The ISO received comments on the topics discussed at the February 8, 2018 stakeholder call from the following:

1. AltaGas
2. American Wind Energy Association California Caucus (ACC)
3. Bay Area Municipal Transmission (BAMx)
4. California Energy Storage Alliance
5. California Public Utilities Commission – Staff (CPUC-Staff)
6. Citizens Energy Corporation
7. City of Lodi
8. GridLiance West Transco LLC (GWT)
9. Large-Scale Solar Association (LSA)
10. NextEra Energy Transmission, LLC (NEET West)
11. North Gila Imperial Valley #2, LLC (NGIV2)
12. NRG Energy, Inc (NRG)
13. Office of Ratepayer Advocates (ORA)
14. Pacific Gas & Electric (PG&E)
15. San Diego Gas & Electric (SDG&E)
16. Smart Wires
17. Southern California Edison (SCE)
18. Transmission Agency Northern California (TANC)

Copies of the comments submitted are located on the 2017-2018 Transmission Planning Process page at:

http://www.caiso.com/planning/Pages/TransmissionPlanning/2017-2018TransmissionPlanningProcess.aspx

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

1. AltaGas Submitted by: Peter Ledig		
No	**Comment Submitted**	**CAISO Response**
1a	AltaGas Services (U.S.) Inc. ("AltaGas") hereby respectfully submits its comments on the California ISO ("CAISO") 2017-2018 Draft Transmission Plan and requests that its recommendation and request in relation to the identified issues be seriously reviewed and acted upon by the CAISO. We should note that our comments and recommendations are limited to CAISO's assessment of the "Colorado River 230 kV Bus-Julian Hinds 230 kV" transmission project1 (the "Project"); a project sponsored by AltaGas and its technology partner Smart Wires, Inc. ("Smart Wires"). AltaGas and Smart Wires will be jointly referred to as the "Project Team" in this letter. On page 187 of the CAISO 2017-2018 Draft Transmission Plan notes that the Project when "modeled in the S3 Heavy Renewables sensitivity case, with the Smart Wires devices on the Colorado River - Julian Hinds 230 kV line fully activate, the Julian Hinds - Mirage 230 kV line was heavily overloaded under contingency conditions." The contingency conditions considered here were the loss of two 500 kV lines between Colorado River and Red Bluff substations or the loss of two 500 kV lines between Red Bluff and Devers substations. As a result, CAISO has come to the implied conclusion that the Project should not be "further considered as an economic-driven project." AltaGas respectfully provides the following comments on the CAISO finding and implied conclusion: • The Project Team designed the Project, including sizing its Smart Wires devices, based on all the available 2017-2018 study cases. The sensitivity case "S3 Heavy Renewables sensitivity case" does not exist and the actual sensitivity case used for the CAISO studies to reach its conclusion about the Project, "S4 High Renewables sensitivity case," was unknown to the Project Team for its design efforts at the time of submittal of the Project application last October. Unfortunately, and without interim interactions and information exchanges with CAISO, the Project Team was totally unaware that the CAISO would identify a reliability concern for a less common sensitivity scenario until the CAISO 2017-2018 Draft Transmission Plan was publicly released. Before	The draft 2017-2018 Transmission Plan inadvertently refers to the sensitivity case in question as the “S3 High Renewables sensitivity case” rather than the “S4 High Renewables sensitivity case”. This has been corrected on Table 2.7-4 in the revised 2017-2018 Transmission Plan, and the reference on page 187 will be corrected when the approved 2017-2018 Transmission Plan is posted. This case was identified – by the correct name - in Table 4.11-2 in the 2017-2018 TPP Study Plan posted on the ISO website and presented to stakeholders in the transmission planning process. In addition, AltaGas previously proposed the project in the 2014-2015 ISO planning process, with a scope of work that

No	Comment Submitted	CAISO Response
	moving to our next point, we recommend that the CAISO consider refining its TPP process to allow project sponsors to hear about such CAISO study findings before the draft transmission plan is "finalized and publicly released" to allow these sponsors to refine their offering, if at all possible. • After carefully review of all draft transmission plan study cases and understanding the source of the CAISO reliability concerns, the Project Team made a slight refinement to the project design by adding a straightforward scheme (for example, a simple thermal relay) to solve the identified reliability problems (two altogether). The straightforward scheme that was added to our design would trip the Colorado River - Julian Hinds 230 kV line under the "S4 High Renewables operating condition" (operating condition corresponding to the S4 scenario) plus the forced outage of two 500 kV lines between Colorado River and Red Bluff In conclusion, the Project Team has demonstrated that, with a simple refinement to the project design, there remain no reliability concerns with the Project. We recognize that the end of the current TPP is drawing near; however, we believe that our project submission has not yet been given a comprehensive and proper review up to now based on its merits. Given CAISO procedures and past precedence, we believe the evaluation of this Project should continue as an extension of the 2017-2018 CAISO TPP. We, therefor, would like to request that the CAISO consider the Project as an economic-driven project and perform the necessary economic assessment on it and, upon demonstration of significant net value to the ratepayers (BCR 1.5), approve the Project.	was the same except for the addition of the Smart Wires devices. In the ISO analysis, posted here - http://www.caiso.com/Documents/PresentationPTOProposedMitigationSolutions_Sep22_2015.pdf - the ISO studied eight different base cases, as shown on slide 7 of the relevant section of the posted slides. Several of the cases analyzed were high renewables base cases. A high renewables system condition is a common occurrence in California. The ISO therefore strongly disagrees with the assertion that the need to consider sensitivities in general, and the specific concerns in particular, have not previously been communicated to AltaGas through the planning processes. The ISO encourages the AltaGas Project Team to review and consider the previous publicly available studies regarding AltaGas's previous project submissions. As discussed with the AltaGas Project Team, the proposed project moves the point of interconnection of the Alta Gas owned Blythe gas generation to the Colorado River 230 kV bus. During the worst contingencies, which require tripping the Alta Gas proposed Colorado River - Julian Hinds 230 kV line, the potential capacity benefit of having this line is lost. As a result, the additional gas generation added to the Colorado River substation reduces the available deliverability for resources already in the ISO interconnection queue by approximately 500 MW due to the loss of the 230 kV circuit during those critical and limiting contingencies. As mentioned above, a similar project was evaluated in the 2014-2015 transmission planning cycle. The proposed modification to add the SmartWires devices partially mitigate some of the less severe contingency overloads. However, the most severe

No	Comment Submitted	CAISO Response
		contingency overloads are not adequately addressed by the SmartWires devices. In both the earlier version of the project and the latest version, RAS was proposed for the worst contingencies. The latest version has a simpler RAS, but as a result, reintroduces the generation deliverability concern described above that the previously proposed more complex RAS was intended to address. The ISO is therefore not recommending approval of the project at this time. However, the ISO will be initiating a process to update the ISO's existing generation deliverability study methodology to adapt it to the ELCC process under development at the CPUC. This may impact the previously-identified deliverability constraints. Once the stakeholder process is completed and the deliverability methodology is updated in early 2019, the ISO will be able to reassess the deliverability concern raised above. In the interim, the ISO will reevaluate the economic benefits of the AltaGas proposal during the 2018-2019 Transmission Planning cycle together with the other concerns that need to be considered. Given the past discussions, the ISO is not requiring AltaGas to resubmit the proposal in the 2018-2019 planning process. The ISO notes that in addition to the deliverability concern discussed above, there are other concerns that will also need to be considered and addressed in contemplating an economic-driven project, including: - The costs of the proposed transmission upgrades will be recovered through rates over the life of the transmission upgrades. The benefits, however, only relate to the continued operation of the specific gas-fired generating facility. As the gas-fired generation fleet in California is facing economic pressures, basing a long term planning decision on behalf of ratepayers depending on the ongoing economic viability of a single gas facility will need to be considered.

No	Comment Submitted	CAISO Response
		- The proposed project results in, in effect, two changes – the interconnection of the Blythe generation to Colorado River, and the creation of a Colorado River-Julian Hinds 230 kV circuit. These two components will need to be considered both jointly and separately in considering the economic benefits of the proposed upgrades. - While the ISO is not aware of concerns in addition to those identified above and those discussed in the 2015 analysis, the ISO will of course have to consider any other issues that emerge in the 2018-2019 planning process, including any issues raised by other stakeholders.

2. American Wind Energy Association California Caucus Submitted by: Caitlin Liotiris		
No	Comment Submitted	CAISO Response
2a	The American Wind Energy Association California Caucus (ACC) appreciates the California Independent System Operator's (CAISO) efforts to study future generation portfolios that include significant wind from high-quality, and low cost, regional wind resource areas and to study transmission to those resources, but urges the CAISO to augment its previous analysis with additional study work. The results of the 2016-17 Interregional Transmission Project (ITP) Evaluation and 50% Renewable Portfolio Standard (RPS) Out-of-State Portfolio Assessment, which are included as part of the Draft 2017-18 Transmission Plan, are an important step forward in the ISO's transmission planning for cost-effective public policy resources. However, ACC continues to believe that additional transmission planning work performed by the CAISO on behalf of Utility Distribution Companies (UDCs) in accordance with the CAISO's tariff would be beneficial to UDCs and the consumers they serve and can be performed in the upcoming cycle through coordination with the California Public Utilities Commission (CPUC) Energy Division Staff. Transmission solutions should be thoroughly considered by the CAISO and other state agencies as they represent an important component of a clean-energy portfolio and facilitate diversification of California's existing renewable energy portfolio. Because additional transmission planning studies will be beneficial to Load Serving Entities (LSEs) as they consider generation procurement options, and because of the phase out of the Production Tax Credit (PTC) in the coming years, it is important to conduct additional studies as soon as practicable, rather than waiting for additional information to be provided through the generation procurement process. ACC seeks to assist the CAISO in advancing future transmission planning efforts of this nature, which can be conducted on an informational basis during the 2018-19 Transmission Planning Process (TPP). Therefore, some of the following subsections ACC provides responses to some of the questions CAISO posed at the conclusion of the ITP and 50% RPS assessment, and also provides thoughts on some of the challenges CAISO has indicated it sees on out-of-state transmission planning, especially those highlighted in the CAISO's Reply Comments on the Proposed Decision in the Integrated Resource	The ISO appreciates the support provided for the previous studies conducted in the 2016-2017 and 2017-2018 planning cycles exploring opportunities and impacts of out-of-state wind generation and proposed transmission planning projects. That work was conducted beyond the ISO's tariff obligations, however, contrary to the assertion that further such informational studies would be "in accordance with the CAISO's tariff". The ISO considers that the significant volume of information made available through the recently completed studies is timely given that the load serving entities are now in the process of developing their procurement plans as part of the second year of the current IRP process, whereas additional studies available late in the year would neither be timely in informing the LSE activities that are currently underway nor have in fact new information to act as inputs into the study. Regarding the comment that "it was due to a lack of certainty about transmission (and associated transmission costs), used within the IRP modeling tools that the IRP was prevented from selecting out-of- state wind resources", the ISO does not see that reflected in the IRP rulings, and does not agree that cost certainty itself can be achieved through planning studies – that procurement processes and discussions will need to take place if cost certainty is the objective. Considerable cost information is available through the mechanisms discussed above, but certainty implies firm commitments that are simply not achieved through a study process. Regarding the questions posed in the informational report, the questions were posed for discussion purposes and to help frame issues that will need further consideration in the CPUC's IRP process.

No	Comment Submitted	CAISO Response
	Planning (IRP) proceeding. ACC also seeks CAISO feedback on the methods that may be used to provide some of the more granular generation information that the CAISO seeks to support any future out-of-state transmission planning studies, as described below.	The ISO notes that the policy-driven transmission planning framework provides a mechanism to explore regional – e.g. greater than 200 kV facilities under ISO operational control – transmission in the ISO planning process. However, this process relies on policy direction from the CPUC and CEC, currently being developed through the CPUC's IRP process, and the ISO considers the transmission information provided through the last two years' analysis, RETI 2.0 activities, and the direct input of various stakeholders to be the best available information. The ISO will therefore look forward to continue supporting the CPUC's IRP process and in particular, the development of the preferred system plan based on LSE resource planning efforts, and will turn to that process for future direction on the consideration of out of state wind resources. The ISO notes that many of the ACC comments focus on the nature of the additional studies that ACC views the ISO should undertake in advance of further input from the IRP process, or the discussions that should take place within the IRP process. As the ISO does not agree that it is timely to initiate further studies in this planning cycle, the ISO will defer the discussion on the details below both to the IRP process and future planning processes.
	ACC Seeks Input on CAISO's Preference for Receiving Generation Data In Reply comments on the Proposed Decision in the IRP proceeding, the CAISO indicated that the ITP and 50% Out-of-State RPS assessment completes all of the transmission planning work that the CAISO can do without more granular information about the resource locations and quantities for out-of-state generation. ACC notes that, for in-state resources, more granular generation information is available to the ISO through the interconnection queue. Most out-of-state resources, however, lack an equivalent process to provide that information to	The ISO agrees with ACC's statement that transmission planning can and should inform the generation procurement process. To that effect, the ISO performs a transmission assessment of renewable portfolios provided by the CPUC and provides feedback to the appropriate procurement proceeding (IRP from this point on). The ISO does not require that resources sign a PPA in order to be considered for policy-driven studies. The renewable portfolios studied in this TPP cycle consisted of contracted as well as non-contracted resources. Thus, the analysis conducted by the ISO did include resources without PPAs.

No	Comment Submitted	CAISO Response
	the ISO, as they do not have a direct interconnection to the CAISO Balancing Authority but would be expected to deliver to the CAISO on either existing or new transmission. Generation specific information can also be provided by the signing of Power Purchase Agreements (PPAs). However, PPAs are not required for the CAISO to perform transmission planning analysis for potential in-state policy resources and should not be required to perform transmission planning for any potential policy resource, including out-of-state wind resources. Additionally, it was due to a lack of certainty about transmission (and associated transmission costs), used within the IRP modeling tools that the IRP was prevented from selecting out-of- state wind resources. Therefore, ACC believes that the additional transmission planning can and should inform the generation procurement process and signing of PPAs, rather than waiting to conduct additional analysis and review of transmission cost information until PPAs are signed. ACC would like to explore how best to help the ISO collect the information it needs to conduct more in-depth evaluations of transmission solutions to out of state resources, other than through the singing of PPAs for these resources. ACC believes that there are a variety of methods that could be utilized to provide this type of information to the CAISO and there are likely a number of general assumptions that could be made to further transmission planning efforts to consider high-quality out-of-state wind resources. Later in these comments, ACC suggests assumptions that could be used to further the CAISO's transmission planning efforts and provide the commercial procurement process with additional, objective information on transmission solutions and their costs.	ACC correctly points out that the information available for the out-of-state renewable resources is not as granular as the in-state resources. Therefore, the ISO gathered the out-of-state resource modeling data from the Western Planning Regions through the interregional coordination process. To the extent that the CPUC's IRP portfolios select out-of-state renewable resources in future, the ISO will certainly welcome additional input from ACC for considering high quality out-of-state wind resources in subsequent analyses.
	ACC Response to CAISO Questions Contained in the ITP and 50% RPS Out-of-State Portfolio Assessment In the final assessment report for the ITP and 50% RPS Out-of-State Portfolio Assessment report, the CAISO posed several questions related to future consideration of out-of-state resources. Below, ACC provides some responses to those questions, aimed at helping the CAISO continue to improve its processes going forward and to assist California in meeting it clean energy goals.	Please refer to the above response.

