing the target flows from the existing 11,200 MW to 12,450 MW as per the Accepted Rating in the WECC Path Three Rating Phase Process. The confidential GE PSLF model data has been submitted to the CAISO regional transmission email. Include $271M as the Capital Cost of the Project to be allocated via a CAISO PTO. Include the review of the San Diego/Imperial Valley LCR reduction benefit analysis with the inclusion of the NGIV2 Project along with other economic analysis that CAISO performs. As per our comments on the draft 2022-2023 Study Plan, several Path Owners have requested Re- Rating due to a change in reliability criteria around common corridor contingencies. We request the CAISO perform a sensitivity for the NGIV2 Project with at least the proposed Path 26 rating of 4,400 MW South to North and 5,000 MW North to South In conclusion, we believe the NGIV2 Project Economic study request fulfills the parameters set forth in CAISO's tariff Section 24.3.4.1 (b)(c)(d)(e) "CAISO Assessment of Requests for Economic Planning Studies" and request CAISO include NGIV2 as a high priority	

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		Economic Study Request in the 2022-2023 TPP. The NGIV2 Project sponsors thanks the CAISO for considering these study comments and the associated request to study the NGIV2 Project. We look forward to working with CAISO staff on the 2022- 2023 TPP.	
	Pacific Gas and Electric Company	Congestion and Production Benefit Assessment: PG&E appreciates and supports the CAISO's use of production cost simulation ("PCS") modeling and asks the Commission to quantify the curtailment of renewable resources due to transmission. This information will be extremely valuable for the future IRP modelling as the IRP models do not reflect local renewable resource curtailments while planning for GHG emission reduction. Furthermore, PG&E requests that the CAISO conduct an economic study to identify solutions to relieve transmission congestion in the Fresno Avenal area that includes lines such as the Gates-Tulare Lake 70kV line, the Gates Substation, and the Kettleman Hills Tap to Gates 70 kV line. Transmission congestion can increase consumer costs because it prevents low-cost energy from serving customers. The CAISO should study and identify cost effective transmission solutions that would mitigate congestion in the Fresno Avenal area.	This comment has been noted.
	SDGE	The CPUC and the CAISO should partner to develop long-term RA prices that correspond with long asset lives, such as transmission lines, when evaluating the cost-effectiveness of reducing Local Capacity Requirements (LCR) with transmission infrastructure additions. Properly valuing transmission projects will help the CAISO and the CPUC approve projects that will increase deliverability (i.e., transmission availability) while at the same time provide cost savings to ratepayers by reducing congestion and LCR. SDG&E notes that in the TPP, the CAISO has been using the difference between near-term local capacity prices and near-term system capacity prices to assess the economic benefits of transmission projects that are proposed to reduce LCRs. The near-term capacity prices used by the CAISO were based on the CPUC's most recent Resource Adequacy Report. SDG&E has some concerns regarding the CAISO's RA price forecasting approach. The CPUC's Resource Adequacy Report reflects only near-term (less than 5 years) system and local RA capacity prices. Near-term price forecasts are not an accurate representation of capacity prices for time periods in the future when a potential transmission project could be placed in-service and operational. Consideration of project construction timeframes, which may take as long as ten years, and appropriate asset economic life	This comment has been noted. As the stakeholder noted in its comment that the CAISO has indicated in recent TPPs that it needs more guidance and support from the CPUC to properly forecast long-term RA prices.

No		Comment Submitted	CAISO Response
		should be accounted for. Specifically, SDG&E's proposed approach is to forecast longer term (corresponding to asset lives of 50 or more years) capacity prices by considering resource scarcities over time, the cost of building new generators that will comply with California's policies (e.g., SB100) including the replacement of such generation when their useful economic lives end, and the impact of future technology improvements on zero-carbon resources' costs (e.g., storage). It is important to realize that even if the current gas fleet is maintained in LCR areas, the addition of new clean resources in these areas will ultimately affect RA prices. The CAISO has indicated in recent TPPs that it needs more guidance and support from the CPUC to properly forecast long-term RA prices.	
	SEIA	SEIA would appreciate clarification on the decision to use the 1-in-2 forecast for the congestion and production benefit assessment. More specifically, SEIA is curious if the 1-in-2 forecast accounts for weather which would be an important factor in identifying congestion patterns in California.	The 1-in-2 load forecast means the peak load forecast is 1-in-2 years peak. Similarly the 1-in-5 or 1-in-10 forecast provide 1-in-5 years peak or 1-in-10 years peak, respectively. However, all these forecasts have the same annual energy. Using 1-in-2 load forecast in the CAISO planning PCM is consistent with the WECC ADS PCM load assumption as well.
	SCE	SCE would like to submit the following project proposal idea for CAISO consideration in the 2022-2023 Economic Planning Study. Please provide the following basic information of the submission: Please provide the project name and the date you are submitting the project proposal to the ISO. It is preferred that the name of the project reflects the scope and location of the project: Project Name: Inyokern 230 kV Upgrade Project Submission Date: 3/14/22 Project location and interconnection point(s): Inyokern 115 kV Substation to Kramer 230/115 kV Substation and BLM West 230 kV Substation Description of the project. Please provide the overview of the proposed project (e.g. overall scope, project objectives, estimated costs, etc.): This potential Economic Planning Study project proposes a new Inyokern 230 kV switchrack connection to the existing 115 kV with one or two 230/115 kV transformer banks. Loop-in of the existing BLM West-Kramer 230 kV transmission line into the new Inyokern 230 kV	This comment has been noted.