No	Comment Submitted	CAISO Response
	1. How would procurement take place – interregional project, regional project, or as a component of generation procurement – and how would that influence a selection process? There is no singular or clear path to procurement of out-of-state renewables and associated transmission at this point. No matter how procurement of transmission takes place, an evaluation of transmission solutions as public policy-driven "regional projects" under the CAISO TPP will provide valuable information to load-serving entities, the IRP process, the CAISO, and other stakeholders. Evaluating Advanced Development transmission projects (and transmission projects which have sufficiently progressed to on permitting to achieve an in-service date in the early 2020s) under Category 2 of the CAISO's regional public-policy construct will be helpful for transmission procurement that ultimately takes place through the CAISO's regional tariff and will also be helpful if procurement ends up occurring via an interregional project construct or if transmission is acquired as part of generation procurement. Therefore, the logical next step for the CAISO is to proceed in evaluating the Advanced Development transmission projects as regional policy-driven projects, including an objective assessment of the relative cost and value provided by each of these transmission projects which could be available to deliver PTC-qualified wind to California customers. CAISO procurement of transmission through the interregional process effectively can't happen unless and until the CAISO determines that the interregional project avoids one or more CAISO regional projects, a necessary first step is evaluating the transmission to out-of-state resources as though they are regional transmission solutions. Additionally, it is possible that procurement of transmission to out-of-state wind could happen through the generation procurement process. Even if procurement of transmission ultimately occurs as part of the generation procurement process, additional information and study results from the CAISO on transmission as a regional project would be helpful to the generation procurement process. In fact, additional detail on transmission solutions is *critical* to generation procurement processes for out-of-state resources.	

No	Comment Submitted	CAISO Response
	ACC points out that the IRP process found that the uncertainty about transmission costs and timing was significant enough that the IRP model was not allowed to select out-of- state wind to meet California's future energy needs. As ACC noted in Opening Comments on the Proposed Reference System Plan in the IRP proceeding, "The 42 MMT Scenario and most other cases do not even permit the RESOLVE model to select the resources that are most cost effective; out of state wind on new transmission was not made available for selection in the reference case. During the IRP workshop on September 25-26, 2017, staff indicated that this decision was based on uncertainty regarding whether new transmission will be built. This assumption prevents the model from selecting out of state wind, even if it is the most cost-effective resource." This uncertainty can be addressed through additional regional transmission planning by the CAISO, including studying the costs of the proposed transmission solutions to out-of- state wind. Therefore, ACC suggests that, regardless of how procurement *ultimately* takes place, CAISO's study of transmission solutions as regional public-policy driven projects is the appropriate next step and should proceed as expeditiously as possible. The CAISO has the ability to study this type of transmission solution as a Category 2 public policy-driven project under its tariff and will not be required to recommend approval of any transmission lines that are studied via that process.	
	2. <u>How will the plans of the ISO out of state neighbors work to support or create challenges for the different alternatives?</u> The CAISO can evaluate this through the interregional coordination process and should continue to incorporate, to the extent possible, the plans of its neighbors, including in- state neighbors, into its own studies that are part of the CAISO TPP. CAISO should coordinate not only with individual planning regions but also with individual transmission owning entities that may have plans for new transmission, or plans to procure renewable resources from similar areas. Ultimately, the plans of the CAISO's neighbors are likely to be beneficial to the CAISO, as the CAISO's neighbors may wish to access similar resources and the CAISO can explore situations where its neighbors may share costs of transmission solutions on a voluntary basis. But since the CAISO cannot compel its neighbors to do transmission planning or other analyses, the CAISO	Please refer to the above response.

No	Comment Submitted	CAISO Response
	should move forward with studying transmission to out-of- state resources on its own. To the extent data and information on neighbors' plans are available, they should be incorporated into the CAISO's own study process and evaluations of transmission solutions.	
	3. What arrangements with other non-ISO transmission owners for capacity and for development of non-ISO transmission need to be considered and how would those arrangements be developed? This may depend on the transmission solution being analyzed by the CAISO; however, generally, some of the Advanced Development transmission projects would require transmission capacity on non-ISO transmission owners' systems to reach a CAISO delivery point. These types of arrangements should be considered by the CAISO. CAISO should work with the developers of these transmission lines and with the owners of transmission capacity from the termination point of the Advanced Development projects to the CAISO's boundaries to understand what capacity is available (or will be available) and to discuss operational agreements that may be necessary. CAISO has transmission capacity on transmission lines owned by other entities outside of CAISO today (e.g. Moenkopi – Eldorado) and this type of going-forward arrangement should be treated similarly to those historical rights.	Please refer to the above response.
	4. How will successful project sponsors be selected, and how will cost responsibility be assigned? a. Project sponsor selection The CAISO's tariff already has provisions for selecting a project sponsor and includes a selection process for when there is only one respondent to a competitive transmission solicitation. Ultimately, with the Advanced Development projects that have had a project sponsor working on the project for years, it may be the case that there would only be one *feasible* project sponsor to complete the project in a timely manner. The CAISO has an existing process in its tariff that should be followed. If the CAISO thinks modifications to its current processes are necessary to address	Please refer to the above response.

No	Comment Submitted	CAISO Response
	the Advanced Development projects being considered, then those modifications should be discussed via a stakeholder process or as part of the upcoming TPP. b. Cost responsibility Cost responsibility will vary depending on the structure of the procurement (e.g. regional, interregional, or combined with generation procurement). But all of these mechanisms have an associated cost allocation process, some of which are more defined than others. If the CAISO were to select a transmission project to out-of-state wind as a regional solution, then there is no need to upend the entire CAISO TAC structure. Rather, the current TAC allocation structure would place transmission to out-of-state resources on the same footing as in-state transmission solutions. If there is a need to change the TAC allocation structure for public policy projects to out-of-state renewable resources, then that same modification may also be necessary for in-state public policy- driven transmission solutions. Opening up a new level of uncertainly about transmission cost allocation does not appear to be necessary or appropriate at this time. However, if the project is procured through the generation procurement process, cost allocation for the transmission project will be different than it is through the TAC or interregional process. In this instance, it seems more likely that costs would be negotiated via the generation procurement process and would likely only be shared among the LSEs that contract for the generation associated with the transmission line.	
	5. How will staging and sequencing of transmission and generation resources be managed to ensure effective use of resources and periods of underutilization of capacity? While this is an important question, it is one which will be best answered, in detail, once additional study work is performed and the picture for which generation and transmission solutions might be procured becomes clearer. No matter which generation and transmission solutions are defined, CAISO should work closely with the CPUC's IRP process and load-serving entities to facilitate	Please refer to the above response.

No	Comment Submitted	CAISO Response
	studies of which resource/transmission combinations would be most efficient and would maximize use of the transmission facilities.	
	ACC Response to Uncertainties Raised by CAISO in Recent IRP Comments The CAISO's comments in the IRP proceeding at the CPUC have highlighted some challenges associated with performing additional transmission planning work to out-of-state wind resources. Below ACC provides some suggestions to address the challenges raised by the CAISO in performing this required transmission planning analysis through coordination with the CPUC Energy Division Staff as part of the 2018-19 TPP. 1. Additional study for out-of-state resources beyond the completed ITP and 50% RPS Out- of-State Portfolio Assessment Special Study is not warranted until more detailed information regarding the size and exact location of perspective generation resources is developed. ACC notes that the staff recommendation was for the CPUC Energy Division staff to work in coordination with the CAISO. Through this coordination, ACC believes that more detailed information can be developed, which would enable the CAISO to perform a Category 2 policy-driven analysis to out-of-state wind resources. As the Special Study found there is a severe lack of Available Transmission Capacity (ATC) to access the wind resources studied by both the CAISO in the Special Study and the CPUC in the IRP cases. The CPUC IRP "results suggest that out-of-state wind could represent a significant portfolio cost savings if procured prior to the expiration of the federal PTC." The lack of ATC, the cost savings driver to procure out-of-state wind resources prior to the expiration of the federal PTC, and typical decade long process to develop and construct multi-state transmission projects, leads ACC to the conclusion that the specific resource locations and sizes should be informed by the Advanced Development projects identified as part of RETI 2.0 and partially studied by the ISO in the ITP and 50% RPS Special Study. Based on the available data, ACC suggests the following specific locations and sizes for out-of-state wind resources, as a starting point, for the purposes of the TPP Policy Driven Category 2 analysis. These would comprise four different potential resource portfolios that include:	Please refer to the above response.

No	Comment Submitted	CAISO Response
	• New Mexico – One scenario studying 1,500 MW and another scenario studying 3,000 MW of wind resources at the common origination area for the SunZia Transmission Project and the Western Spirit Project (near Lincoln County, New Mexico) • Wyoming – One scenario studying 1,500 MW and another scenario studying 3,000 MW of wind resources, in each case the MW quantity would be split between the common bus of the Gateway Projects (Aeolus substation) and the Gateway Projects and the TWE Project (TWE Northern Terminal) Note that these locations are similar to the locations provided by the CPUC for the ITP and 50% RPS Special Study. However, the ITP and 50% RPS Special study looked at 2,000 MW at these two locations. ACC suggests that 1,500 MW tranches better match the proposed transmission ratings of these Advanced Development Projects and the development activity occurring. ACC notes that, based on industry data, over 1,000 MW of non-committed wind resources are in development in New Mexico and over 7,000 MW of wind projects are in development in Wyoming, with over 3,000 in the 'advanced development.' Many of these resources have taken steps to be eligible for the federal PTC. But, in order to achieve the requirements to maintain the full federal PTC and deliver the output to California end users, these generation projects will need to rely on one or more of the Advanced Development transmission projects to be placed in service in the early half of the 2020s, which limits the "range" of possible transmission solutions which CAISO should be analyzing in subsequent analyses.	
	2. <u>The CAISO is skeptical of the benefit of additional transmission study in the 2018-2019 TPP, as the ITP and 50% RPS Special Study was based on Commission-provided portfolios.</u> ACC agrees with the CAISO that the lack of the exact location and size of planning resource areas and has suggested a process and specific inputs to consider in narrowing the range considered by the ISO. However, this lack of specific information should not serve to limit the policy-driven analysis by the	Please refer to the above response.

No	Comment Submitted	CAISO Response
	CAISO, including considering the costs of each potential transmission solution relative to its expected benefits and potential delivery of renewable and other generation. ACC encourages the CAISO to complete a consideration of the costs of each potential transmission solution relative to its potential benefits, something which was not accomplished as part of the ITP and 50% RPS Assessment. Therefore, ACC urges the CAISO to continue to enhance its informational transmission studies, even in the absence of exact information on the location and quantity of out-of-state wind resources.	
	3. <u>Any additional CAISO led study would not provide timely additional import to inform the development of the LSE preferred plans.</u> ACC agrees that the ITP and 50% RPS Assessment provides the LSEs some basic information about the potential transmission solutions to access out-of-state wind resources. The IRP scenarios which include regional wind likewise provide the LSEs with valuable information. Through the IRP, the LSEs have been instructed to include a certain amount of supply- side resources within their respective preferred plans and are free to include any eligible resources in their plans, not just the resources identified in the locations and sizes included in the Reference System Plan nor the resources in any additional regional wind alternative portfolio that may be submitted to the CAISO. The 2018-19 TPP may include policy driven analysis of Category 2 projects to meet the Reference System Plan. That analysis will be informative to the IRP proceeding and LSEs decisions about the exact resources to meet their needs, and a similar level of analysis for out-of-state resources would also be valuable to the IRP and to LSEs. In a subsequent TPP, the Preferred System Plan (and other procurement activities) could then be used to elevate any necessary Category 2 transmission solutions to Category 1 solutions to meet a policy need, if such a need exists.	Please refer to the above response.

No	Comment Submitted	CAISO Response
	4. Concerns with the timeline to receive final inputs for transmission planning and permitting processes that will allow the CAISO to complete the necessary activities in a timely manner. The ITP and 50% RPS Assessment performed by the CAISO in past TPP cycle should help the CAISO in performing the subsequent TPP analyses for the policy-driven portfolios. It is important to quickly develop final out-of-state resource location, size and timing requirements to ensure the CAISO has sufficient time to perform their analysis, which is why ACC has suggested the resource amounts and locations in previous responses.	Please refer to the above response.
	5. The CAISO highly recommends additional action is taken to gauge commercial interest from wind developers. ACC is not clear on whether the ISO would like to gauge wind developers' interest in developing projects in New Mexico and Wyoming or if it seeks to understand the commercial interest of LSEs in procuring wind resources from these locations. If the CAISO is seeking the level of commercial interest from wind developers, ACC points out that there has been and continues to be a very high level of commercial interest from wind developers in Wyoming and New Mexico. The RETI 2.0 Report estimated over 18,000 MW of available western wind under development, over 10,000 MW of which are located in Wyoming and New Mexico. It is conceivable that a reasonable share of that total could one day serve California as Portfolio Content Category (PCC) 1 resource. The wind industry views these two locations as high-quality and low-cost resource development areas and continues to actively pursue many projects in these areas. If the CAISO is seeking to understand the level of commercial interest from LSEs, ACC agrees. ACC is eager to review information on the commercial interest of LSEs and believes that additional information on the potential transmission solutions will inform LSEs as they make commercial decisions with additional transmission planning studywork from the CAISO.	Please refer to the above response.

3. Bay Area Municipal Transmission (BAMx) Submitted by: Kathleen Hughes		
No	Comment Submitted	CAISO Response
3a	<u>Review of Previously Approved Transmission Projects</u> BAMx applauds the CAISO's work in what has been a three-year process to review previously approved transmission projects in light of the changing energy landscape. In this cycle alone, the project cancellations and scope reductions reduce the anticipated capital expenditures by about $2.7 billion. While reviewing all the transmission projects represented a significant commitment of engineering resources, the resultant saving for transmission system users would be enormous. For instance, BAMx estimates that a reduction in $2.7 billion of capital expenditure, the majority of which is associated with the low voltage transmission facilities would reduce the PG&E-specific low voltage transmission access charge (LV TAC) by approximately $3.5-$4/MWh in 2025. While the effort within this transmission planning cycle represents a significant milestone, there are still follow-up activities to this task. a) First, there are still six projects on-hold for another year representing a total cost of over $600 million, which built would increase the CAISO-wide high voltage transmission access charge (HV TAC) by approximately $0.32/MWh in 2025.2 While BAMx supports not rushing into doubtful transmission projects, BAMx encourages the CAISO to resolve the fates of these projects expeditiously. b) Second, BAMx encourages the CAISO to establish a process whereby once transmission projects are approved, they are continuously reviewed as to their necessity and scope until the project starts construction. While the need for all projects should be continuously monitored, a special monitoring of projects should be initiated for those that have been delayed beyond their initially proposed on-line dates as well as those with on- line dates during the second half of the planning horizon. c) Third, stakeholders are seeing tremendous and chronic cost escalation after a transmission project is approved by the CAISO. Some examples from the February stakeholder meeting include the Cottonwood-Red Bluff 60 kV line and substation, cost increase of	At this time, the ISO is intending to complete the review of the projects on hold in the 2018-2018 transmission planning process. In the 2017-2018 transmission process the ISO undertook a review of all of the projects in the PG&E area and in other areas on a case by case basis. In future cycles the ISO is intending to review on a case by case basis projects where the input assumptions change to warrant the review. The cost escalation on a number of the projects was a contributing factor in reviewing the need for the project or scope changes where mitigation was still required. The ISO will continue to reassess projects on a case by case basis in future planning cycles.

No	Comment Submitted	CAISO Response
	426%, Davis Voltage Conversion 79%, South of San Mateo Capacity Increase 900%, Morgan Hill Reinforcement 677%, and general cost doubling for four other projects. This issue is not just limited to one PTO. For example, the West of Devers 230 kV Upgrade cost changed considerably from its initial estimate at $384 million when it was studied by CAISO in 2010 to its current estimate of $1.01 billion, or 163%. Fortunately for the projects presented during this planning cycle were re- evaluated with information on their burgeoning costs. This may not always be the case and such cost increases can materially impact the selection of the preferred alternative or overall scope of work. During the post approval transmission project monitoring that BAMx suggests in item (b) above, BAMx also recommends that the CAISO monitor cost escalation for both scope creep in the event work unnecessary to the project objectives may be added to the project and whether any such cost increase should trigger a project review as has been performed by the CAISO for the past several planning cycles.	
	<u>Impact of Changing Load Profiles</u> BAMx supports the CAISO's acknowledgement that the significant levels of both grid- connected and behind-the-meter generation being developed will drive changes in the way that the transmission system is being planned. The resultant shift in the peak demand to the evening hours should have a major impact on the protocol for assessing the transmission necessary to support resource capacity counting, especially for non-dispatchable resources that have driven much of the deliverability network upgrades approved in the prior transmission planning cycles. BAMx looks forward to a stakeholder initiative to revisit the deliverability methodology in light of this changing planning environment. Such review and any resultant changes need to occur before any additional Delivery Network Upgrades (DNUs) are specified in either the CAISO's Generation Interconnection and Deliverability Assessment Process (GIDAP) process or new Area DNUs are identified as policy upgrades in the Transmission Planning Process. The impact of changing load profiles can have additional impacts on planning as well. For example, transmission equipment, especially overhead transmission lines, are rated based upon assumed ambient environmental	The ISO will be using the hourly profiles of the CEC 2017 IEPR Energy Demand Forecast in the upcoming planning cycle and applying the facilities ratings of the transmission owners in the planning assessments.

No	Comment Submitted	CAISO Response
	conditions. This can include ambient temperature, solar input, and wind speeds that may be appreciably different during an evening peak resulting in potentially higher equipment ratings. While daytime system performance would still need to be assessed using current rating methodologies, BAMx recommends that the CAISO instruct the PTOs to develop rating methodologies and assumptions appropriate for evening peaks. How such new parameters would be integrated into the planning process would need to be determined. As a transitional method, BAMx proposes that before transmission projects driven by a shifted peak load are approved, an assessment of the system capability with compatible assumptions in equipment ratings be undertaken.	
	<u>Need for Additional Coordination Between CPUC IRP and CAISO TPP</u> The Draft Plan has found four (4) upgrades to be needed as economic-driven projects in the 2017- 2018 planning cycle. Three (3) out of these four upgrades have been justified primarily based upon their local capacity requirements (LCR) reduction benefits. The CAISO's approach to evaluate proposed project's ability to improve the importing capacity into an LCR area is consistent with its updated Transmission Economic Assessment Methodology (TEAM) documentation, which envisions scenarios with and without the transmission upgrades in order to compare the LCR costs. There are a several assumptions made in the economic assessments conducted in the Draft Plan such as, the price (value) for the local capacity and the share of overall capacity savings allocated to the LCR benefit. BAMx requests that the CAISO update the TEAM documentation by including these assumptions that are critical to the LCR reduction benefit assessment. BAMx believes that California Public Utilities Commission's (CPUC) Integrated Resource Planning (IRP) process is an appropriate forum to determine economic tradeoffs between retaining existing generation and reducing that need via new transmission or new local resources. The capacity expansion models such as RESOLVE utilized in the CPUC IRP proceeding are more suitable for performing any economic comparison of alternatives for meeting LCR than the CAISO TPP by itself. In particular, RESOLVE includes a constraint that requires that sufficient new generation capacity must be added to meet the local needs in specific LCR areas. To characterize these local capacity needs, RESOLVE relies predominantly on the CAISO's TPP. In other	The TEAM is, as noted, a methodology that sets out what issues will be considered and how; it is not practical to expect every parameter that needs to be assessed on a case by case basis to be incorporated into the documentation before being used. Nonetheless, the ISO will consider updates to the documentation as more experience is gained in the methods being applied to these issues. The ISO also appreciates that stakeholder input on the particular values being used – especially from the state agencies – will be helpful in refining these analyses in the future. The ISO agrees that useful input can be obtained from the IRP process and the ISO looks forward to continuing to support the IRP process as well as to receive support from the CPUC in the transmission planning process. However, the ISO is not aware of a mandate within the CPUC IRP process for the approval of transmission upgrades, and the ISO's tariff specifically contemplates these issues being addressed in the ISO's transmission planning processes.

No	Comment Submitted	CAISO Response
	words, a flow of information from the CAISO's TPP to the CPUC IRP on the local capacity needs exists today. Similarly, the determination of the least-cost best-fit alternatives to meet LCR needs the CAISO TPP needs to rely on the CPUC IRP process as it is better equipped in evaluating competing resource alternatives such as, natural gas generation, renewables, energy storage, and demand response. For a particular area, if timing of the CPUC IRP cycle is a constraint, then the CPUC needs to direct its relevant jurisdictional LSE to conduct a Request For Offers (RFO) specifically targeted to procuring local resources including the preferred resource options. Such a solution was suggested by the CAISO to determine the true costs of the preferred resource alternatives to the Puente Project. In addition to assessing the LCR reduction benefits associated with the economic-driven projects, the Draft Plan recommends the approval of a reliability-driven project11 which includes building an energy storage which would be treated as a transmission asset. We understand that the energy storage was chosen as a more cost-effective mitigation solution to address the reliability issues over other transmission alternatives. BAMx does not believe that the energy storage or any other local resource costs should be fully allocated to the CAISO-wide Transmission Access Charge (TAC) unless it is not possible to obtain any system benefits from the installation of a local resource. The CAISO seems to be proposing that for some storage installations in this Draft Plan, the cost recovery for that storage would be fully allocated to the TAC for the first time. BAMx suggests that this cost allocation issue deserves more attention, possibly in a proceeding at the CPUC and/or in a separate stakeholder process at the CAISO.	For clarity, the 2017-2018 Transmission Plan includes two recommended batteries as transmission assets. In both cases, the batteries would be connected to low voltage (e.g. less than 200 kV) transmission facilities and therefore be included in local (low voltage) transmission access charge recovery, not CAISO-wide regional transmission access charge recovery. As noted in the ISO's 2018 Policy Initiatives Catalog and 2018 Final Policy Initiatives Roadmap, the ISO is initiating a process in 2018 to explore how such regulated cost-of-service devices can also provide other market services to reduce overall costs to ratepayers.
	<u>Alignment of the LCR and Transmission Planning Criteria</u> In response to the proposed transmission upgrades for the Moorpark area, BAMx previously commented that the critical contingency is an extreme event, loss of a single element followed by the common mode loss of two additional elements. BAMx's comments identified that this extreme contingency is beyond the NERC/WECC/CAISO transmission planning standards requiring mitigation. The CAISO response was that this contingency is included in its tariff as part of the Local Capacity Technical Study Criteria and that the transmission project is the most economic method of meeting said criteria.	Following a P1 contingency in real-time operations the system must be adjusted and be prepared to withstand a P7 contingency. During the development of the Local Capacity Requirement criteria, ISO operations explained to stakeholders the need to consider this event as part of the LCR criteria. During the stakeholder meeting considering the need for the Pardee-Moorpark #4 230 kV circuit, although stakeholders may have had differing opinions on which alternative was

No	Comment Submitted	CAISO Response
	However, the CAISO's response failed to state ***why*** areas with local generation are apparently being planned to a higher standard than areas of the system without local generation. Specifically, why the Local Capacity Technical Study Criteria includes contingencies that are beyond those generally used in the reliability assessment of the transmission planning process and beyond those in which those that NERC and WECC standards require mitigation. While resolving this apparent inconsistency may not be timely for the Moorpark area due to imminent deadlines and the relatively modest scope of work, this issue may appear again as additional generation units seek to retire due to economic pressures. BAMx requests that the issue be fully addressed a stakeholder forum where the justification for inclusion or exclusion of this extreme event in the justification of expansion of the transmission system can be discussed among stakeholders and the CAISO Planning Standards and the CAISO Tariff subsequently aligned.	preferred, they generally supported the consideration of this type contingency.
	Morgan Hill Reliability Project Morgan Hill Reliability Project was approved during the 2013-2014 Transmission Planning Cycle. The cost estimate from the request window application submitted by PG&E for the project was $35 to $45 Million. The most recent cost estimate for the original scope of the project is $250-$350 Million. The originally proposed scope of work consisted of the following upgrades: • Construct new 230/115 kV Spring Substation in Morgan Hill, with connections into the Metcalf-Moss Landing No. 2 230 kV Line and the Morgan Hill-Llagas 115 kV Line. The updated scope of work is identified as the following: • • Rebuild Metcalf - Green Valley 115kV into the Green Valley - Morgan Hill 115kV (all new structures; 15 miles) and rebuild Morgan Hill 115kV into a BAAH The cost estimate for the updated scope of work is $72-$104 Million. BAMx members applaud the CAISO for its efforts in identifying a more cost-effective	The recommended project addresses the needs for both the Morgan Hill area and the Watsonville area with the revised scope for the Morgan Hill area reinforcement project and the cancelation of the Watsonville Conversion project.

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solution in response to an increased cost estimate for the project and would encourage the CAISO to continue this practice going forward. BAMx members would also like to propose a potentially lower cost solution to the identified thermal overloads and voltage violations as outlined below.

The two critical P6 contingencies driving the reliability project are identified in Table 1 below are the loss of Metcalf-Morgan Hill 115kV circuit followed by the loss of Llagas-Gilroy 115kV circuit and Metcalf-Llagas 115kV circuit followed by the loss of Llagas-Gilroy 115kV circuit. Both of these contingencies cause overloads on the remaining circuit feeding the Morgan Hill 115kV substation. The highest overload identified within the CAISO Reliability Assessment Study Results for these contingencies is for the 2027 Summer Peak case, where Metcalf-Morgan Hill 115kV circuit is overloaded by 114 percent over its emergency rating.
Table 1: Excerpt from the CAISO 2017-2018 Transmission Assessment[13]
<table>
<tr><th>Overloaded Facility</th><th>Contingency Description</th><th>2019 Summer Peak</th><th>2022 Summer Peak</th><th>2027 Summer Peak</th></tr>
<tr><td>Metcalf-Llagas 115kV Line</td><td>LLAGAS-GILROY-GILROY F-GILROYPK 115kV & METCALF-MORGAN HILL 115kV(N-1-1)</td><td>102</td><td>111</td><td>114</td></tr>
<tr><td>Metcalf-Morgan Hill 115kV Line</td><td>MTCALF D-LLAGAS 115kV & LLAGAS- GILROY-GILROY F-GILROYPK 115kV (N-1-1)</td><td>91</td><td>96</td><td>99</td></tr>
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The loss of Llagas-Gilroy 115kV circuit (which drops the contribution of the Gilroy units) in addition to one of the circuits supplying Morgan Hill substation causes a thermal overload on the opposite circuit as well as low voltages on Morgan Hill substation. The non-sensitivity case showing the highest overload is the Summer Peak 2027 case where Metcalf-Llagas 115kV circuit is at 114 percent of its emergency rating. Our internal analysis shows that adding additional 30MVAR of voltage support devices alleviates all low voltage violations and reduced the identified overload to about 106 percent. The reactive support could be installed at either Morgan Hill or Llagas substations. BAMx recommends that the CAISO consider a mix of preferred resources,
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No	Comment Submitted	CAISO Response
	demand response, or energy storage, which could be used after the first contingency, to eliminate the 6 percent overload. If the CAISO does decide to continue with the modified scope of work, the justification for rebuilding Morgan Hill 115kV circuit into a breaker and a half configuration as opposed to expanding the existing the substation bus to accommodate an additional circuit has not been justified.	The additional circuits in the Morgan Hill substation result in the need to rebuild the station per the PG&E design standards.
	<u>Midway-Andrew Transmission Project</u> As in the previous comments submitted, BAMx members would like to re-iterate that previously implemented "Los Padres Transmission Project" installed an SPS at both Mesa and Santa Maria 115kV Substations to address the Mesa area transmission standards violations by dropping approximately 230 MW of load. Similarly, the Divide SPS Project installed an SPS to mitigate standards violations in the Divide 115kV area by dropping approximately 145 MW of load following the loss of Mesa-Divide #1 & #2 115kV lines. These solutions are acceptable under the applicable Planning Standards as the Los Padres area is a non-urban area and both the CAISO and NERC planning standards allow for post contingency load dropping for a higher level of contingencies. Therefore, the Midway-Andrew 230 kV Project is designed to provide a level of service above that required by the Planning Standards. The originally proposed project is estimated to cost up to $150 million. While BAMx is encouraged that the CAISO is considering lower cost options that would repurpose existing assets, this misses a fundamental point. As a reliability project, whether the Midway-Andrew 230 kV Project or an alternative such as described in the stakeholder meeting, such project justifications should include a cost/benefit assessment as described in the CAISO Planning Standards (Section 5.4). The CAISO has identified the nature of load being dropped and its inability to schedule outages in this area as additional justifications for this project. If this is the case, additional justifications need to be made in regards to what load cannot be dropped as part of this SPS which is armed to react to an extremely low probability event. If the CAISO decides to proceed with the implementation of the Midway-Andrew Project due to the inability of obtaining clearances on equipment, further	The ISO will continue to assess the alternatives of the Midway-Andrew transmission project in the next planning cycle. The ISO's determination of the need for the project is consistent with when it was approved to address the significant load shedding under contingency in addition to being able to conduct maintenance of facilities in the area without a P1 contingency resulting in load shedding at the time when maintenance outages would be taken.

No	Comment Submitted	CAISO Response
	justification should be provided in regards to which clearances are not able to be scheduled under the current configuration with the knowledge that the SPS will drop load and protect the system even in an abnormal system configuration.	
	Gates-Gregg Transmission Project BAMx supports the CAISO's analytic method used to evaluate the Gates-Gregg 230 kV project whereby initial assumptions favorable to the transmission project were tested to assess project viability.	The comment has been noted.

4. California Energy Storage Alliance
Submitted by: Jin Noh

No	Comment Submitted	CAISO Response
	<u>Moorpark-Pardee 230-kV No. 4 Circuit Project</u> CESA remains uncertain on if CAISO's recommendation to approve the Moorpark-Pardee 230-kV No. 4 Circuit Project is ultimately best because CESA believes the likelihood of load shedding in the CAISO's proposal may be higher to a degree where a 'local generation' solution would be more appropriate. A key distinction in this matter is that the TPP should strive to promote outcomes that: (a) promote compliance in line with reliability standards while (b) avoiding outcomes that may cost money while not materially reducing the likelihood of load shedding. CESA, of course, respects the CAISO's right to make a determination and to comply with the Tariff-directed approaches of its transmission planning process. CESA notes, however, that the CAISO likely has some flexibility to determine where it may be in the ratepayer interest as well. While the CAISO found Moorpark-Pardee No. 4 to be needed as a reliability project, CESA is viewing the project from the point of view of the ratepayer, asking the question "for the amount of money being spent, how much is the potential for load shedding reduced?" This CESA position is based on our understanding that load shedding risks may be mostly the same despite the Moorpark-Pardee solution, and that this transmission expansion was rejected in the past for these reasons. CESA believes key concerns may still remain related to the reliability of service delivery to customers in the Moorpark sub-area, and that local resources are needed to ensure a more resilient electric power supply in the case of severe transmission contingencies. If CESA is misinformed, we look forward to dialoguing with the CAISO to learn more. The urgency to this decision should also be informed by results from an outstanding solicitation for energy storage and preferred resources in the affected area, which could presumably mitigate some or all of the need for transmission solutions. While the CAISO indicated that approval in March 2018 is needed to meet the requested in-service date in time for the scheduled once-through cooling generating unit retirements, an extra month or two of extra consideration will provide the CAISO some optionality to consider how local generation may resolve needs or demonstrate that non-wires solutions are	The Moorpark-Pardee #4 230 kV circuit is a project that adds conductor on existing transmission towers that were originally designed and built to accommodate the fourth circuit. An investment was made long ago to build double circuit towers with the expectation that when there was need for increased transmission capability there would be a simple low cost option available. A $45 million transmission project that can be completed in three years is a simple low cost option. Transmission lines have many components that can fail. For example, insulators can become contaminated by the environment and flashover, protective relays can malfunction, and transmission towers can collapse. Adding a fourth circuit adds additional reliability benefits during combinations of these failure modes. In addition, the cost of this alternative is significantly lower and the certainty of meeting the required in-service date is significantly higher, than the other alternatives considered in the ISO study. The ISO's understanding is that the RFP process for the Moorpark area will require much longer than a month or two.