No		Comment Submitted	CAISO Response
		switchrack creating the new Inyokern-Kramer No. 1 and BLM West-Inyokern 230 kV transmission lines. Disconnect Randsburg 115 kV line segment of existing Inyokern-Kramer-Randsburg No. 3 115 kV transmission line and increase operating voltage to 230 kV creating the new Inyokern-Kramer No. 2 230 kV transmission line. The construction of the existing Inyokern-Kramer-Randsburg No.3 115 kV transmission line can accommodate 230 kV so the only added scope is at the terminations. Operate Inyokern-Kramer-Randsburg No. 1 115 kV transmission line and either maintain as-is or loop into Randsburg. The Inyokern 230 kV Upgrade project mitigates south of Kramer, Inyokern to Kramer, and Victor area constraints for potential increase in deliverability into the area from renewables, including in-state geothermal resources. The conceptual estimated cost for this project is $170-230M depending on the final system configuration. SCE can work with CAISO to determine specific details and optimal balance of reliability, deliverability, and cost. Proposed In-Service Date, Trial Operation Date and Commercial Operation Date by month, day, and year and Term of Service. Proposed In-Service date: 12 / 31 / 2028 Proposed Trial Operation date (if applicable): N/A / / Proposed Commercial Operation date (if applicable): N/A / / Proposed Term of Service (if applicable): N/A	
	VISTRA corp	In the 2021-2022 TPP, the CAISO is recommending an economic project on the Moss Landing – Las Aguilas 230kV line. In 2021-2022 TPP, the CAISO observed over $13.8 million in annual congestion cost on Moss Landing – Las Aguilas 230 kV line and identified a net benefit of installing a 10 Ohms series reactor on the congested line as a congestion mitigation alternative. The CAISO economic study shows the recommended economic project saves $5.6 million for CAISO ratepayers annually. We appreciate CAISO's analysis and agree that there is a need for projects to solve this congestion. Vistra is continuing to develop battery energy storage at the Moss Landing site in the time frame being studied in the 2022-2023 TPP. Vistra has a long-term RA agreement for the Moss Landing Energy Storage 3 project for 300 MW / 1,200 MWh with an Initial Delivery Date of August 1, 2023 pending approval at the California Public Utility Commission. With the additional battery energy storage	This comment has been noted. Regarding the comment on the VOM cost in the ADS PCM, it should be noted that the VOM cost in the ADS PCM is only variable operation and maintenance cost of battery, which was derived based on industry average and is much smaller than the replacement cost used in the CAISO's planning PCM. The replacement cost in the CAISO's PCM does not include the battery VOM cost in the ADS PCM. The battery's cost would become higher if the VOM cost in the ADS PCM is added to the replacement cost. The transmission line ratings in the CAISO's planning PCM are based on the CAISO transmission register database.

No		Comment Submitted	CAISO Response
		capacity at Moss Landing, we believe that there will be greater congestion levels identified in the 2022-2023 TPP than identified last iteration where this capacity was not modelled. Vistra requests the CAISO review the scope of the recommended project, the 10 Ohms series reactor, to see whether the scope may not be sufficient to resolve the expected increased line congestion with the additional 300 MW modelled. Specifically, Vistra requests the CAISO conduct an economic study of a transmission project to reconductor the Moss Landing – Las Aguilas 230 kV line to increase the line rating to 800 MVA. Revise cycle life assumption in storage replacement cost estimate Vistra appreciates the CAISO updating the battery cost model and depth of discharge approach to estimating the average cost of battery dispatch discussed in the last TPP cycle. In our comments on the Draft Study Plan submitted on March 11, 2021, Vistra requested the CAISO revisit its approach for estimating these values, including the recommendation to update the input values using the updated PNNL report, 2020 Grid Energy Storage Technology Cost and Performance Assessment, published in December 2020 that expanded the forecasts to 2030. In last iteration, the CAISO updated its battery operation cost estimate by using Figure 2 in the 2020 PNNL study for the 100 MW / 4 hr battery storage block value of $99,000/MWh and maintained the following assumptions: Cycle life: 2,100 Calendar life: 10 Depth of discharge: 80% Cycles per day: 1 The resulting battery energy storage replacement cost estimate used in the 2021-2022 TPP based on this methodology is ~$29/MWh: image(35).png While updating the replacement cost is an improvement, the cost estimate is still inconsistent with expected operations of battery energy storage achieving commercial operations in recent years and in the future. While the nascent technology limited cycles per day,	

No		Comment Submitted	CAISO Response
		largely through annual use limitations, this is no longer true for the large-scale battery energy storage resources achieving commercial operation in the last few years; nor, is the assumption that resources have a useful life of 10 years. For resources with longer calendar lives as can be seen in their long-term RA and power purchase agreements, this estimate is inflating the operating costs of those resources that can plan more efficiently for augmentation needs across a longer life cycle. However, as a starting place to improve this value, Vistra requests the CAISO at a minimum assume that battery energy storage would cycle once a day across a 10-year useful life, which is 3,650. We illustrate the change in flat average replacement costs using an improved cycle life assumption. image(36).png As Vistra's Moss Landing Phase 1 Facility has a 20-year useful life approved under a long-term agreement[2], we are uniquely situated to understand that the 10-year useful life assumption is an overly conservative assumption. With this experience, we are confident this is a modest update. The updated cost estimate at ~$17/MWh is more in line with industry expectations than the existing approach. We respectfully urge the CAISO to update the replacement cost estimate accordingly to better represent battery economics in this TPP cycle. We are optimistic the CAISO will be open to further updating this approach by also including this updated cycle life assumption in the upcoming 2022-2023 TPP cycle. This will further improve the accuracy of the CAISO's modeling of storage operations. Provide transparency to difference in planning & operating cost parameters Vistra understands that CAISO uses the operating parameters and Variable Operations and Maintenance adders from the PCM Anchor Data Set. Vistra requests the CAISO seek to reconcile the PCM Anchor Data Set with Master File registered values where possible. In the instance there is a discrepancy between the PCM Anchor Data Set and resource's registered operating	

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		characteristics, Vistra requests the CAISO provide transparency into how either value was selected. Provide transparency into how seasonal line rating values are calculated Vistra has observed transmission line ratings in the Transmission Planning Process models where the line ratings are established at higher transmission line ratings than we frequently see in operations. In some cases, the dynamic line ratings observed for normal rating and emergency rating for operations are meaningfully short of the high-end values that we believe the CAISO is using to model the system. Vistra appreciates the CAISO clarifying that it is modelling seasonal ratings as registered in the Transmission Register at the stakeholder call. We further request clarification on how the CAISO arrives to the two seasonal values for transmission lines that have dynamic ratings that vary during the seasons. We note that FERC found in Order No. 881 that "AARs [ambient adjusted ratings] used in near-term operations will deviate from those transmission line ratings used in various planning functions."[3] For instance, does the CAISO use the dynamic ratings during a season that is an average, minimum, maximum, or some other value to establish the single seasonal value for planning modeling purposes?	

5. Comment on chapter 5 Interregional Transmission Coordination:

No		Comment Submitted	CAISO Response
	ACP-California	• See attachment in sec1 and 2	
	Arevia Power	No comment	
	Bay Area Municipal Transmission group (BAMx)	One of BAMx's primary takeaways from the western planning regions' stakeholder meeting on March 4, 2022 is that the neighboring planning regions of WestConnect and NorthernGrid have not found any regional need for Interregional Transmission Projects (ITPs) thus far. NorthernGrid acknowledged in their March 4th presentation that some ITPs that they evaluated might have some benefits; however, those ITPs were not selected in NorthernGrid's 2020-21 Regional Plan.[1] Similarly, WestConnect did not identify any regional transmission needs in the 2020-21 regional planning cycle, and as such, did not evaluate any ITPs in 2020-21.[2] As the CAISO evaluates the need for ITPs under the current planning cycle (Year 1 of 2), it is important to recognize that just because the neighboring planning regions have not evaluated the ITPs that are seeking cost allocation from them, it does not mean that these planning regions do not benefit from those ITPs. Therefore, consistent with FERC Order 1000 cost allocation principles, the CAISO's economic assessment of the ITPs needs to be cognizant of potentially allocating some of the cost of the ITPs to the neighboring planning regions that may benefit from them should the CAISO find any of the ITPs economically viable. The CAISO needs to comply with Order 1000, and we encourage the adopting of our above recommendations. However, it is clear that even though the FERC Order 1000 process has been in place for the last decade or so, not a single ITP has been approved (or built) by two or more planning authorities. So far, there is not a single example of two or more planning regions agreeing to share costs on a transmission project. That said, some ITP projects are proceeding to construction based upon a subscription model. The CAISO 20-year Transmission Outlook recognizes that the Sunzia and the TransWest Express[3] (TWE) projects are proceeding on that basis. BAMx believes that this is a positive development and that a subscriber model might be the best model to get transmission projects accessing out-of-State (OOS) wind built. BAMx believes such a mechanism ensures Load Serving Entities (LSEs) choose to buy power from the most cost-effective projects. Besides reducing the impact on the	SWIP-N was recently determined not to be an ITP by NorthernGrid. The CAISO is continuing to assess expression of interest in Idaho resources from LSEs as indicated in the 2021-2022 Transmission Plan and initiated the process in stakeholder call on June 27, 2022. The CAISO will continue to assess and provide updates as indicted in the stakeholder process.

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		Transmission Access Charge (TAC), it promotes cost causation and benefits-based recovery mechanisms for those projects needed to deliver OOS wind generation. BAMx believes that the subscriber model could apply to the remaining OOS projects, such as SWIP-North and Cross-Tie.	
	California Public Utilities Commission -	CPUC staff urges the CAISO to consider how the 2022-2023 interregional transmission coordination cycle could or should interact with the findings of the 2021-2022 TPP cycle, particularly the Idaho wind market test and any outcomes of that assessment, which CPUC staff believes could potentially include a competitive solicitation process for a transmission project interconnecting into the CAISO grid. Many interregional transmission projects (ITPs) that have previously and could potentially again be submitted for technical study under the interregional coordination process were evaluated on an economic and policy-driven basis in the 2021-2022 TPP. CPUC staff understands that the study design may be different, however, there may be value in using the 21-22 TPP findings and concepts, such as the BCR accounting, to inform this work.	Your comment has been noted.
	California Public Utilities Commission - Public Advocates Office	The current interregional coordination process has not yet resulted in a single cost-shared project in the western interconnection[1] and is currently under FERC review.[2] However, it is still incumbent upon the CAISO to work within this process to ensure that the costs of interregional projects are allocated proportionately to the project's beneficiaries. Of concern is the on-going consideration of the SWIP-North project for CAISO approval. This project was submitted to the CAISO, WestConnect, and NorthernGrid in March of 2016 for cost recovery.[3] The CAISO has already "voluntarily agreed to accept cost allocation [for the SWIP-north project] if the project is found to be needed by the California ISO." [4] If the CAISO proceeds with an approval of the SWIP-North project as an extension of the 2021-2022 TPP cycle, the cost allocation outcome would not be consistent with FERC Order No. 1000's principle that cost allocation be commensurate with benefits.[5] LS Power, the developer of the SWIP-North project, presented the benefits of this project to NorthernGrid, but NorthernGrid has determined that this project is not needed in the current 2022 TPP cycle.[6],[7]	Your comment has been noted.

No		Comment Submitted	CAISO Response
		To address issues with the consideration of interregional projects in the western states' interregional transmission coordination process, Cal Advocates supports the CPUC's, Southern California Edison Company's, and California Department of Water Resources State Water Project's stated recommendations for improvements provided in their comments on the FERC RM21-17-000 rulemaking.[8], [9], [10] These recommendations include: (1) requiring all regions to consider anticipated future generation in their transmission planning; [11] (2) encouraging closer alignment of benefit valuation in different regions;[12] (3) increasing the level of coordination amongst planning entities; [13] and (4) resolving any barriers to coordination through the Joint Federal-State Task Force on Electric Transmission.[14]	
	CEER, EDF	Facilitating trade between and among regions is a critical part of the clean energy transition, and it's important to recognize contributions in all directions – access to abundant wind resources helps California manage reliability, while California's abundant solar and wind resources provide huge economic and environmental benefit to the whole region especially when partnered with storage. In the recent March 4th interregional planning meeting, there are reliability, public policy, and economic links across the broader western grid. As the west moves to more interconnected inclusive transmission planning ensuring benefits and costs can be shared fairly by customers across the west.	Your comment has been noted.
	Pacific Gas and Electric Company	Transmission to Integrate Out of State Resources, Generally: The base case portfolio includes significant amounts of out-of-state resources that will require new transmission, according to the CPUC's preferred system plan. These resources include out-of-state (OOS) wind and geothermal. While the inaugural 20-year Transmission Outlook provides a useful, high level indication of the types of projects that may be necessary to access OOS resources, PG&E encourages CAISO to provide clarity around the feasibility and costs of interconnecting these (and potentially other) OOS resources within the timeframe contemplated by the CPUC's PSP. For example, significant amounts of these OOS resources are expected to be online and delivering to California by 2028 and 2030. The availability of transmission capacity is an important consideration for the State's resource planning efforts.	Your comment has been noted.