No	Comment Submitted	CAISO Response
	available and viable, pending short-list information from SCE's Moorpark Local Capacity Requirements (LCR) and Goleta Resilience Request for Proposals (RFP), which also address the sub-area's LCR needs and to potentially avoid the need to approve the $45-million Moorpark-Pardee 230-kV No. 4 Circuit Project. In the 2017-2018 Draft Transmission Plan, the CAISO noted that one of the areas where non-wires alternatives are particularly viable are those where conventional transmission solutions can serve as a backstop to meet the identified transmission need. The CAISO Board of Governors may benefit greatly from clarity on the actual probabilities of load-shedding and of any options that could materially reduce load-shedding risk and information on the optionality of waiting to authorize Moorpark-Pardee should be clarified in any Board approval proposal. As the CAISO has noted in a separate proceeding, "the economic feasibility of the preferred resource portfolio can only be established through a new RFO". If lower-than-expected costs materialize from the competitive solicitation process, the CAISO could potentially redirect its TPP decision since circumstances would no longer support the need for the project. The CAISO has already done this with a number of projects in the 2017-2018 Draft Transmission Plan, and CESA believes it would be prudent to pursue a pathway that provides optionality for Moorpark customers to receive more reliable and resilient service and that validates cost assumptions made by the CAISO in its economic analysis.	
	<u>South Bay-Moss Landing Projects</u> Given that this proposed project recommended for approval will have a significant impact on the LCR need for the competitive solicitation as required by the California Public Utilities Commission (CPUC) in Resolution E-4909, CESA requests clarity on the residual LCR need in the South Bay- Moss Landing sub-area. CESA salutes the CAISO for reviewing how transmission operating assumptions can greatly affect costs and local capacity needs.	The transmission upgrades result in the South Bay / Moss Landing LCR requirement being reduced by 400-600 MW. This reduction results in addressing the requirements for the area by CPUC Resolution E-4909. The transmission upgrades recommended for approval will be included in the 2019 and 2023 LCR studies that ISO will be undertaking.
	<u>Oakland Clean Energy Initiative</u> CESA supports the CAISO's recommendation to approve the Oakland Clean Energy Initiative as proposed by PG&E. This type of solution combining traditional transmission solutions with non-wires alternatives such as energy	The ISO presented the further analysis at the February 8, 2019 stakeholder meeting and will be including the details in the Revised

No	Comment Submitted	CAISO Response
	storage and preferred resources represents a major milestone toward actually sourcing and procuring non-wires alternatives to meet an identified transmission need. At the same time, the CAISO indicated that "additional economic evaluation" is necessary for this integrated solution. CESA agrees and believes that the CAISO should consider how the TPP process can be adjusted to account for robust and updated economic analysis of non-wires alternatives, especially since the CAISO cannot directly procure and approve non-transmission alternatives as projects or elements in the comprehensive transmission plan. With the competitive solicitation process for non-wires alternatives occurring outside of the CAISO's TPP process, the CAISO has less visibility on the reported costs of non-wires alternative solutions, which could then serve as some basis for cost assumptions used in the economic analysis of non-wires alternatives to any identified transmission need. Generally, CESA strongly supports the Oakland Clean Energy Initiative and will be an active stakeholder in providing input and feedback on any additional economic analysis needed to refine the consideration of non-wires alternatives.	Draft Transmission Plan that will be presented to the ISO Board of Governors for approval.
	<u>Storage as a Transmission Facility Initiative</u> CESA supports the CAISO's intent to address issues related to the utilization of electric storage resources for multiple services when receiving cost-based rate recovery, as evidenced by the inclusion of a new Storage as Transmission Facility Initiative in the most recent CAISO Policy Initiatives Catalog. CESA reiterates its support in these comments and appreciates the CAISO's support for the new initiative in the 2017-2018 Draft Transmission Plan. In effect, the Policy Statement (PL17-2) issued by the Federal Energy Regulatory Commission (FERC) answered the key threshold question of whether electric storage resources can provide transmission and clarified that providing services at both cost- and market-based rates is permissible as a matter of policy. In the Energy Storage Track 2 proceeding at the CPUC, new rules have been developed that would create a framework by which energy storage resources providing transmission deferral services may be also eligible to provide other grid services, depending on the application and needs being addressed. These CPUC rules should naturally continue to inform the new Storage as a Transmission Facility Initiative at the CAISO.	The comment has been noted.

No	Comment Submitted	CAISO Response
	<u>Special Studies</u> CESA thanks the CAISO for continuing to evaluate the benefits of bulk energy storage systems in the 2017-2018 TPP cycle and updating the analysis from previous TPP cycles dating back to the 2015-2016 TPP cycle with higher Renewable Portfolio Standard (RPS) portfolios and with additional sensitivity cases. CESA believes that energy storage systems have a major role to play in the state's pursuit of its ambitious renewable and climate goals, and bulk storage resources need to be evaluated and have pathways to compete to provide services. While appreciative of the efforts thus far, CESA requests that a special study be conducted again in the 2018-2019 TPP cycle with updated Reference System Plan portfolios for the Integrated Resource Plan (IRP) proceeding and with additional test cases for the various types of bulk energy storage systems (*e.g.*, compressed air energy storage, liquid air energy storage, pump-hydro storage). CESA requests these additional special studies because the CAISO acknowledged that the 2017-2018 special study analysis does not reflect the new planning assumptions coming from the IRP proceeding. Furthermore, with the adopted Reference System Plan recommending an additional 9,000 MW of utility-scale solar resources and 1,100 MW of wind resources in the system portfolio to reach the state's greenhouse gas (GHG) emission targets, CESA believes that it will be important to reassess the production cost and reliability benefits of bulk energy storage systems since pumped storage resources in the special study were found to be more effective with a high-solar RPS portfolio. CESA expects that the 2030 portfolio will consist of a solar-heavy resource mix where energy storage resources will increasingly provide needed flexibility and renewables integration. A number of sensitivities in the IRP modeling demonstrated the potential need for pumped storage and other storage resources. Given the potential need for storage combined with the long lead time for some bulk storage resources, CESA believes that continued special study efforts by the CAISO will greatly inform the CPUC in the IRP proceeding on potential modeling improvements and policy actions going forward, as well as potentially provide the CAISO with the flexible resource tools that may be needed to integrate a solar-heavy resource mix.	While the ISO will continue to monitor the situation and continue to support the IRP process, the ISO considers that updating the analysis in the 2018-2019 cycle appears premature, and that a more appropriate time may be when the results of the preferred system plans have been prepared and completed.

5. California Public Utilities Commission - Staff (CPUC-Staff)
Submitted by: Karolina Maslanka

No	Comment Submitted	CAISO Response
	1. CPUC Staff appreciates the CAISO's continued effort to reevaluate previously *approved projects and cancel or down-scope projects when appropriate. CPUC staff requests that the CAISO clarify whether review of previously approved projects will be an ongoing effort in the future.* CPUC Staff appreciates the CAISO's continued effort to reevaluate previously-approved projects and cancel or down-scope projects when appropriate. With this large number of projects undergoing changes in project approval status, CPUC Staff is including, for additional interagency transparency and alignment, one table containing projects currently in the CPUC permitting process and a second table of the future pipeline of CEQA projects. The tables can be found on pages 6-8. Slide 6 of the CAISO's February 8th Stakeholder Meeting PowerPoint presentation reads "A major effort in this third and final year of the programmatic review of the previously-approved projects." This point was emphasized by CAISO staff at the stakeholder meeting. CPUC Staff request that the CAISO clarify what is meant by "final year of the programmatic review". Will CAISO continue to review previously-approved projects, and if so, to what extent? Although the "33% 2025 Mid AAEE" RPS portfolio was used for the third consecutive TPP cycle, a consistently declining load forecast led to the need to cancel or re-scope a significant amount of previously-approved upgrades. CPUC staff believes that in future TPP cycles as the CAISO resource mix continues to evolve, and non-transmission alternatives become increasingly available, there will be a continued need to review previously-approved projects. Furthermore, reliability base case and policy-referred portfolios are expected to change in future TPP cycles and this may lead to the identification of new economic-driven network upgrades that address previously identified needs and reduce ratepayer costs. CPUC Staff would like to collaborate with the CAISO to develop a systematic approach for reevaluating previously	Please refer to Response 3a) above. The ISO anticipates continuing to review individual projects on a case by case basis based on identified material changes.

No	Comment Submitted	CAISO Response
	approved projects in light of future policy changes and to ensure alignment with Integrated Resource Planning.	
	2. CPUC Staff requests clarification regarding the Gates-Gregg 230 kV line renewable integration assessment that is to take place in the 2018-19 Transmission Planning Process (TPP) cycle and how it depends on Integrated Resource Planning (IRP). The CAISO has recommended that the Gregg 230 kV Line project remain on hold while a detailed renewable integration assessment is conducted in the 2018-2019 TPP to address the uncertainties of renewable integration benefits for the project, which according to the CAISO depend on Integrated Resource Planning (IRP) and the CEC 2017 IEPR Energy Demand Forecast. CPUC Staff would like to know whether this IRP-related uncertainty refers to the Commission adoption of the IRP Decision D.18-02-018 or whether the CAISO is referring to other specific IRP-related uncertainties that may require additional interagency coordination. Additionally, the 2017-18 TPP as drafted makes it unclear whether the project is accruing costs while it remains on hold, "PG&E has confirmed that while the project is on hold it is continuing to accrue carrying costs since March 2017 when the 2017-2018 Transmission Plan was approved by the ISO Board of Governors. With this, if the project remains on hold and is canceled in future cycles no additional costs associated with leaving it on hold." CPUC Staff requests clarification on whether keeping the project on hold is in fact resulting in additional costs for ratepayers.	If the project is canceled in the 2018-2019 transmission planning process it will not accrue any additional costs beyond those accrued up to March 2017. If the project is recommended to proceed, the project will accrue costs from when the project was initiated until it is completed. Please refer to comments submitted by PG&E and posted on the ISO website referring to the treatment of accrued costs. http://www.caiso.com/Documents/PG-ESupplementalComments-2017-2018TransmissionPlanningProcessMeeting_Nov162017.pdf
	3. CPUC Staff agrees with CAISO that the strategic use of preferred resources and *storage to as a substitute for transmission and to address local constraints will require closer attention in the 2018-19 TPP. CPUC Staff look forward to collaborating with the CAISO on coordinating planning efforts and refining the methodology for assessing preferred resources and other non-transmission alternatives.* Recently the CAISO has placed emphasis on assessing non-transmission alternatives and recommending them in lieu of transmission upgrades. CPUC Staff recognize that the CAISO cannot specifically approve non-transmission	The comment has been noted.

No	Comment Submitted	CAISO Response
	alternatives as projects or elements in the comprehensive transmission plan. However, due to the significance of non-transmission alternatives as critical components of transmission solutions to identified reliability needs, CPUC staff believe it is important that the methodology developed for assessing these resources in the 2018-19 TPP incorporates a framework for adjusting to the fast-paced technological improvements as well as policy changes. Energy storage procurement applications recently submitted to the CPUC for authorization indicate that costs for transmission level storage may be rapidly declining. The CPUC will be considering the newly acquired information in the Integrated Resource Planning Process and suggests that the CAISO similarly consider and address declining transmission storage costs in the 2018-19 TPP Study Plan.	
	4. CPUC Staff commends the CAISO on identifying the Moss Landing Panoche upgrade and San Jose-Trimble upgrade, both of which address South Bay-Moss Landing local capacity requirements at a low cost. CPUC Staff strives to understand how future opportunities to address local capacity requirements at low costs can consistently be identified earlier in the transmission planning process.	The comment has been noted.
	5. CPUC Staff appreciates the coordination taking place between PG&E, CAISO, CHSRA, and Caltrain in developing transmission needs for the rail electrification projects. CPUC Staff has the following comments about CAISO's responses to our stakeholder comment No. 5i from about the California High Speed Rail Project (CHSRA Project) and the TPP's description of the expected transmission interconnection work by PG&E and associated costs. a) CAISO's response to our stakeholder comment No. 5i in 2017 indicated that cost allocation for the California High Speed Rail Project (CHSRA Project) would be based on PG&E tariffs. This is not accurate. PG&E tariffs apply to distribution- voltage extensions. PG&E does not have a tariff that applies to the CHSRA Project's requirement for transmission-voltage extensions. Furthermore, the CHSRA Project requires dual (redundant/two independent) feeds, which is atypical. The extensions would also be single-phase and not three-phase.	Transmission load interconnection projects are per the PG&E FERC-approved Transmission Owner Tariff. The ISO review of the load interconnection is to assess and concur that the load interconnections do not pose any reliability concerns and are appropriate based upon the planning requirements for the area.

No	Comment Submitted	CAISO Response
	These unique characteristics of the interconnection work for this project should be documented in the TPP. These unique characteristics also apply to the Caltrain Electrification Project's requirements, which should be mentioned in the TPP as well. If the Caltrain Electrification Project costs were addressed in a prior TPP, it should be referenced. If Caltrain's costs will be addressed in a future TPP, this should be mentioned as well. Some of the required interconnection upgrades for Caltrain would also benefit the CHSRA Project. CHSRA and Caltrain have been coordinating for this reason. b) CPUC stakeholder comment No. 5i referred to PG&E's 9/22/2017 Request Window Proposal presentation to CAISO about the CHSRA Project load interconnection request requirements and costs. The costs in PG&E's presentation provided a $737 million estimate total and a cost range: -30% to +50% or $519.9 million to $1.1 billion. This TPP should document the high and low cost-estimate boundaries and clarify that $737 million is a mid-cost cost estimate established by PG&E's -30% to +50% range. All of this cost information is already public: http://www.caiso.com/Documents/Day2_PG_E-Presentation_2017-2018TransmissionPlanningProcess_PreliminaryReliabilityResults.pdf	

6. Citizens Energy Corporation Submitted by: Peter F. Smith		
No	Comment Submitted	CAISO Response
	The CAISO has stated its intention in its 2017-2018 Transmission Plan to pursue the upgrade of the Imperial Irrigation District S-Line between IID's El Centro substation and SDG&E's Imperial Valley substation. Citizens Energy Corporation appreciates this opportunity to comment on the proposed upgrade. The CAISO envisions that "a CAISO PTO" would facilitate the upgrade. Citizens believes that Citizens is the ideal PTO to assist the CAISO and IID achieve the CAISO's objective. Citizens is a nonprofit company whose purpose is to make life's necessities more affordable for poor people. As the following examples of its activities demonstrate, Citizens has gained extensive experience not only in pursuing its corporate purpose but also financing the development of new CAISO transmission. First, since July 2012, Citizens has been a CAISO PTO in partnership with SDG&E once the Sunrise Power Link went into service. Citizens financed 50% of the Sunrise line in Imperial County at a cost of $85,194,000. Since inception, Citizens has invested $8,186,000 of its profits earned as a PTO for Sunrise, funding no-cost rooftop solar installations for low income customers of IID. Further, Citizens recently agreed with IID to further assist their low income consumers by developing a 30 MW community solar project and selling the output at effectively two-thirds of its price (by selling 20 MW at a competitive wholesale price and providing the remaining 10 MW at no cost funded from its Sunrise profits – with all the power virtually netmetered to IID's low income ratepayers). Second, Citizens has completed definitive documents and binding agreements with PG&E and Berkshire Hathaway Transmission to participate as a PTO in the Gates-Gregg Line, a competitively bid CAISO transmission project. Citizens anticipates that its financing responsibility will be approximately $44,000,000. FERC has approved Citizens' rate methodology for that project. (157 FERC 61,150 (2016)). As with its involvement in the Sunrise Powerlink, 50% of	The ISO appreciates the interest expressed in the comment. At this time, the ISO considers that the upgrades to the S-Line and the El Centro substation are modifications to existing facilities, and are connected to but are not part of the ISO-controlled grid. The project also entails modifications to the SDG&E Imperial Valley substation, and that as the PTO involved in aspects of the project is reasonably the PTO to arrange for the upgrade and bring the associated scheduling rights into the ISO.