6. Comment on chapter 6 Other Studies:

No	Submitted by	Comment Submitted	CAISO Response
	ACP-California	ACP-California appreciates CAISO's efforts to study primary frequency response and to assess, through various scenarios, the ability of CAISO to meet primary frequency response obligations solely with inverter-based resources (IBRs). In past TPP cycles, CAISO has also studied frequency response from IBRs. And, in those studies, as in the Draft Study Plan for the 2022-23 cycle. CAISO discusses how, per FERC Order 842, new inverter-based resources must be capable of providing primary frequency response. ACP-California has previously commented, and reiterates here, that it is critical to understand that in order for these resources to be willing to provide those services, they must be compensated (and not penalized) for doing so. To encourage wind and solar to provide flexible services and not always seek to maximize their output, typical contracting provisions must change. Typical contracting structures today pay these resources based on the amount of energy delivered to the grid and often have provisions that will result in non-payment if energy is curtailed (i.e. headroom is provided). This must be changed in order for these resources to provide headroom type services in the future. If California wants to have these types of headroom services provided by inverter-based resources in place in the 2025-2027 timeframe then the changes must take shape today. We appreciate CAISO's study efforts and look forward to working with CAISO to ensure that future inverter-based resources are compensated appropriately, such that they can support the CAISO's primary frequency response needs.	The comment has been noted. The CAISO will continue to assess frequency response in the 2022-2023 transmission planning process.
	California Energy Storage Alliance	Given our keen interest in high-electrification scenario special study and the Aliso Canyon special study evaluating local reliability impacts, we look forward to the study plan and associated scenarios in June 2022. Additionally, as expressed in previous TPP cycles, we welcome the continued study of frequency response scenarios. With regards to Scenario 2-5, we request that the CAISO document and clarify the inputs regarding the actual operations of battery energy storage systems (BESS) to simulate their behavior during a system event. Given that no BESS resources or solar/wind are configured and operated to provide the headroom assumed for the purpose of this study, at least to CESA's knowledge, it is unclear on how this operation will be simulated in the study. We are open to providing our input, leveraging our members' expertise, to shape these	Thank you for your comments. Notifications will be sent out prior to the stakeholder meeting in June 2022.

No	Submitted by	Comment Submitted	CAISO Response
		assumptions. Though beyond the scope of a study, we also reiterate the need to launch a Frequency Response Initiative to activate and optimize for these capabilities, which should rely on market-optimized products that compensate for these capabilities and/or opportunity costs rather than an across-the-board headroom requirement.	
	California Public Utilities Commission	**CPUC staff appreciates the CAISO's willingness to examine the transmission implications of closing the Aliso Canyon natural gas facility. Analysis to date indicates that if Aliso Canyon is closed, measures will be necessary to replace the services it would have provided, consistent with the CAISO's discussion of potential resource replacements. Therefore, the CAISO's analysis will need to be based on one or more sets of such measures. As the CPUC has not issued a decision adopting a portfolio of replacement measures, the CAISO will need to identify the replacement measures used in their analysis. These measures may draw from those examined by FTI Consulting in the recently published Aliso Canyon I.17-02-002 Phase 3 Report.[1] CPUC staff is available to provide support.** **CPUC staff also appreciates the CAISO's inclusion of the MIC expansion requests special study. The study provides a clear venue to address ongoing challenges planning for and ensuring adequate import capability for the increasing amount of new resources beyond the CAISO's BAA being procured by load serving entities (LSEs) both under the CPUC's jurisdiction and those outside of it.**	Thank you for your comments.
	California Public Utilities Commission - Public Advocates Office	**Cal Advocates supports the CAISO's development of a Transmission Reliability Study for the Los Angeles Basin and San Diego Imperial Valley Local Capacity Areas with reduced Reliance on Aliso Canyon Gas Storage as described on pages 63-64 of the Draft Study Plan.**	Thank you for your comments.
	CEERT, EDF	As noted in the report and presentation, the 20-year Transmission Outlook must have clearly understood feedback loops to the 10-year transmission plans and clear expectations of what is needed. It is also important to identify gaps in planning and ways to adapt to meet the reliability and public policy requirements. The PIO/CEAs worry there will be gaps and continued piecemeal approaches taken if clear steps to build transmission are not outlined to match agency roles and responsibilities.	The comment has been noted

No	Submitted by	Comment Submitted	CAISO Response
		It is essential to continue an open dialogue on the ongoing findings and updates to the SB 100 processes and strongly encourage additional stakeholder sessions to collect additional insights and parameters refining future outlook development 10-year plans. How will the CAISO review the previous canceled and on-hold projects that could benefit the 10-year analysis and may have altered and improved since the last review? As the CAISO and CPUC continue to build on collaboration, the PIO/CEAs ask that restrictions limiting data sharing and confidentiality requirements be worked out sooner than later to avoid delays. As identified in earlier comments, we strongly urge the CAISO to move these upgrades forward as a critical first step. Upgrades recommended for current TPP cycle: - Antelope/Vincent line rating increase - Colorado River No. 3 transformer - Reconductor Lugo-Victor 230 - San Diego Internal Constraint - Silvergate-Bay Blvd Series Reactor (LCR benefit?) - Tesla-Westley 230 kV - El Dorado 500/230 Transformer #5 - GLW-VEA Area Constraint The following recommended upgrades were included in the Base Case scenario in D.21-02-008 (46MMT) but have not yet been approved in the TPP. - Gates 500/230kV transformer bank #13 (will be included in current TPP) - Gates-Cal Flats 230kV line reconductor (identified by CAISO) - Eldorado 500/230 kV 6AA transformer bank (will be included in current TPP) - Whirlwind 500/230kV transformer bank (will be included in current TPP) - Lugo 500/230kV 3AA transformer bank (identified by CAISO)	

No	Submitted by	Comment Submitted	CAISO Response
		o We recommend adding the associated Victor-Lugo constraint to expand access projects to the north Examine alignment of the CAISO transmission planning processes, CPUC integrated resource planning, and LSE procurement activities to ensure use of best available information for decision making.	
	Fervo Energy Company	Fervo Energy Company and two wholly-owned Fervo subsidiaries in conjunction with four Load Serving Entities are requesting MIC expansion on five branch groups. These requests are being made to meet contractual obligations and develop projects that support the implementation of the California Public Utilities Commission Decision 21-06-035 issued on June 30th, 2021, which addresses the mid-term reliability needs of the electricity system while achieving California's ambitious greenhouse gas emissions reduction targets for 2030. The expansion request meets the CAISO established criteria as further described in the confidential submissions. These points and amounts are as follows: Intertie MW Quantity IPPDCADLN_ITC 100 SUMMIT_ITC 45 SILVERPK_ITC 45 GONDIPPDC_ITC 53	Thank you for your submission. The CAISO has evaluated all the Maximum Import Capability expansion requests and based on CAISO interpretation of the new Tariff and Business Planning Manual requirements the request submitted by Fervo Energy Company does not qualify as a valid request because these resources are not currently under a PPA (including an RA requirement) with a CAISO internal LSE.