No	Comment Submitted	CAISO Response
	Citizens' profits from Gates-Gregg will be invested to benefit low income consumers with their energy needs, specifically in the greater-Fresno area. Third, Citizens has also completed definitive documents and binding agreements to participate as a PTO and share financing responsibility with SDG&E in the Sycamore-Penasquitos Project, also a competitively bid CAISO transmission project. Citizens anticipates that its financing responsibility will be approximately $27,000,000. Citizens has pending before FERC a petition for approval of its rate methodology which is virtually identical to the rate methodology FERC has already approved for Citizens for both the Sunrise and Gates-Gregg Projects. Citizens has committed 50% of its profits from this project to enhance access to zero-emission transportation options for low income consumers in SDG&E's service territory. Given Citizens' substantial experience in transmission development structuring and finance and acting as a CAISO PTO, Citizens believes it can effectively work with the relevant parties of the S-Line Upgrade to achieve their mutual objectives. This would include financing the facilities the CAISO and IID decide are needed to achieve the incremental transmission capacity desired and dedicating that capacity to the CAISO as Citizens has done in the above projects. Given Citizens proven record of cooperation with SDG&E, Citizens would also envision effectively working with SDG&E on development of its respective terminal facilities upgrade. Finally, depending on what the parties require beyond the upgrade itself, Citizens would look forward to assisting in the development and financing of additional facilities to support and enhance the SLine Upgrade. As in its other transmission projects, Citizens would commit to invest a substantial amount of its profits to assist low income electric consumers affected by the S-Line Upgrade. For all of these reasons, Citizens believes that it is the ideal PTO to assist the CAISO and IID achieve their objectives in the S-Line Upgrade.	

7. City of Lodi
Submitted by: Elizabeth A. Kirkley

No	Comment Submitted	CAISO Response
	<u>Lockeford-Lodi Area 230 kV Development Project</u> The Lockeford-Lodi Area 230 kV Development Project approved by the CAISO Board in the 2012-2013 Transmission Plan (Original Project) was put on hold last year for reassessment. At the February 8, 2018 CAISO Stakeholder Meeting for the 2017-2018 Transmission Plan, the Original Project was discussed, with a recommendation that the scope of work be revised. The City of Lodi (City) is providing these comments to clarify its understanding of the revised scope of the project (Revised Project) as presented at the February 8th Stakeholder Meeting. The Revised Project removes a double circuit 230 kV line originally intended to be constructed between PG&E's Lockeford and PG&E's Eight Mile Substations, one of which would have looped in at a to-be-constructed, City-owned 230/60 kV substation (yet to be named) that will be located adjacent to the City's existing Industrial 60/12 kV Substation. The City hopes that at some future date, the CAISO would revisit this portion of the Original Project as a solution to regional transmission reliability problems, as well as provide the City with added local reliability. The Revised Project is shown on the attached one-line diagram and described as follows: • Loop-in the Brighton-Bellota 230 kV line into Lockeford substation. • Approximately 6 miles of double-circuit 230 kV line from Lockeford to a new Industrial 230 kV substation. • 2017-2018 TPP estimated cost: $95 million • In-service Date: 2023 The one-line diagram for the Original Project as shown in the February 8th presentation identified the City's load, served from a new City-owned Industrial 230/60 kV substation. However, the one-line diagram for the Revised Project neglects to identify the City's load. As a point of clarification (and as shown on the attached PG&E drawings developed for the Original Project), it is the City's understanding that the Revised Project is not intended to alter the City's point of	ISO will continue to assess the reliability needs of the system in future planning cycles and if required, will propose solutions to optimally address the reliability issues. The revised draft Transmission Plan's scope has been updated with the interconnection at Industrial substation being consistent with the original scope. ISO supports any coordination between City and PG&E that facilitates the implantation of this project in a timely and efficient manner.

No	Comment Submitted	CAISO Response
	interconnection with PG&E by virtue of eliminating the originally-proposed double circuit 230 kV line between PG&E's Eight Mile and PG&E's Lockeford Substations. The City recommends clarifying this point on the one-line diagram for the Revised Project. Specifically, the City recommends that the one-line diagram be revised to show the new City-owned 230/60 kV substation and the City's load at the City's 230 kV bus connected to a new PG&E 230 kV switching station, both located on the current City-owned Industrial Substation site. In addition, the one-line drawing for the Original Project clearly showed the removal of the three PG&E- owned 60 kV lines currently connected to the City's Industrial 60 kV Substation, but the one- line diagram for the Revised Project mistakenly shows these three PG&E 60 kV lines as still connected. As it is the City's understanding that these three PG&E 60 kV lines will no longer be connected to the City's Industrial Substation after the City's load has been connected at the 230 kV bus of the new City-owned 230/60 kV substation, the City recommends that the one-line diagram be revised accordingly.	
	Regarding the point made in the February 8th CAISO presentation which states: "No regional (i.e. greater than 200 kV) transmission solutions recommended for approval are eligible for competitive solicitation," (CAISO Presentation at Page 12), the City questions the impetus of this decision as it might apply to the Revised Project. The City submits that the substantial change in scope from the Original Project to the Revised Project, particularly with respect to the need for a new right-of-way that will be required to build a six-mile long, double-circuit 230 kV line from Lockeford to the City's new Industrial 230/60 kV substation, is significant enough to warrant economic competition. For example, the November 30, 2017 Comments submitted by NEET West stated as follows:	ISO reviewed the original and revised scope of the project and considers that given that the original project was approved and assigned to PG&E consistent with the ISO's tariff at the time before FERC Order 1000-related changes came into effect, and that the need and the revised scope are not materially different as compared to the original project, the revised scope is not eligible for competitive solicitation.
	"To improve reliability and to mitigate thermal overloads within the Lodi and Lockeford area, NEET West proposed a new Lockeford-Industrial Reliability Project that consists of a new Lockeford-Industrial 230 kV Line and a new Industrial 230 kV bus with a new 230/60 kV Industrial Transformer. The preliminary project cost estimate for this project is $30 million which is very cost competitive when compared to other considered alternatives.	This project was reviewed by the ISO and it was determined that the proposal doesn't address all the reliability issues in the area.

No	Comment Submitted	CAISO Response
	Given PG&E's cost estimate of $95 million for the Revised Project, which would only add a one- mile 230 kV double-circuit line to loop-in the Brighten-Bellota 230 kV into Lockeford, the City submits that a competitive solicitation should not be dismissed out of hand. The City of Lodi is appreciative of the additional analysis the CAISO has invested in the Lockeford-Lodi 230 kV Development Project. The City supports the Revised Project as clarified by these comments, and would like to get the Project underway as soon as possible. However, to ensure that the Revised Project is done on as cost-efficient basis as possible, the City recommends competitive solicitation for the Revised Project.	

8. GridLiance West Transco LLC (GWT)
Submitted by: Noman L. Williams

No	Comment Submitted	CAISO Response
	GridLiance West Transco LLC (GWT) appreciates the opportunity to comment on the California ISO's Draft 2017-2018 Transmission Plan (Draft Plan). GWT supports inclusion of the S-Line Upgrade into the Draft Plan as an economically-driven transmission solution. However, GWT requests clarification on the process for selecting the PTO to develop this project. GWT is concerned that the ISO is presuming that an incumbent PTO has the right to develop upgrades to existing facilities owned by a non-PTO transmission provider. At page 251 of its Draft Plan, the ISO states that, "[a]s the project consists of upgrades to both IID's existing transmission line and the SDG&E-owned Imperial Valley substation, it is anticipated that SDG&E would fund the IID upgrades and retain the rights to the incremental transmission capacity." GWT does not question SDG&E's right to develop, construct and own the upgrades to its own Imperial Valley substation. But GWT is concerned that the ISO is taking the position that the ISO has the right to choose the entity that undertakes the upgrades to the IID-owned portions of the project. This issue is not limited to the 2017-2018 Draft Plan. There are a number of large transmission owners whose facilities are interconnected to the ISO, but who are neither members of the ISO nor PTOs. An incumbent transmission provider should retain the rights to control the upgrades to its own existing facilities and on its own existing rights-of-way. FERC's Order No. 1000 provides ample support for this conclusion. The ISO Tariff recognizes the rights of PTOs' to construct and own upgrades, improvements, additions, or replacements of a part of the PTOs' existing facilities. Logic and policy dictate that the inverse should also be true—that non-PTOs have the right to construct and own upgrades to their own existing facilities. The Tariff creates an obligation for a PTO to construct regional transmission solutions, in the absence of the ISO selecting an Approved Project Sponsor, if one end of the solution terminates in that PTO's service territory. However, nothing in the Tariff suggests that a PTO's right to build upgrades to its own facilities or its backstop obligation to construct new facilities can usurp a non-PTO transmission provider's rights to its own existing facilities and rights-of-way.	The ISO has not suggested it has the unilateral right to assign to a PTO an upgrade to a non-PTO's facilities. In cases where modifications to a non-PTO's facilities are required as part of a transmission upgrade, the PTO who has also been assigned upgrades as part of the project typically plays a logical and critical role in coordinating the upgrades with the non-PTO, as is the case here. Notwithstanding this typical arrangement, in this case IID retains the right to construct the upgrades to its existing facilities.

No	Comment Submitted	CAISO Response
	Failing to recognize the rights of non-PTOs to control their own facilities would result in unacceptable precedent. For example, it seems unlikely that Nevada Power, with respect to an upgrade required to solve an issue in the GWT territory, or any other non-PTO transmission provider, such as LADWP or SMUD, would cede rights to the interconnecting PTO to upgrade the non-PTO's facilities. GWT respectfully submits that the ISO should clarify that its Tariff and rules do not grant an incumbent PTO the right to construct upgrades to a non-PTO's existing facilities.	

9. Large-Scale Solar Association (LSA) Submitted by: Tim Mason		
No	Comment Submitted	CAISO Response
	LSA is concerned about the Plan's recommendation to cancel, modify or place on hold numerous previously approved transmission projects. In the Plan, 19 projects are recommended for cancellation, 19 additional projects have major scope changes, and six other projects are on hold pending reassessment in future cycles. LSA believes that it is premature to cancel and re-scope these projects, as they may be necessary when more relevant and currently planning criteria are applied. LSA has two primary concerns with cancelling, modifying and delaying these resources at this time. First, CAISO has provided inadequate consideration of the impact of these cancellation on potential generation in the interconnection queue, or generation with interconnection agreements that may be significantly impacted by the cancellations; and second, CAISO appears to have provided no consideration of the need for this transmission for the state to achieve either 50% RPS by 2030, or the need under the CPUC IRP's more recent standard of capping emissions from the electric sector to 42 MMT of carbon per year by 3020.	The ISO has conducted the reassessment of need in the 2017-2018 transmission planning process to determine if the project was still needed or whether to revise the project scope to mitigate reliability constraints. As indicated through the stakeholder meetings, the review also considered if there was existing generation or generation within the ISO generation interconnection queue were relying upon the previously approved transmission projects, and took this into account.
	Impact on Interconnecting Resources The plan states there is no longer a need for these resources based on current assumptions, but is silent on whether and how the cancellation and scope change of these projects will impact potential generators in the interconnection queue or those with interconnection agreements that are not yet delivering energy. Further, it is silent on how these cancellations will impact potentially Affected Systems assessments of new resources. There are currently numerous resources with interconnection agreements that have yet to be constructed or are awaiting upgrades to achieve their approved deliverability status. Interconnection studies conducted to assess the feasibility and deliverability for these resources must assume that CAISO-approved upgrades will be completed in order to accurately assess the resource deliverability and upgrade requirements. If the CAISO cancels transmission projects that were assumed in the studies, this may substantially impact the timing, cost and deliverability of	Please refer to response to 9a) above.

No	Comment Submitted	CAISO Response
	these resources. Lack of CAISO consideration of how these project cancellations will impact interconnecting resources undermines the credibility of the GIDAP and planning processes. Below are concerns that we have identified with some specific project cancellations or modifications, which we believe to be illustrative of issues with other projects that are cancelled or re-scoped. • Borden 230kV Voltage Support - While this project was not cancelled in this year's plan, it was considered with a revised scope that removed the need to install approx. 230 MVAR of reactive support at Borden Substation (PG&E Fresno Area). The 2017-2018 plan states that the need for additional reactive support is no longer required, but does not address how generation deliverability will be affected. The CAISO should clarify if this revised scope is expected to remove this project as a required TPP pre-cursor upgrade in the upcoming NQC Deliverability Studies. • Oro Loma-Mendota 115 kV Conversion - Previous deliverability studies assumed this project as an TPP upgrade requirement for several generation queued projects in order to achieve FCDS. The 2017-2018 plan states that the revised scope to remove this 115kV conversion project from the overall Oro Loma Area Reinforcement still meets sufficient reliability needs, but does not address relieving deliverability constraints. The CAISO should clarify if the revised scope is expected to remove this project as a required TPP pre-cursor upgrade in the upcoming NQC Deliverability Studies. • Gates-Gregg 230kV Line - With this project on hold for at least another two years and detailed renewable integration assessment to be conducted in the 2018-2019 TPP, the CAISO and PG&E should address if the original approved in-service date of December 2022 is still achievable if the project is found to be needed.	
	Affected Systems With these proposed cancellation of projects, especially in the PG&E Fresno Area, power flows and base case topology will change, potentially triggering	Please refer to response 9a) above.

No	Comment Submitted	CAISO Response
	Affected System restudies for projects that may have already met their obligations. While Affected Systems and Interconnection Customers understand restudies are normal part of the interconnection process, for queued projects that are currently in construction or expected to be online in 1-2 years, any changes or impacts to Affected System studies or mitigation obligations can have potentially negative effects that can delay COD's. While it's too early to assume any major impacts, the CAISO should be aware of potentially cascading effects of the Affected System process and requirements due to such a large number of cancelled transmission projects. This issue was recently addressed in the CAISO Business Practice Manual (BPM), as a result of BPM Proposed Revision Request (PRR) 1027. In that, the CAISO modified BPM Section 4.12.2.3(e), Other Transmission Plan Information, to expressly require this consideration. Updates on the status of transmission solutions previously approved by the CAISO, including identification of mitigation plans, if necessary, to address any potential delay, hold or cancellation in the anticipated completion of an approved transmission upgrade or addition; LSA strongly believes that this updated standard should be applied in this Transmission planning cycle. If the CAISO did consider these generation impacts, then it should explicitly so state. (That has been a long-standing LSA proposal, including a proposed feature in PRR 2017.)	
	Impact of cancellations on achieving 50% RPS or GHG targets in IRP The 2017-2018 plan recommendations are premised on the 33% RPS requirement starting in 2020, rather than the target of 50% in 2030 required by CA SB 350 (2015) legislation, or the new standard, adopted by the CPUC in its recent IRP, that would limit GHG to 42 MMT by 2030. While LSA appreciates that the CAISO has not yet been provided the data and assumptions necessary to develop a transmission plan to achieve the 50% RPS requirement, we strongly feel that the CAISO should not recommend the cancellation of these projects in the 2017-2018 Transmission Plan until it has fully assessed their need and value in light of the increased RPS standard.	The CPUC has not provided portfolios that are actionable to develop policy-driven transmission development for the 50% RPS or 42 MMT scenarios. The CPUC will be providing a 42 MMT scenario in the 2018-2019 transmission planning process as a sensitivity study in the Policy Assessment.

No	Comment Submitted	CAISO Response
	The 50% standard is current California law, and the 42 MMT carbon standard adopted by the CPUC is state policy. The transmission requirements necessary to achieve the newer standards are likely to be greater than the requirements to achieve the 33% RPS requirement. It is very likely that some or all of these lines will may be necessary to achieve the 50% RPS standard, and it would be short-sighted to cancel these projects now only to re-activate these projects once a comprehensive 50% RPS study has been completed.	
	Recommendation for Board Action LSA recommends the CAISO Board place all the cancelled or modified projects on hold for a year, until it has fully vetted the necessity of these projects using the 50% RPS criteria and the CPUC-adopted IRP criteria of 42 MMT of carbon emissions in its 2018-2019 Transmission Plan.	As a part of the assessment, the ISO has reviewed if there are any impacts to generation deliverability for existing or queue projects and after confirming that there are no impacted existing or queued generation projects affected by the identified projects, is recommending the cancelation and revised scopes of the identified projects.