No	Submitted by	Comment Submitted	CAISO Response
		MERCHANT_ITC 230	
	North Gila - Imperial Valley #2 Project	As noted above, the NGIV2 Project is expected to provide a reduction in LCR in the San Diego-Imperial Valley area, specifically for the 2027 assessment. We request that the NGIV2 Project be included as a sensitivity to the special study of the reduced reliance of the Aliso Canyon Gas Storage facility.	Thank you for your comments and suggestion. The ISO will review and consider your request as appropriate.
	Pacific Gas and Electric Company	Other Studies – Local Capacity Requirement Assessment: PG&E recommends CAISO conduct LCR reduction studies using the new reliability planning standards as part of the 2022-23 CAISO TPP studies.[1] Previously the LCR reduction studies for the 2018-19 CAISO TPP were conducted using the old reliability standards and should be refreshed and reincorporated as part of 2022-23 process. For the CAISO's LCR reduction studies, PG&E recommends prioritization of Local and Sub Local Areas where there are tight supply conditions. Based on the studies performed in the 2021-2022 transmission planning cycle, several reliability concerns were identified for the PG&E Greater Bay Area. Therefore, PG&E recommends starting the analysis for the Greater Bay Area. Other Studies – Frequency Response Assessment: PG&E appreciates CAISO's plan to update the previous frequency response assessment. As noted in the draft study plan, the inverter-based resources (IBR) will continue to increase in proportion of the overall energy mix, and it is extremely important that the CAISO continue to assess the CAISO system's frequency response ability under a range of scenarios. PG&E recommends that the CAISO augment its assumptions for the dispatch of renewable resources based on its production simulation model results.[2] In addition, PG&E asks that the CAISO report out how many MWs of resources with frequency response capability are assumed to be online in the scenario to provide insight into minimum levels of resources with frequency response capability required to be online to maintain required levels of frequency response capability for the CAISO system. As frequency response is a metric for the overall performance of the entire WECC system, PG&E also suggests the CAISO to review and adjust frequency responsive generation and system inertia in the entire WECC system to match the study scenario more accurately.	Thank you for your suggestion. The ISO will evaluate if, when and how many additional LCR reduction studies are necessary. The majority of the local areas have the same contingency and limiting equipment driving the requirement (before and after the change in LCR criteria) and therefore the previous studies are still very much relevant. Very few areas and sub-areas have changed contingency and/or limiting equipment. In these cases un updated study may be warranted.

No	Submitted by	Comment Submitted	CAISO Response
		Other Studies – Transmission Reliability in LA Basin: PG&E supports having a special study to consider reliability impacts in Southern California. PG&E encourages the CAISO to consider whether there is a minimum generation level and attributes of resources needed to maintain reliability in both the LA Basin and in the closely related San Diego local area, as part of its analysis. Other Studies – High Electrification Scenario: PG&E supports CAISO considering the impacts of high electrification on reliability needs in the TPP. Connected with a high electrification future, PG&E encourages the CAISO to work with the CEC, CPUC and other stakeholders to consider increased demand from EV adoption as part of its high electrification scenario. PG&E is willing to share the results of its own, internally developed EV load forecast at the bus-level that we believe provides an accurate projection of anticipated EV load consumption in PG&E's service territory. PG&E anticipates that this additional detail would contribute to a more effective analysis by the CAISO in evaluating local area constraints and reliability needs over the TPP planning horizon.	Thank you for your comments and suggestions regarding the special study for transmission reliability in the LA Basin and San Diego area related to the reduced dependence on Aliso Canyon gas storage scenario. Thank you for your comments and suggestions regarding the High Electrification special study. The ISO is working with the state energy agencies on the development of the demand and energy forecast related to high electrification, as well as resources needed to support the high electrification forecast. The ISO, along with the State energy agencies, will provide further details on these at a stakeholder meeting in July 2022. The ISO welcomes further inputs from PG&E at the stakeholder meeting and after and appreciates any related information that PG&E would like to share.
	SDGE	One major goal for the High Electrification scenario should be a general policy alignment with other policy initiatives in California. Out of all the variables that will affect the load forecast, relevant policies are the most readily predictable. For example, Governor Newsom's recent order requiring all new vehicle sales to be electric by 2035. SDG&E recommends that the impacts of this and other policies be incorporated into the High Electrification scenario and other forecasts being considered at the CEC. On a peripheral note, the EV load is currently expressed as a percentage of load as opposed to a MW quantity, which makes analysis less intuitive. Nonetheless, a preliminary look at the load attributed to EVs does not seem to account for 100% EV sales by 2035.	Thank you for your comments. The ISO is currently working with the State energy agencies on the development of the demand and energy forecast related to high electrification, as well as resources needed to support the high electrification forecast. The ISO, along with the State energy agencies, will provide further details on these at a stakeholder meeting in July 2022. Granularity regarding higher demand and energy, as well as resources needed to support high electrification, will be provided then.
	Vistra	Vistra requests the CAISO include the planned generation projects as requested in response to Question #2 in the local capacity requirement studies as well. We further request the LCR adopt any of the PCM improvements that we are requesting that would apply to the LCR study that we request in response to Question #4.	LCR studies include the same planned generation projects as the TPP base cases. The LCR studies model all approved improvements with in service dates up to June 1 of the applicable study year.

7. Other comments

No	Submitted by	Comment Submitted	CAISO Response
	ACP-California	Introduction ACP-California is the voice of the clean power industry in California, focusing on California's market and policies for a reliable and affordable transition to 100% clean energy.[1] We appreciate the opportunity to comment on the Draft Study Plan for the 2022-23 TPP. These brief comments support CAISO's plan for additional outreach on the 20-Year Outlook during the upcoming transmission planning cycle (and its plan to wait to conduct refinements to the Outlook until 2023). They also ask for consideration of Offshore Wind (OSW) resources and transmission solutions in the Aliso Canyon-related sensitivities. Finally, as ACP has highlighted in past TPP comments, these comments provide a reminder that new Inverter Based Resources (IBRs) may be required to be capable of providing frequency response; however, contractual modifications will be necessary to incent the provision of frequency response and other headroom services by these resources. We look forward to continuing to engage with the CAISO and other stakeholders on the 2022-23 TPP and associated activities. 20-Year Outlook CAISO plans to use 2022 to further socialize the results of the 20-Year Outlook (which was completed in conjunction with the 2021-22 TPP). Further CAISO has indicated it will, by the end of this year, have more concrete plans for updates or adjustments to the Outlook, which would then take place in 2023. ACP-California supports this plan and looks forward to continued engagement with the CAISO on ways to leverage the 20-Year Outlook within more actional processes and to improve future iterations of this work product. We again thank the CAISO for its leadership in envisioning, and dedication to completing, the 20-Year Outlook. CAISO Should Consider OSW Resources and Transmission Solutions in Various Sensitivities, Especially the Reduced Reliance on Aliso-Canyon As part of 2022-23 Study Plan, CAISO will complete analyses related to reduced reliance on the Aliso Canyon natural gas storage facility. CAISO will undertake a transmission study to evaluate potential	Thank you for your comments and suggestions for the transmission reliability study related to the reduced dependence of the Aliso Canyon gas storage.