10. NextEra Energy Transmission, LLC (NEET West)
Submitted by: **Edina Bajrektarević**

No	Comment Submitted	CAISO Response
	NEET West appreciates CAISO's re-evaluation of the Lockeford – Lodi area thermal and voltage project need (2012-13 vs. 2017-18), but the project should be open for competitive solicitation due to the significant scope change from the project that was originally approved in the 2012-2013 TPP. The CAISO approved the Eight Mile - Lockeford 230 kV Project in the 2012-2013 TPP. At the time, the project was needed to help mitigate thermal and voltage performance issues in the Lockeford, Lodi, and Industrial 60 kV pocket. The project was submitted in the 2012 open request window and included construction of a new 230 kV double circuit transmission line from the Eight Mile substation to the Lockeford substation, with a new 230 kV bus at Industrial that would allow the new line to be looped into Industrial. The project was also supposed to include a new 230/60 kV transformer at Industrial to serve the 60 kV system. The project cost, at the time of submittal was $80-$105M. The CAISO 2012-2013 TPP report lists the following regarding the Eight Mile - Lockeford 230 kV Project: *This project addresses all reliability issues identified in the Lockeford/Lodi 60 kV system. The ISO determined that the new Eight Mile - Lockeford 230 kV double circuit tower line project as needed to address thermal overloads and voltage concerns in the Lockeford/Lodi 60 kV system.* In addition to addressing the reliability needs in the area, this solution will complete a 230 kV loop around the city of Stockton and facilities connection of future load and generation development in the area. However, due to change in the load forecast and increase in the cost estimate, in 2017-18 TPP cycle CAISO opened for consideration number of different alternatives including building a Lockeford – Industrial 230 kV project. Following PG&E's petition on March 10, 2016, the CAISO conducted a review of all previously approved projects in the 2016-2017 Transmission Plan (March 2017, Section 2.5.9), which was primarily by changed assumptions like load forecast. The CAISO's review indicated that the Lockeford - Lodi needed further	Please refer to the response to the City of Lodi, above.

No	Comment Submitted	CAISO Response
	evaluation and the CAISO recommended that PG&E not proceed with filings for permitting and certificates of public convenience and necessity. As a result of the need for further analysis, the CAISO's 2017-2018 Final Study Plan states that "Projects with potential significant scope change will not be modeled in the starting base case" 1 for the current TPP. Without the Lockeford - Lodi project modeled in study base cases, the 2017-2018 Preliminary Reliability Assessment Results (August 15, 2017) list a significant number of reliability problems in the Central Valley Area, in particular the area of Lockeford, Industrial, and Lodi. It appears that the Lockeford - Industrial 230 kV Project proposed in the draft transmission plan has not been previously approved because it includes a significant scope change from the previously- approved Eight Mile - Lockeford 230 kV Project. We urge the CAISO to release the Lockeford- Industrial 230kV project for competitive solicitation. The Eight Mile - Lockeford 230 kV Project was included the 2012-2013 TPP, and therefore grandfathered under pre-Order 1000 competitive transmission rules, based on FERC's approval of CAISO's request that the Order 1000 rules become effective for the 2013-2014 transmission planning cycle. *California Independent System Operator Corporation*, 143 FERC ¶ 61,057 (2013). Each transmission planning cycle consists of several phases, and steps within those phases. Following the creation of the Unified Planning Assumptions and Study Plan in Phase I, Phase II requires the performance of technical studies and other assessments necessary to develop the comprehensive Transmission Plan. The CAISO technical study results "will identify needs and proposed solutions to meet Applicable Reliability Criteria, CAISO planning standards, and other applicable planning standards." CAISO Tariff, sec. 24.4.1. Each transmission planning cycle thus has its own identification of needs. The need identified in the 2012-2013 cycle, described further below, is different than the current need in the region, summarized below. This is no longer the same need, and the project identified as the solution in the 2012-2013 cycle likewise is no longer the same. As a result, the project should not be deemed grandfathered under Order 1000, and should instead by subject to the competitive process.	

<table>
<tr><th>No</th><th>Comment Submitted</th><th>CAISO Response</th></tr>
<tr><td></td><td>NEET West proposed the following 230 kV transmission solution in lieu of the Eight Mile-Lockeford 230 kV project from the 2012-2013 TPP that CAISO indicated was in need of further evaluation.
• A new Lockeford – Industrial 230 kV Line (6 miles, 400 MVA Emergency)
• A new Industrial 230 kV bus with a new 230/60 kV Industrial Transformer (170 MVA)

The estimated cost of the proposed Lockeford – Industrial 230 kV system is $30 Million in 2017 dollars.

The Lockeford - Industrial project improves the reliability of the Lodi, Lockeford, Industrial. Specifically, the project addresses the following P6 overloads identified in the 2027 Summer Peak
cases:
Table 1: Limiting Contingencies
<table><tr><th>Contingency</th><th>Category</th></tr><tr><td>LODI-INDUSTRIAL & LOCKEFORD-INDUSTRIAL 60 kV</td><td>P6, N-1-1</td></tr><tr><td>LOCKEFORD-LODI #2 & LOCKEFORD-INDUSTRIAL 60KV</td><td>P6, N-1-1</td></tr><tr><td>LODI-INDUSTRIAL & LOCKEFORD-LODI #2 60KV</td><td>P6, N-1-1</td></tr></table>The Lockeford - Industrial 230 kV project recommended by CAISO for board approval in the draft 2017-2018 TPP is a significant scope change from the original Eight Mile - Lockeford 230 kV project from the 2012-2013 TPP. The Lockeford and Lodi area 60 kV lines were identified with existing overloads under various category C contingency conditions in the 2011-2012 (and 2012-2013) transmission plan. Additionally, the Lockeford 230/60 kV transformer #2 and #3 were also expected to overload starting in 2018 under category C events. At that point in time, the Mosher substation (50 MW load) was also a concern that required a mitigation plan to prevent load curtailment under single contingency events. As described in the 2011-2012 Transmission Plan, the mitigation solution recommended by the City of Lodi included the following scope:

• Construct a 230 kV Double Circuit Transmission Line from Eight Mile substation to Lockeford substation;</td><td></td></tr>
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No	Comment Submitted	CAISO Response
	• Construct a new 230 kV bus at Industrial substation and loop one of the new Eight Mile- Lockeford 230 kV lines into this bus. The Lockeford-Industrial 230 kV project, as proposed in the 2017-2018 TPP, eliminates the Eight Mile-Lockeford transmission line and replaces it with a Lockeford-Industrial substation. The revised scope also includes a loop in of the existing Bellota-Brighton 230 kV line into Lockeford substation. The loop of the Bellota-Brighton 230 kV line can be independently constructed and owned by PG&E, while the new Lockeford-Industrial 230 kV line can be constructed and owned independently through the competitive solicitation process. This proposal results in fewer miles of new 230 kV transmission line and will address the same reliability issue at a significantly lower cost. NEET West requests that the CAISO release the Lockeford-Industrial 230 kV line for competitive solicitation. Allowing significant scope changes on bulk transmission projects without requiring a competitive solicitation process favors incumbent PTOs by enabling a lower voltage project ineligible for competition to be revised to a high voltage project that would otherwise have been open to competition. Furthermore, allowing significant scope changes without a competitive solicitation process potentially exposes CAISO ratepayers to higher costs. Requiring significant budget and system topology scope changes to undergo the competitive solicitation process will ensure that the lowest-cost alternative is being selected.	
	NEET West requests that CAISO re-examine the proposed Lopez – Divide 500/230 kV transmission project in this cycle and not dismiss the solution. PG&E's Midway-Andrew Project was approved in the 2012-13 TPP to address P2, P6 and P7 reliability concerns. The estimated project costs have increased from the original proposal of $120-$150M to approximately $414M. The project was subsequently put on hold by the CAISO in the 2016-17 TPP to determine whether the need was still present under the current load forecast, as well as to evaluate potential reduced or revised project scopes. The Midway-Andrew project was not modelled in the 2017-18 TPP CAISO's base cases. NEET West submitted the Lopez – Divide project in the 2017-2018 request window. The	The ISO will continue to assess the alternatives of the Midway-Andrews project in the upcoming planning assessment.

No	Comment Submitted	CAISO Response
	CAISO's 2017-2018 TPP assessment concluded that a transmission project is needed for the area to relieve overloads resulting from P2, P6 and P7 outages. To improve reliability by mitigating thermal overloads and voltage excursions within the Central Coast/Los Padres (Morro Bay, Mesa) (CCLP) area[1], NEET West submitted a lower cost transmission alternative to the PG&E's Midway – Andrew 230 kV project with an estimated cost of $100M. The current in-service date for the Midway – Andrew 230 kV project was estimated at 2025, which matches other alternatives considered in the draft 2017-18 TPP. The recently-proposed Lopez-Divide project consists of a new Lopez 500 kV ring bus to loop into the Diablo – Midway #3 500 kV line, a new 230 kV substation at Lopez and a new 230 kV Divide bus, a new 24-mile 230 kV transmission from Lopez substation to Divide substation, and Lopez 500/230 kV and Divide 230/115 kV transformers. NEET West's studies indicate the Lopez-Divide project resolves the same potential overloads to the CCLP system identified in this year's Preliminary Reliability Assessment that are resolved by the Midway-Andrew Project. However, the Lopez-Divide project has a much lower cost. The solution represents a low cost, lower environmental impact, and robust solution for the PG&E Central Coast and Los Padros area. The project also eliminates the significant reliance on the Mesa/Santa Maria RAS and Divide RAS. Furthermore, CAISO's evaluation of the project in 2017-18 TPP also confirmed that this project addresses all the post contingency thermal and voltage collapse issue for P5, P6, and P7 category contingencies. The draft TPP stated that the project does not comprehensively resolve the reliability needs of the area, which is an accurate assessment. However, NEET West found that none of the current TPP proposed alternatives are comprehensive and, like the Lopez-Divide proposal, all other solutions also require additional minor system upgrades in order to resolve all reliability concerns. NEET West respectfully requests that the CAISO completes the comprehensive evaluation of the NEET West Lopez - Divide project in 2017-18 TPP as a replacement for the Midway – Andrew Project.	

No	Comment Submitted	CAISO Response
	NEET West performed a high-level review of the two alternatives listed in the 2017-18 TPP, which included a new line from the existing Midway-Diablo to Mesa or a new Andrew substation. The proposed alternatives will require additional upgrades in order to resolve all reliability concerns: • Loss of the Mesa 230/115 kV transformers. o This outage will sever the tie between the 230 kV system and 115 kV system at Mesa, therefore the TPP proposed alternative for a new line into the Mesa 230 kV bus will not provide relief to the system. • Loss of Mesa Sections 1D and 2D. o This outage also severs the tie between the 230 kV bus and 115 kV bus at Mesa. Therefore, a new 230 kV line into the Mesa 230 kV bus will be lost with the contingency. The NEET West Lopez Divide proposal will only require loss of approximately 10 MW of post contingency load, while the TPP proposed alternative into Mesa would require 270 MW of load. • Loss of Divide-Mesa and Divide-Cabrillo. o A new Midway-Diablo to Mesa, a new Midway-Diablo to a new Andrew substation, and the NEET West Lopez-Divide will all need to include additional mitigation measures to resolve this overload. NEET West strongly recommends that Lopez – Divide 500/230 kV transmission proposal is examined more closely in this transmission planning cycle. The project is estimated by NEET West to cost $100M in 2017 dollars with an estimated in-service date of 2023. Like other alternatives listed in the Draft TPP, this project will need to be part of a comprehensive plan that may include multiple components to address all reliability concerns in the area.	

11. North Gila Imperial Valley #2, LLC (NGIV2) Submitted by: Brenda Prokop		
No	Comment Submitted	CAISO Response
	As an initial matter, we are encouraged that the CAISO is including the economic benefits of Local Capacity Requirement (LCR) reductions in evaluating and recommending projects for approval in the Transmission Plan. We reiterate here the comments provided in previous planning cycles supporting the inclusion of LCR reductions in the evaluation of proposed projects and applaud the CAISO for taking the steps to do so here. We look forward to seeing the full range of economic benefits, including LCR reductions, evaluated for future transmission projects, including NGIV2.	The comment has been noted.
	On the recommendation of the S-Line upgrade for approval in the 2017-2018 transmission plan, we note that this upgrade has been proposed by the Imperial Irrigation District (IID) for nearly 15 years, and was documented in 2005 as a component of the Imperial Valley Study Group's phased approach to improve reliability for the IID Balancing Authority and increase outlet for renewable energy resources connected to the IID transmission system. We understand the need for and support the proposed S-Line Upgrade Project. However, comments previously provided by IID during the Western Electricity Coordinating Council (WECC) Path Rating Process for the NGIV2 transmission line indicated that the S-Line upgrade, along with other previouslyapproved IID projects included in the WECC base cases, is no longer needed. Based on these comments from IID, who is a member of the NGIV2 Project Review Group, the NGIV2 project sponsors are in the process of pursuing an increase in the Path 46 Accepted Rating without the SLine upgrade in the study model. We have not been advised by IID that the S-Line upgrade is again part of the IID plans, and would request evidence of support for the upgrade to include in our Path 46 Phase 2 Rating Study. [As noted above, IID is a member of our Project Review Group.] Nevertheless, we are confident based on preliminary analysis that the two projects together would provide reliability, LCR and other economic benefits far in excess of those provided by the S-Line upgrade in isolation. Loss of the existing North Gila to Imperial Valley line isolates the San Diego area from the 500kV system east of the Imperial Valley substation. The S-Line upgrade would temporarily relieve congestion, allowing San Diego Gas &	The ISO transmission plan should be considered sufficient evidence. However the NGIV2 project is encouraged to request an update from IID as well.

No	Comment Submitted	CAISO Response
	Electric (SDG&E) increased access to resources in the IID area. However, without the NGIV2 project, the S-Line is a temporary solution that alleviates only some of the congestion in this area. The combination of both projects would provide long-term reliability improvement, further increase the LCR benefits, and offer more complete congestion relief for the southern region. The NGIV2 Project Review Group, Arizona Public Service (APS), SDG&E, CAISO, IID and others are actively reviewing the Study Plan and base cases as part of the Phase 2 analysis of the WECC Three Phase Path Rating Process. We expect to achieve a WECC Accepted Rating by the end of 2018. We are also coordinating closely with SDG&E to perform a series of joint studies of NGIV2 and SDG&E's proposed Renewable Energy Express Transmission Project (REX) to explore possible capital cost, operational, and system optimization synergies between the two projects that may result in an improved benefit/cost ratio. In summary, addition of the NGIV2 project with the interconnection to the IID Highline 230kV substation improves reliability for the region, reduces LCR and renewable resource curtailments, and relieves congestion for a larger area and for a longer time than the S-Line upgrade alone. The NGIV2 project will also increase the Path 46 rating by an incremental 1,250 MW.	The economic purpose of the upgrade to the S-Line is to alleviate the transmission contingency overload on the S-Line—it is not for increasing access to resources in the IID area. Adding the NGIV2 project would reduce the impedance of the transmission system between North Gila and Imperial Valley Substations, and would therefore incrementally increase flows from Arizona through the San Diego area transmission system. In previous planning studies, the ISO has recommended that the series capacitors on the 500 kV lines between North Gila, Miguel and Suncrest Substations be bypassed to increase the impedance west of North Gila Substation, and result in reducing flows from Arizona through the San Diego area transmission system. This reduction in flows mitigated several reliability concerns on that transmission system. Adding the NGIV2 project would tend to result in the return of several of the previously mitigated reliability concerns.