No	Submitted by	Comment Submitted	CAISO Response
		reliability impacts in the LA Basin, along with the San Diego-Imperial Valley local Capacity areas. As CAISO works with agencies to explore replacement generating units to replace the natural gas generation that will be assumed offline in these studies, we encourage CAISO to consider OSW, and associated transmission facilities (such as the Pacific Transmission Expansion Project) as a potential solution. OSW resources should also be considered as resource solutions in the other sensitivity cases that will be undertaken this TPP cycle. Frequency Response Assessment ACP-California appreciates CAISO's efforts to study primary frequency response and to assess, through various scenarios, the ability of CAISO to meet primary frequency response obligations solely with inverter-based resources (IBRs). In past TPP cycles, CAISO has also studied frequency response from IBRs. And, in those studies, as in the Draft Study Plan for the 2022-23 cycle, CAISO discusses how, per FERC Order 842, new inverter-based resources must be capable of providing primary frequency response. ACP-California has previously commented, and reiterates here, that it is critical to understand that in order for these resources to be willing to provide those services, they must be compensated (and not penalized) for doing so. To encourage wind and solar to provide flexible services and not always seek to maximize their output, typical contracting provisions must change. Typical contracting structures today pay these resources based on the amount of energy delivered to the grid and often have provisions that will result in non-payment if energy is curtailed (i.e. headroom is provided). This must be changed in order for these resources to provide headroom type services in the future. If California wants to have these types of headroom services provided by inverter-based resources in place in the 2025-2027 timeframe then the changes must take shape today. We appreciate CAISO's study efforts and look forward to working with CAISO to ensure that future inverter-based resources are compensated appropriately, such that they can support the CAISO's primary frequency response needs. Conclusion	The comment has been noted. The CAISO will continue to assess frequency response in the 2022-2023 transmission planning process.

No	Submitted by	Comment Submitted	CAISO Response
		ACP-California appreciates CAISO's continued efforts on transmission planning and looks forward to continuing to engage with CAISO on the 2022-23 TPP and in other transmission-related forums	
	Bay Area Municipal Transmission group (BAMx)	Need for CAISO to Provide a Timely Response to Stakeholder Comments Historically, the CAISO has been generally responsive to the stakeholder comments. For example, it typically posts its responses to the stakeholder comments on reliability assessment (October) sometime in mid-November. However, that was not the case in the 2021-2022 TPP cycle. As of March 1, 2022, the CAISO has not posted its responses to stockholders' comments dated October 10, 2021 and December 6, 2021. It is incredibly challenging to respond and comment on specific aspects of the Draft Plan without knowing the CAISO's responses to prior concerns raised by BAMx and other stakeholders. Therefore, BAMx requests that the Final Study Plan expand the schedule for the 2022-2023 planning cycle to include the expected timing for the CAISO responses to the stakeholder comments.[1] Need for a Separate Stakeholder Process to Consider Dynamic Transmission Line Ratings Transmission line ratings represent the maximum transfer capability of each transmission line. Appropiate ratings are dependent on weather conditions.[2] One such example is PG&E's recommendation that the CAISO evaluate the implementation of dynamic ratings on the Midway–Whirlwind 500 kV line.[3] On February 17, 2022, Federal Energy Regulatory Commission (FERC) launched an inquiry to examine whether the use of dynamic line ratings (DLRs), which are based on a wide range of weather and line-specific factors affecting the operation of electric transmission lines, would help ensure just and reasonable wholesale rates by improving the accuracy and transparency of line ratings.[4] BAMx requests CAISO to start a stakeholder process in parallel to the 2022-2023 TPP cycle, to evaluate the relative benefits, costs, and challenges of dynamic line rating implementation.	The comment has been noted. Going forward in the 2022-2022 transmission planning process, the CAISO will post responses to comments prior to the next regularly scheduled stakeholder meeting. The comment has been noted.

No	Submitted by	Comment Submitted	CAISO Response
		The CAISO's transmission planning analysis utilizes the summer emergency ratings that were developed assuming weather conditions deemed appropriate for the traditional summer net peak hour (likely HE16 for most regions). However, it has become standard practice to study the net peak and also the load peak. It appears that by using the temperature assumptions for the load peak hour, the CAISO is underestimating transmission line capacity for the net peak studies and, in turn, the local area import capabilities. In the proposed stakeholder process, the CAISO's Participating Transmission Owners (PTOs) can present their opinion on the role of dynamic line ratings going forward. Although we would expect some circumstances might lead to different rating methodologies among PTOs, it would be very informative to have a single stakeholder process to allow comments on the proposed methods. BAMx Appreciates The Opportunity to Comment BAMx appreciates the opportunity to comment on the draft Study Plan. BAMx would also like to acknowledge the significant effort of the CAISO staff in developing the Study Plan to date, as well as the CAISO staff's willingness to work with the stakeholders in the process of developing the Study Plan. We hope to work with the CAISO staff to continue to improve and enhance the Study Plan	
	California Energy Storage Alliance	CESA continues to support and encourage the CAISO's assessment of non-wires alternatives like energy storage to meet transmission needs in a cost-effective way. CESA has not found any issue with the CAISO's identification and assessment of energy storage in these alternatives assessments, but we continue to encourage the CAISO's efforts in this regard (such as recently done with the Lamont project) because it could present a pathway to mitigate the current and future interconnection queues. As network resources that would not need to pursue deliverability in the interconnection process, it could present ways to incrementally relieve the currently overheated queue.	The comment has been noted
	California Public Utilities Commission - Public Advocates Office	Cal Advocates recommends that the CAISO continue to improve the TPP process, including increasing transparency and public involvement. The CAISO has publicly stated their commitment to the principle of full transparency.[1] The CASIO should respond to stakeholder comments prior to issuing the final draft TPP plan. It is important for stakeholders to know that the final draft TPP plan is informed by previous stakeholder comments.	The comment has been noted. Going forward in the 2022-2022 transmission planning process, the CAISO will post responses to comments prior to the next regularly scheduled stakeholder meeting.

No	Submitted by	Comment Submitted	CAISO Response
		Cal Advocates also recommends that the CAISO record all TPP meetings and post recordings in a publicly accessible location consistent with its practice for other CAISO stakeholder engagement initiatives and workshops. TPP meetings provide important information and serve as the only engagement platform for stakeholders. All TPP meetings should also be recorded for stakeholders who cannot attend at the specific time and published for public accountability. There is no technological or logical barrier to Cal Advocates' recommendation because the CAISO already records and publishes other workshops or stakeholder engagement events. To provide adequate time for stakeholders to evaluate proposed reliability, policy, and economic projects in the CAISO TPP, as we specified in our comments on the 2021-2022 TPP, more than two weeks should be provided for stakeholder comments. Cal Advocates recommends a minimum of three weeks for stakeholder review consistent with CPUC's stakeholder engagement policies. For example, the CPUC public process allows for more than two weeks to file a protest or response. According to the CPUC Rules of Practice and Procedure, California Code of Regulations Title 20, Division 1, Chapter 1, section 2.6, parties may file a protest or response within 30 days from when the application appears on the Daily Calendar. Or according to CPUC General Order 96-B, section 7.4.1, parties have 20 days to protest or respond to an advice letter from when it is filed. To this end, Cal Advocates recommends the following changes to the CAISO Tariff Section for the Transmission Planning Process (TPP) and the BPM for the TPP. Recommended Changes to CAISO Tariff, Section 24 Comprehensive Transmission Planning Process Tariff Section 24.4.9 Interested parties will be provided a minimum of a two (2) three (3) week period to provide written comments regarding the technical study results and the proposals submitted by the Participating TOs [Transmission Owners].[2] Recommended Changes to CAISO Business Practice Manual for the Transmission Planning Process	

No	Submitted by	Comment Submitted	CAISO Response
		4.2 Technical Study Results: Posting and Presentation Stakeholders must submit comments on the topics covered during this stakeholder meeting within three two weeks of the meeting. Once the CAISO has reviewed the comments, the CAISO will post responses to the stakeholder comments and the final study results	
	CAlifornians for Renewable Energy, Inc. (CARE)	Michael Boyd (boyd.michaele@gmail.com) From page 30 http://www.caiso.com/InitiativeDocuments/Presentation-2022-2023TransmissionPlanningProcess-Feb282022.pdf California ISO Public Generation Assumptions Distribution connected resources modeling • Behind-the-meter generators: Model explicitly as component of load • In-front-of-the-meter with resource ID: Model as individual generator • In-front-of-the-meter without resource ID: – Model as individual generator if >10 MW, – Model as aggregate if <10 MW for same technology We contend that the proposed CAISO 2022-2023 Transmission Planning Process Unified Planning Assumptions and Study Plan (February 18, 2022) is part of a conspiracy by the California Energy Commission, the CPUC, and the state utility CAISO to unlawfully discriminated against customers with solar energy systems and the plan is designed to stifle competition in the electricity market in violation of federal anti-trust provisions. Observations In the CAISO's 20-year outlook planning document, the energy agencies CPUC and CEC accounted for the resources needed to meet California's 2045 goals and put together a "starting point" scenario, which took into consideration CAISO's forecasted 2040 peak load, subtracted the contribution of forecasted behind-the-meter	Behind-the-meter resources modeling approach is elaborated in the final study plan to clarify that contributions from these resources in reducing the net load that transmission system would see at the T & D interface is accounted for in the reliability assessment.

No	Submitted by	Comment Submitted	CAISO Response
		resources, and then factored in a projected reduction of 15,000 MW of natural gas-fired generation.	
	CEERT, EDF	The PIOs look forward to participating in the development of the high electrification scenario before the June 2022 release date. The PIOs also looks forward to participating in the Reduced Reliance on Aliso Canyon Gas Storage Special Study and asks the CAISO and CPUC to also work closely with all the balancing authorities in CA. Again, the PIOs support the necessity of the 30 MMT GHG target as a portfolio for inclusion. We also recommend •Equity needs to be included in updated portfolios and attention to health and well-being of local impacted communities is essential •Ensuring that the CPUC provides updated guidance and scenarios to the CAISO to plan and approve sufficient transmission for the 11,500 NQC MW of new capacity identified in the recent IRP Proposed Decisions. •Studying long-lead time resources, including offshore wind, long-duration storage, and green hydrogen, in the IRP and TPP, and tie the outcomes of the CAISO's 20-year transmission outlook into procurement activities. •Adding additional sensitivities retiring the gas plants by 2035 and use the 30MMT GHG targets. •Incorporate climate impacts and reliability assessments into near-, mid- and long-term planning studies. •Continue to coordinate and make transparent the planning processes; IEPR, IRP, TPP and Scoping Plan to achieve SB 100 goals and support grid reliability. The PIOs greatly appreciate the opportunity to comment. Transmission infrastructure is an investment where actual costs to customers are much more modest when considering the value and longevity of these transmission projects. It is important to plan in coordinated and inclusive way and build equitably and accordingly. Thank you,	Thank you for your comments. We look forward to your participation at the stakeholder meeting for special studies in June 2022.
	Citizens Energy Corporation	Citizens Energy Corporation ("Citizens") appreciates the opportunity to provide comments on CAISO's draft 2022-2023 Transmission Planning Process (TPP) Study Plan based on the information presented at the February 28, 2022 stakeholder meeting. Citizens	The comment has been noted.