12. NRG Energy, Inc (NRG) Submitted by: Brian Theaker		
No	Comment Submitted	CAISO Response
	NRG submits these comments on the CAISO's proposal to approve the proposed Pardee-Moorpark 230 kV line 4 ("Pardee-Moorpark Line 4"). The Pardee-Moorpark Line 4 project is not new. It was proposed by Ron Calvert, Senior Power Systems Engineer at Utility System Efficiencies, Inc. on behalf of the Calpine Corporation ("Calpine", an independent power producer competitor of NRG's) in the California Public Utilities Commission's ("CPUC's") 2012 Long-Term Procurement Planning ("LTPP") rulemaking (R.12-03-014). Regional Transmission Manager Robert Sparks, on behalf of the CAISO, submitted testimony responding to Calpine's proposal. In specifically advocating for building 430 MW of generation within the Moorpark sub-area, the Sparks Sur-rebuttal noted: > Mr. Calvert's options are not compelling enough to put the procurement process in the Moorpark area on hold. As I have explained, the ISO identified a solution similar to Option 1 [the Vincent-Santa Clara Loop-In project] but did not find it to be the superior alternative. The ISO continues to believe the reliability and operational benefits of having 430 MW out of the existing 1946 MW OTC generation replaced in the Moorpark area will ensure that the overall changes to the operation of the Moorpark area and the Southern California transmission system are moderated and unforeseen consequences in the form of adverse impacts on the transmission system operation are minimized.3 To reiterate, in 2012, the CAISO testified that locating 430 MW of generation within the Moorpark sub- area was the best alternative – even preferable to a fourth Pardee- Moorpark line – for meeting local capacity requirements in that sub-area. On the basis of the CAISO's testimony and other testimony, the CPUC authorized the Southern California Edison Company ("SCE") to procure between 215 and 290 MW of generation within the Moorpark Sub-area. SCE conducted a competitive solicitation and awarded NRG's 262 MW Puente project a contract. The CPUC approved SCE's contract with Puente in Decision 16-05-050, issued on June 1, 2016.	The ISO continues to acknowledge that local non-use-limited resources in the Moorpark area would result in a more resilient transmission and resource supply for the area than the Pardee-Moorpark #4 230 kV circuit. However, the additional transmission circuit meets the reliability need and the estimated cost of the alternative local resources now under consideration have substantially increased. As a result, the transmission circuit alternative is now the preferred option.

No	Comment Submitted	CAISO Response
	In 2017, in the California Energy Commission's licensing proceeding for Puente, the CAISO made an unsolicited offer to conduct a study to assess the feasibility of preferred resource alternatives to the Puente project. In the CAISO's alternatives analysis, published on August 17, 2017, the CAISO identified that long-duration battery storage projects could displace the Puente project. The CAISO's analysis specifically declined to comment on the cost, timing or feasibility of procurement of the alternative resources. On September 29, 2017, however, the CAISO sent a letter to the California Energy Commission indicating that the only way to establish the feasibility of the preferred resource alternatives was to conduct a new competitive solicitation. In that letter, the CAISO asserted there was adequate time to conduct a new solicitation and operationalize new preferred resources before Summer 2021. On October 5, 2017, California Energy Commissioners Janea Scott and Karen Douglas, citing the CAISO's September 29, 2017 comments, issued a statement indicating their intent to reject Puente and to consider "feasible alternatives". On January 11, 2018 the CAISO held a web conference on two transmission projects newly proposed in the 2017-2018 Transmission Planning Process – one of which was the same Pardee-Moorpark Line 4 project originally proposed by Calpine and rejected by the CAISO in favor of local generation in the 2012 LTPP. At a February 8, 2018 2017-2018 Transmission Planning Process meeting, the CAISO recommended the approval of the Pardee-Moorpark Line 4 project. The CAISO's recent support for the Pardee-Moorpark Line 4 is in direct contrast to the CAISO's prior support for meeting the Moorpark sub-area need with local generation. To the extent that the CAISO's present support for Pardee-Moorpark Line 4 hinges on its discomfort with the increased operational complexity associated with preferred resources meeting the local sub-area need – it bears noting that the CAISO is largely, if not solely, responsible for	

No	Comment Submitted	CAISO Response
	demonstrating that preferred resources can meet the local sub-area need and for representing that preferred resources can be secured in a timely fashion to meet the local rea need. Now, with SCE poised to conduct the preferred resource solicitation for which the CAISO advocated, the CAISO is instead advancing a transmission alternative that it originally rejected. Pardee-Moopark Line 4 *will not* enhance the reliability of this sub-area. Pardee-Moorpark Line 4 *will* allow the CAISO to eliminate the sub-area requirement for local generation, but it will do nothing to enhance the ability to reliably serve load in this sub-area in the event the Pardee-Moorpark transmission corridor is compromised by fire, as happened in December 2017. By eliminating the need to maintain local generation in the Moorpark sub-area, the CAISO will expose this sub-area to involuntary load shedding in the event this transmission corridor is compromised, reducing the reliability of service to load in this sub-area. The CAISO is not required by transmission planning standards to plan for something of this scope (*i.e.,* the loss of this corridor to fire), even if that event has already happened. The CAISO, however, was similarly not required to take steps to enhance the reliability of service to load in San Francisco to mitigate the earthquake-induced loss of an entire substation, but felt it prudent to invest in transmission upgrades to do so. For the Moorpark sub-area, the CAISO, as it did in San Francisco, could act to maintain or improve the reliability of service to load in this sub-area, but, by electing to move forward with a transmission alternative instead of local generation, is choosing not to do so. In light of the CAISO's actions to first support local generation to meet the sub-area need, followed by its recent reversal to now support a transmission alternative that it initially opposed, before the CAISO moves forward with this transmission project the CAISO should fully explain and justify the actions it has taken with regards to the Moorpark sub-area over the past six years and how those actions will ensure the most reliable and cost-effective electric service within the Moorpark sub-area.	Please see response above to California Energy Storage Alliance.

13. Office of Ratepayer Advocates (ORA)
Submitted by: Kanya Dorland

No	Comment Submitted	CAISO Response
	1. ORA Recommends Revisions to the Transmission Economic Assessment Methodology (TEAM) Documentation A. Revisions to the Local Capacity Requirement Benefit Analysis The TEAM is used to determine the benefits of proposed economic and policy transmission projects. This methodology considers a project's ability to reduce the Local Capacity Requirement (LCR) for a given project area. Specifically, the analysis determines whether or not a proposed project can improve the importing capacity into a LCR area. TEAM also determines if proposed projects can have additional local capacity benefits such as decreasing transmission losses and increasing generator deliverability into local areas. As part of the LCR studies for proposed transmission projects, ORA requests that the CAISO consider alternatives to reducing the LCR through preferred resources such as demand response in its LCR benefits analysis. This information would assist with determining the LCR benefits for a given project as compared to alternatives. ORA also requests that the TEAM document include an illustration of the LCR benefits evaluated. Such an illustration should include the assumptions made in the valuation of LCR reduction benefit, such as the price for the local capacity and the share of overall capacity savings allocated to the LCR benefit.	As described in ISO's updated TEAM document, capacity benefit including local capacity benefit needs to be assessed on a case-by-case basis. While the TEAM document provided general approach for assessing capacity benefit, the details of such assessment for specific projects are provided in Transmission Plan..
	B. Inclusion of Sub-regional Benefits from Transmission Projects As stated in ORA's November 30, 2016 comments on the TEAM update, the CAISO should consider the benefits that new transmission projects might generate in the project's sub-region. The economic activity associated with new transmission projects is not incidental; it directly benefits related local businesses and contributes to the economy of a sub-region. Accurately attributing these benefits is critical to comply with Federal Energy Regulatory Commission (FERC) Order No. 1000, which requires that project cost allocations be commensurate with benefits. For this reason, ORA continues to support estimating the sub-regional benefits from new transmission projects such as job and tax base increases among the TEAM benefits assessed for project cost allocations.	Consistent with the ISO's response to the ORA's November 30, 2016 comments, in the context of the ISO's current footprint and its FERC Order 1000 regional tariff and interregional coordination process (in which the ISO footprint is a single region, and we interpret the ORA's use of sub-region" to refer to TAC areas) the ISO is not considering using TEAM to redefine cost responsibility for high voltage transmission among different parties within the ISO footprint, and furthermore does not consider relying on non-electric industry benefits such as perceived social benefits is a viable way to rationalize economic-driven projects or cost allocation of interregional projects, or revisit current cost allocation

No	Comment Submitted	CAISO Response
	Going forward, the CAISO should include estimates of job and tax base increases as variables in the TEAM analysis to account for all economic benefits resulting from new economic transmission projects. After a project is completed, these job and tax base estimates can be confirmed, and the project benefits can be recalculated for cost allocation purposes. It is common practice to include job and tax base increases as part of the overall project benefit analysis for large public projects such as highways, airports, and port terminals.	of regional projects. The basis for considering economic-driven projects is set out in section 24.4.6.7 of the ISO tariff.
	2. ORA Recommends Consistency Between Local Capacity Technical Criteria and Transmission Planning Standards The proposed Moorpark-Pardee 230 kilovolt (kV) No. 4 Circuit project in Southern California Edison Company's (SCE) service territory raises concerns regarding consistency between the existing criteria and standards that trigger transmission investments. As explained during the CAISO's February 8, 2018 presentation, the Moorpark-Pardee project is necessary to replace the retirement of once through cooling (OTC) generation in the SCE area. The retirement of this OTC generation in the Moorpark-Pardee area results in a reliability deficiency based upon the Local Capacity Technical Study Criteria5 for the area. Yet, as the Bay Area Municipal Transmission group (BAMx) has pointed out, the critical contingency associated with the retirement of the slated OTC generation exceeds the performance requirements contained in the North America Electric Reliability Corporation (NERC), the Western Electricity Coordination Council (WECC) and the CAISO transmission planning standards. As a result of the difference between these two sets of criteria, areas that need local generation are being planned to a higher standard than other areas of the system. The reasonableness of such a difference was not adequately addressed in the CAISO's response to stakeholder comments. Due to critical timelines, ORA does not object to the proposed Moorpark area transmission upgrade. However, with more OTC generation expected to retire, ORA recommends that the CAISO consider a stakeholder discussion on the LCR criteria to determine if either these criteria or the CAISO Planning Standard should be amended so they are more aligned with each other.	Please refer to the response to BAMx above.

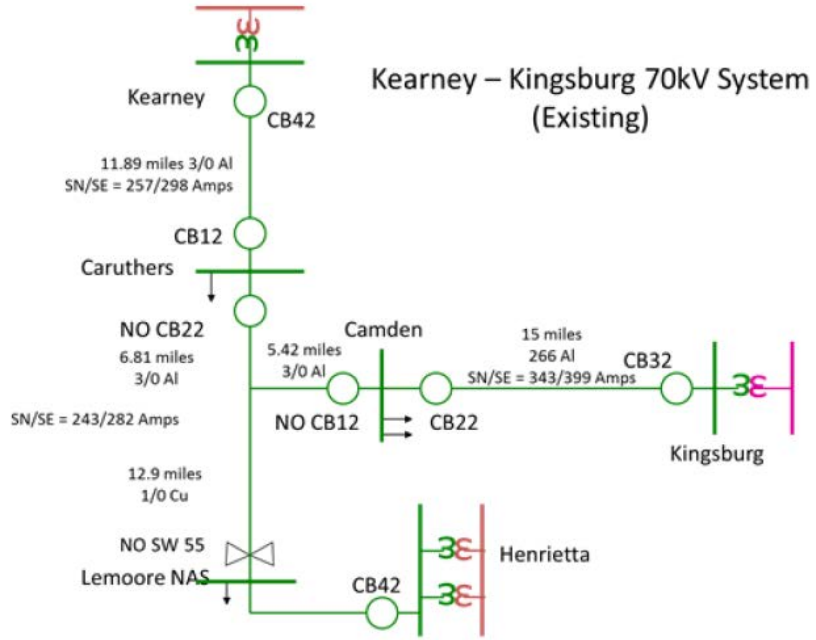
No	Comment Submitted	CAISO Response
	3. ORA Recommends Refinements to the Deliverability Assessment Methodology The CAISO will start a stakeholder process to consider revisions to the deliverability assessment methodology in 2018. The CAISO intends to revise its deliverability methodology to both "award full capacity deliverability status for local and system capacity purposes, and to assess the deliverability in transmission and planning studies." The CAISO is pursuing this revision in response to the shift in the evening peak to later hours and greater levels of renewable generation on the grid. ORA supports considerations of these revisions and recommends that the CAISO refrain from approving any Delivery Network Upgrades in either the TPP or the Generator Interconnection and Deliverability Allocation Procedures (GIDAP) until this issue has been resolved.	The comment has been noted.
	4. ORA Supports Putting the Midway-Andrew Project on Hold or Cancelling it The Midway-Andrew Project is among the six projects that the CAISO recommends putting on hold in the Northern area of the CAISO-controlled grid. As stated in ORA's November 30, 2017 comments on the Midway-Andrew Project, ORA generally supports further analyses of the Midway-Andrew project to determine if it is still necessary. This analysis should consider the existing transmission lines in the project area and their ability to solve reliability issues that may still exist after the retirement of the Diablo Canyon Power Plant. As noted, there are a number of 500 kV lines and 230 kV lines in the Diablo Canyon-Midway-Andrew project area that may be under-utilized or experience lower demand after the retirement of the Diablo Canyon Power Plant. ORA recommends that any additional presentations on this project and its analysis include the current cost estimates and Benefit Cost Ratio (BCR) calculations for the project and the proposed alternatives. ORA is making this request because the Midway-Andrew project costs have increased since presented in 2012. To illustrate, Pacific Gas and Electric Company's (PG&E) original cost estimate for the Midway-Andrew project from the 2012-2013 TPP was $120 to $150 million. The project cost estimate in a 2016 FERC filing and in 2017 PG&E Assembly Bill (AB) 970 reports ranges from $215 million to $414 million and up to $700 million. This broad range of cost estimates makes it difficult to assess the value of removing the existing Special Protection System	The ISO will continue the assessment of alternatives of the Midway-Andrew project in the upcoming planning cycle.

No	Comment Submitted	CAISO Response
	from the project area and proceeding with the Midway- Andrew project as proposed. While the Midway-Andrew project is on hold, ORA recommends that PG&E not conduct any engineering design or environmental studies to support this project to avoid accruing any unnecessary costs for a project that may later be cancelled.	
	5. ORA Recommends Canceling The Gates-Gregg 230 kV Line Project The Gates-Gregg 230 kV line project is also among the six projects that CAISO recommends be put on hold in the Northern area of the CAISO controlled grid.17 As stated in ORA's November 30, 2017 comments on the CAISO 2017-2018 TPP, ORA recommends canceling the Gates-Gregg project as soon as possible to avoid incurring any unnecessary carrying costs. The cost of this project has increased significantly since approved in the 2012-2013 TPP from $145 million18 to $200 million in 2017.19 With this cost increase, the BCR threshold for this project may no longer be met. ORA recommends that future presentations on this project and other projects under evaluation include the BCR calculations to confirm the value of presented projects as updated information becomes available.	The ISO will continue to assess the need and benefits of the Gates-Gregg project in the upcoming planning cycle.

14. Pacific Gas & Electric (PG&E) Submitted by: Matt Lecar		
No	Comment Submitted	CAISO Response
	PG&E Local Areas (Chapter 2.5) <u>Humboldt</u> Bridgeville- Garberville #2 115 kV line -- In reviewing the scope identified by the CAISO, the cost presented does not include a portion for "reconductoring 3.81 miles of the Humboldt – Rio Dell Jct line from Tower 11/4 –to- 15/5 (Eel River Jct to Newburg)". Accounting for this additional element, the cost for the revised scope should be updated to $72M with an expected in-service date of 2025. With such high cost and timeline for this revised alternative as well as the original project, PG&E recommends a further and more comprehensive evaluation of this project to identify other, potentially more cost-effective options to comprehensively mitigate the reliability issues in this local area.	The ISO has recommended that the Bridgeville-Garberville 115 kV project be on hold in the Revised Draft 2017-2018 Transmission Plan.
	<u>Central Valley Area</u> Vaca-Davis Voltage conversion Project – PG&E requests CAISO to please specify what 115 kV lines should be re-rated in the Davis area as a result of this project being re-scoped. In addition, due to the potential need for permits/agency approvals, PG&E expects an in-service date of 2023.	The following lines in the Davis area are recommended to be re-rated. In addition to the re-rate, any other limiting elements should also be removed so that the lines achieve ratings the same as the conductor rating: - Woodland – Davis 115 kV line - Rio Oso – West Sacramento 115 kV line The change in the in-service date has been updated in the Revised Draft 2017-2018 Transmission Plan.
	<u>Greater Bay Area</u> Morgan Hill Reinforcement Project -- PG&E agrees with the re-scoping of this project to rebuild Metcalf-Green Valley 115 kV into the Green Valley - Morgan Hill 115 kV Line. However, this project may trigger the need for a Permit to Construct from the CPUC. Should a PTC be required, PG&E will not be able to meet a May 2021 in-service date. An in-service date of May 2023 would be expected. Oakland Clean Energy Initiative (OCEI) -- PG&E appreciates the CAISO's recommendation to approve PG&E's OCEI proposal, including transmission upgrades, in-front-of-the-meter energy storage, and procurement of additional	The ISO recommends keeping the May 2021 in-service date until such time as it is known that a PTC is required for this project and then update the expected in-service date at that time. Comment noted.