No	Submitted by	Comment Submitted	CAISO Response
		submits these comments in support of including the North Gila to Imperial Valley #2 Project ("NGIV2") in the 2022-2023 TPP. Citizens is in discussions with the Imperial Irrigation District ("IID") and the NGIV2 Project development team to finance a portion of the project's costs using the same business model that Citizens has successfully deployed for two other California transmission projects. While Citizens has not executed any final participation documents, it believes the NGIV2 project provides clear benefits to the Imperial Valley and CAISO ratepayers and it is dedicated to supporting the project's development. Citizens agrees with and supports the comments IID has submitted in support of the project. Citizens would like to emphasize NGIV2's potential to advance the renewable energy goals included in California's SB100, as well as its ability to reduce congestion, increase reliability (for the loss of SWPL), and decrease Local Capacity Requirements in the San Diego area. In addition to all the project benefits IID has identified, Citizens' participation in the project will provide further direct support to the disadvantaged communities in the impacted service territory. Specifically, Citizens will dedicate 50% of the after-tax profits it earns from participating in the NGIV2 project to assisting low-income ratepayers who reside in the project area. This dedication to providing direct support to low-income ratepayers is unique to Citizens. Thus far, Citizens' subsidiaries have successfully partnered with San Diego Gas & Electric on two other projects which have generated $15.5 million in direct ratepayer benefits to date, with the expectation to provide $57 million of support during Citizens' involvement in the projects. Citizens' ratepayer assistance efforts to date have been focused on addressing the impacts of climate change on disadvantaged communities through rooftop and community solar projects as well as supporting transportation electrification. As a result, Citizens brings direct and quantifiable benefits that go above and beyond the already significant NGIV2 project benefits that IID has identified.	
	Friends of Minidoka	RESOLVE resource type." Table 26 includes an entry for "Wyoming Idaho – Wind OOS." Regarding the Lava Ridge and SWIP-N projects, the Friends of Minidoka recommends that CAISO consider CPUC's ESJ Action Plan in the 2022-2023 TPP. The CAISO should also consider the status	The comment has been noted.

No	Submitted by	Comment Submitted	CAISO Response
		and timing of the federal and state permitting decisions and approval processes relating to Idaho wind generation and transmission. As our nation marks the 80th anniversary of the forced incarceration of Japanese Americans from California, we wanted to share Governor Newsom's 2022 Day of Remembrance Proclamation: "Over two and a half years, the U.S. government removed Japanese Americans from their homes on the West Coast – without a trial or due process – forcing them into concentration camps in unfamiliar lands. Uprooted from their lives and livelihoods, they endured miserable conditions and treatment by military guards. Despite these experiences, thousands of young Japanese-American men enlisted in the U.S. armed forces, bravely fighting to defend the nation that was abridging their own freedoms at home. We honor their sacrifice, as well as the resilience that made it possible for thousands of Japanese-American families to reclaim and rebuild their lives after the war. A decision motivated by discrimination and xenophobia, the internment of Japanese Americans was a betrayal of our most sacred values as a nation that we must never repeat. This stain on our history should remind us to always stand up for our fellow Americans, regardless of their national origin or immigration status, and protect the civil rights and liberties that we hold dear." Thank you for considering our comments. We would be pleased to answer any questions or provide additional information.	
	LS Power	LS Power recommends CAISO to post the study models promptly after the results for each study are posted. This step is in line with CAISO's objective of keeping stakeholder processes open and transparent. This will also help stakeholders in proper review of the posted results and providing informed comments to CAISO.	The comment has been noted. Going forward in the 2022-2022 transmission planning process, the CAISO will post responses to comments prior to the next regularly scheduled stakeholder meeting.
	LSA/SEIA	LSA/SEIA request that the CAISO consider resolving the different Diablo Canyon study assumptions in the TPP and CAISO Interconnection Studies, e.g., run the Cluster 13, Phase II Study results with Diablo Canyon off-line. LSA/SEIA understand that the CAISO models Diablo Canyon offline in the TPP and online in the Interconnection Studies. Thus, fewer constraints are observed in the TPP than in the Interconnection	

No	Submitted by	Comment Submitted	CAISO Response
		Studies, and fewer upgrades are triggered. This leaves additional upgrade to be identified, and funded, in the Interconnection Studies (by developers) or, alternatively, less TPD awarded, if the upgrades are not funded there), solely due to the different Diablo Canyon assumptions.	
	North Gila - Imperial Valley #2 Project	The project sponsors of the North Gila - Imperial Valley #2 Project appreciates the CAISO for their review of the project as a part of the 2022-2023 Transmission Planning Process. We reiterate that the addition of the North Gila – Imperial Valley #2 Project will play a key role in meeting the broader reliability, policy and economic benefits, as well as additional transmission capacity for the region. Specifically: •NGIV2 is a multi-value transmission project providing economic, reliability and policy benefits for the regional transmission system. •Provide an incremental 1000-1250 MW of transmission capacity for the delivery of renewable resources (geothermal and solar) from Arizona and the Imperial Valley. •Increases the reliability and decreases the reliance of remedial action schemes for the broader San Diego/Imperial Valley region for loss of the existing North Gila – Imperial Valley 500 kV line. •Reduces carbon emissions by decreasing the San Diego area reliance on local gas capacity by as much as 865MW. •Reduces the congestion on the existing North Gila – Imperial Valley 500 kV line. •Unlocks stranded capacity west of North Gila under normal and contingency conditions.	Thank you for your comments.
	SDGE	As CAISO progresses through the 22-23 TPP, SDG&E encourages consideration of comments submitted in the 21-22 TPP: •Complex RAS that requires a nomogram or to trigger other RAS or opening a 500kV line can degrade system reliability hence not meeting system performance criteria if the RAS fails or inadvertently operates. •SDG&E recommends avoiding the removal of critical facilities (e.g., 500 kV lines) during a RAS operation. Removal of critical facilities by a RAS, during PSPS events which also coincide with peak loads, can lead to greater reliability issues.	Thank you for your comments. We will consider your suggestions regarding RAS for the RAS Guidelines Review initiative when it resumes.

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		•The amount of generation tripped by a single RAS should be limited. As we diversify our resource portfolio, resource resiliency will become key to system reliability. However, replacing large gen drop RAS with several smaller gen drop RAS is also not conducive to a reliable system because additional RAS will make the system overly complicated for grid operators. This may result in reliability issues if operators are unable to keep track of the resulting system that is unnecessarily complex. Further, several new detailed analyses at the substation level with respect to batteries need to be performed. The recent charging studies performed by the CAISO as part of the LCR process only gives limited insights on how the transmission system can be used to charge the amount of storage listed in the portfolios. SDG&E sees these new "chargeability" studies as the reverse of the current deliverability studies used to determine if a resource will have Full Capacity Deliverability Status (FCDS) status. For a storage project to be reliable and qualify for resource adequacy (RA), it should be able to not only reliably deliver power, but is should also be able to reliably charge. There might be instances where chargeability network upgrades will be different from deliverability network upgrades. Another area of concern is the lack of an hourly production cost study that spans the entire 24-hour day. Such study may need to be performed to understand all of the transmission limitations behind these use-limited resources and the additional benefits that transmission upgrades could provide.	