No	Comment Submitted	CAISO Response
	preferred resources via a competitive solicitation. PG&E believes this innovative portfolio solution will cost-effectively address local reliability needs in the Oakland area and should, once all solutions are in place, allow for the termination of the Reliability Must-Run (RMR) Agreement and orderly retirement of the aging Dynegy-Vistra Oakland Power Plant. PG&E continues to review with Alameda Municipal Power (AMP) and the Northern California Power Agency (NCPA) the Operating Agreement (OA) that allows for use of the Alameda load transfer for meeting local area contingencies. We look forward to addressing AMP and NCPA's needs in a mutually agreeable fashion.	
	SVP's Request Window Submittal for NRS-Scott No. 2 115 kV Line Reconductor -- PG&E agrees with the reliability need for the NRS-Scott No. 2 115 kV Line Reconductoring, but notes that its inclusion for approval in the Plan should not predetermine the Participating Transmission Owner's cost responsibility for the project. The party responsible for the costs of the project is in dispute and depends upon the resolution of issues in an active FERC proceeding (Docket No. ER17-1735-000, ER17-1750-000). In October, Silicon Valley Power (SVP) submitted a request to the CAISO that proposed reconductoring the NRS-Scott No. 2 115 kV Line. Their submittal proposed expanding the scope of the NRS-Scott No. 1 Line Reconductoring Project to also include the No. 2 Line, since several outage contingencies studied in the 2017-2018 Transmission Planning Process assessment showed overloads on the No. 2 Line. The CAISO's Appendix B discusses their assessment results on the NRS-Scott No. 2 Line: "Category P3 contingency overloads were identified on the NRS-Scott #2 115 kV line in all summer peak cases and sensitivity studies." PG&E's system assessment studies also showed overloads on the NRS-Scott No. 2 Line, and PG&E agrees that there is a need to reconductor the No. 2 Line as recommended by SVP in their request window submittal. The reason why the 2017-2018 assessment studies are now showing potential overloads on the No. 2 Line in all summer peak cases is that this year's assessment base cases	The Revised Draft 2017-2018 Transmission Plan reflects the ongoing FERC proceeding with respect to the cost allocation for this project.

No	Comment Submitted	CAISO Response
	modeled SVP's current project to upgrade equipment at NRS, which will allow bus-sectionalizing circuit breaker 392 at NRS to operate in a normally closed position. With circuit breaker 392 normally closed, the loadings on the No. 2 Line increase, and overloads for several contingencies now appear. Base cases in past assessment studies did not model this current project. Circuit breaker 392 was modeled as normally open, which results in significantly lower loadings on the No. 2 Line, and no overloads show up for these same contingencies.	
	<u>Greater Fresno Area</u> Oro Loma 70 kV Area Reinforcement -- It appears there is an error on the "current estimated cost" for original scope in the Draft Plan. PG&E requests that CAISO please update the estimate to $167M. In addition, due to the potential need for permits/agency approvals, PG&E expects an in-service date of 2024. Wilson 115 kV Area Reinforcement -- Please clarify the "current estimated cost" for the original scope shown for this project in the Draft Plan to reflect the amount in the stakeholder presentation which is $91M.	The change in the in-service date and current estimated cost has been updated in the Revised Draft 2017-2018 Transmission Plan. The change in the change in current estimated cost has been updated in the Revised Draft 2017-2018 Transmission Plan..
	Kearney - Caruthers 70 kV Line Reconductor -- PG&E recommends changing the recommendation on the Kearney - Caruthers 70 kV Line Reconductoring project to "Proceed as originally approved". Although the 2017 Re-assessment study did not identify overloads on this line, real time normal overloads have been observed in the years 2016 and 2017 (three instances in 2016 and two instances in 2017). These overloads were from Kearney to Caruthers during summer conditions and under normal system topology which means Caruthers CB 22 is closed to energize the Caruthers – Lemoore NAS – Camden 70 kV line with open points at Camden CB 12 and Lemoore NAS SW 55 (see the single line diagram below). Under this normal configuration the Kearney – Caruthers 70 kV line only serves the load at Caruthers substation. This potential normal loading condition is a limitation in real time operations which puts load at risk and it does not allow any operation flexibility during peak demand conditions for operators particularly if load at Camden or Lemoore also needs to be served during outage or clearance conditions.	The ISO has recommended that the Kearney - Caruthers 70 kV Line Reconductor project proceed with the original scope in the Revised Draft 2017-2018 Transmission Plan.

No	Comment Submitted	CAISO Response
	In addition to the continuous potential for normal overloads, PG&E has a contractual obligation to serve customer load at Lemoore NAS from the Kearney – Caruthers line as an alternate feed whenever the primary feed from Henrietta is not available. In order to fulfill this contractual obligation, the Kearney–Caruthers 70 kV line needs to be upgraded. Given the above real time normal overload and operational issues, as well as the contractual obligation, PG&E recommends proceeding with the original scope of the Kearney - Caruthers 70 kV Line Reconductoring project and requests CAISO to change the status to "Proceed" in the final Transmission Plan.  	

No	Comment Submitted	CAISO Response
	Kern Area Midway-Temblor 115 kV Line Reconductor and Voltage Support – PG&E requests CAISO to please update thein-service date for this project from 2019 to 2022.	The ISO will continue the assessment of alternatives in the upcoming planning cycle.
	Central Coast and Los Padres Area PG&E urges the CAISO to complete its evaluation of the projects in this area during this planning cycle in orderfor these projects to continue moving forward and to avoid further delays, specifically: Midway-Andrew Project -- The reliability constraints in the area will persist until the project is placed into service. Therefore, PG&E recommends restarting the project in 2018, but with a revised scope that includes installation of a new 230/115 kV substation "similar to the Andrews Substation in the original scope". The new substation could be located on PG&E-owned property near the repurposed DCPP-Midway 500 kV line corridor, as well as near the Morro Bay-Mesa 230 kV Lines. This project scope will minimize new transmission line installation and focus on reconductoring existing lines. This solution would avoid the cost and schedule delays associated with permitting and constructing new transmission lines associated with the scope option to upgrade the Mesa Substation. The project hold/delay PG&E has already experienced in 2017 has pushed the forecasted in-service date from June 2025 to December 2025. Delaying the start of the project another year will result in a further delay of the in-service date to December 2027 (assumes a March 2019 restart). By delaying the start of the project another year, the Los Padres southern transmission area will remain vulnerable to the reliability constraints mentioned in the Draft Plan. If the CAISO approves the revised scope in the 2017/2018 TPP the project could avoid the schedule delays associated with permitting the project. In addition, starting the revised scope now will save an estimated $12.6M, $5M in project work that would have to be re-done and another $7.6M in AFUDC	The ISO will continue the assessment of alternatives in the upcoming planning cycle.

No	Comment Submitted	CAISO Response
	incurred by the project hold and permitting durations. In 2017, the project incurred AFUDC charges of $840,000. In 2018, the AFUDC is $1.7M, with the remainder of $5.06 realized in the two-year delay of the in-service date. The cost of price escalation due to another year on hold has not been determined but will add to the overall costs. Finally, the range of the current cost estimate in the TPP shows $215M to $215M, this should indicate $205M to $215M. The addition of the $12.6M discussed above would bring the new project total to $218M to $228M.	
	Diablo Canyon Voltage Support Project -- With the planned retirement of Diablo Canyon Power Plant (DCPP), the 230 kV switchyard at DCPP is expected to be removed after the units retire. PG&E has recommended moving the new SVC installation location from DCPP 230 kV switchyard to Mesa 230 kV. Locating the SVC at Mesa 230 kV is as effective in providing support to Diablo Canyon 230 kV voltage requirements and from a long term perspective, locating the SVC at Mesa Substation also enables better local area voltage control and regulation. PG&E requests CAISO to approve the new location for this voltage support project.	The ISO will continue the assessment of alternatives in the upcoming planning cycle and if decision on an alternative can be expedited, the ISO will seek to do so.
	California High Speed Train Project Load Interconnection PG&E thanks the CAISO for its review of this load interconnection which affects a large area in the PG&E system. In regards to the CAISO's recommendation of changing the Point of Interconnection (POI) of CHSR Site 4 from Spring Substation to Morgan Hills substation, PG&E would like to clarify that Spring Substation was not the proposed POI for Site 4. The proposal for CHSR Site 4 was to connect into Spring – Llagas 115 kV Line (currently known as Morgan Hills – Llagas 115 kV Line) through a new two bay BAAH switching station. The only non-material change needed in the transmission plan is to update the name of the line being looped into CHSR Site 4 switching station to Morgan Hills – Llagas 115 kV Line. The CHSR interconnection has no impact on the Morgan Hill Reinforcement project and its revised scope.	The change in the point of interconnection has been updated in the Revised Draft 2017-2018 Transmission Plan.
	Economic Driven Projects (Chapter 4) South Bay –Moss Landing Sub-area Local Capacity Requirements -- PG&E agrees with the CAISO analysis and recommendations in the Economic Section of the Draft Plan with regards to the South Bay-Moss Landing Sub- area Local	The comment has been noted.

No	Comment Submitted	CAISO Response
	Capacity Requirements. PG&E agrees that the implementation of the various network upgrades discussed, which include facility re-rates and new economic projects, will help to substantially reduce local capacity needs in the South Bay-Moss Landing Sub-Area. Once approved, PG&E will move expeditiously to implement these projects and will keep CAISO apprised of the progress.	

15. San Diego Gas & Electric (SDG&E)
Submitted by: John M. Jontry

No	Comment Submitted	CAISO Response
	1) During the stakeholder meeting hosted by the CAISO on February 8, 2018, several questions were asked by stakeholders about how the CAISO will treat energy storage projects going forward. To add clarity, SDG&E is very interested in how these projects will be treated from both a project review and approval process standpoint (e.g. how they are handled through the TPP and generation interconnection processes), and from a cost recovery and transmission rates standpoint.	The ISO is planning a stakeholder initiative to develop these policies, as noted in the ISO's 2018 Policy Initiatives Catalog and 2018 Final Policy Initiatives Roadmap.
	2) On page 210, ISO identified several strategic locations for the large scale of "Preferred resource and energy storage as an alternative to recommended mitigation". SDG&E encourages the CAISO to continue studying the impact of utility-scale energy storage on the transmission system and will submit more detailed comments for the 2018/2019 TPP.	The comment has been noted.
	3) On page 206, the CAISO discusses the proposed rating increase for the Suncrest 500/230 kV transformers. While the CAISO is correct that upgrading the jumpers will allow the banks to be operated to their 30-minute emergency ratings, SDG&E opposes this as anything other than a short-term operational mitigation. The 30-minute bank rating is a "loss of life" rating, in that operating the banks at that rating for the time period allowed will shorten the useful life of the units. As these are critical components in a remote location with substantial lead times, SDG&E believes the proper planning approach is to use the non-loss-of-life "Max Load" rating, and add additional transformation capacity if and when that limit is reached.	The comment has been noted.
	4) On page 208, the CAISO discusses a proposed RAS for the Suncrest-Sycamore Canyon 230 kV lines (TL23054/55), for the purposes of relieving forecast P6 overloads on these facilities. SDG&E observes that for this RAS to be effective, it would have to drop generation in the Imperial Valley in excess of the 1400 MW limit in the CAISO's planning guideline ISO SPS3. A similar observation could also be made for the modification to the existing Miguel 500/230 kV bank RAS discussed on page 209. Furthermore, for the new RAS to be effective, the CAISO plans on opening	In order to limit the generation tripping via RAS after the second contingency, generation curtailment can be implemented pre-contingency or after the first contingency.

No	Comment Submitted	CAISO Response
	a backbone 500 kV line that could potentially lead to a 1000 MW load drop by the SDG&E's "safety net" load shedding scheme. Load curtailment for a P6 event is not in agreement with the CAISO dense urban area criteria. SDG&E urges the CAISO to explore adding more transmission outlets at Suncrest or consider adding a flow control device between Suncrest and Sycamore. SDG&E would also note that the CAISO states that, "[t]he modified RAS is needed to be in service by approximately 2020 when most of the once-through cooled (OTC) generation units in Southern California are retired" (page 209), which raises concerns about where the generation to serve Southern California load will come from after the RAS has tripped 1150 MW of thermal generation and potentially over 1000 MW of renewables.	The performance of the system during the P6 contingency with the recommended mitigation described on page 208, would be expected to be better than or equal to the P6 contingency of two 500 kV lines west of Imperial Valley Substation, and neither of the P6 contingencies are expected to lead to the activation of the "safety net". The ISO will consider the need for longer term upgrades in future planning cycles.
	5) The Mission-Penasquitos 230 kV project is recommended for cancellation and discussed on page 210. SDG&E observes that the CAISO staff has indicated that the overload on TL13810 that drove the original need for this project still exists but can be mitigated with generation redispatch. Since this redispatch indicates both congestion and constrained generator deliverability, SDG&E recommends that this project not be cancelled but should be studied, along with potential alternative (for example, the Penasquitos phase-shifting transformer) as potential economic projects.	This project is recommended for cancellation because the scope of the original project is no longer possible and because the reliability need for the original project is gone.
	6) On pages 204 and 258, the CAISO states that it has not identified a reliability or economic need to alleviate the "San Diego North Congestions". SDG&E recommends that the CAISO review, with SDG&E, the actual real-time and day ahead congestion costs to ensure the simulations performed using the PCM model reflects what is really happening in the market.	The ISO looks forward to working with SDG&E on this endeavor.
	7) On page 205, the CAISO discusses the proposed Southwest Powerlink HVDC Conversion project. SDG&E observes that the CAISO's analysis that found no economic benefit in either LCR reduction or production cost savings for the HVDC conversion project, does not align with the CAISO's analysis that found significant economic benefits for the S-line Upgrade Project. The HVDC Conversion Project would mitigate the same contingency driving the benefits for the S-Line upgrade (the G-1/N-1	Given that the S-line is a much lower cost option and has a much shorter lead time, it is clearly the best option to move forward with immediately. The ISO will continue to work with SDG&E to better understand the costs and performance of the HVDC conversion project, along with other alternatives.

No	Comment Submitted	CAISO Response
	combination of loss of Imperial Valley generation followed by loss of the Imperial Valley-North Gila 500 kV line) and thus should have a similar production cost savings and economic benefit associated with a significant reduction in LCRs in the greater IV/San Diego LCR area. In addition, the HVDC conversion project would provide for economic and reliability benefits for the local San Diego load center, unlike the S-Line upgrade project, and should have a larger net benefit.	
	8) Also, with regards to the HVDC conversion project, CAISO should note that HVDC technology using voltage source (VSC) technology has significantly increased in capability and become cost-competitive with conventional Line Commutated Converter (LCC) technology. VSC provides significant operational flexibility (black start capability, instantaneous change of operating mode between inverter and rectifier, reactive support and voltage control to the AC system) with a reduced footprint. SDG&E is exploring the option of using VSC technology for one or more of the proposed HVDC converter stations.	The comment has been noted.
	9) With regards to the S-Line upgrade proposal, SDG&E would like to know what alternatives, if any, the CAISO considered before choosing this particular project?	The ISO considered qualitatively other alternatives to this upgrade in the past. These have included flow controllers such as back-to-back HVDC converters, or phase shifting transformers, as well as the much broader-scoped Renewable Energy Express project proposed in this planning cycle. The upgrade to the 230 kV S-Line is considered to be the lowest cost and least complex solution. It also provides a basis for future opportunities for cost savings and access to potential renewable resources in the near term with the least dependence on continuous coordination of operation and control with neighboring systems, and the least risk of under-sizing the project for future needs.
	10) IID has, in the past, proposed to upgrade the S-line and other interconnections between SDG&E and its system, either as part of “green path transmission expansion plan” or “West of River (Path 46) rating upgrade”, but subsequently elected to abandon the proposed upgrades.	

No	Comment Submitted	CAISO Response
	SDG&E would like to understand what is IID's position on this project and what has changed that would cause CAISO to believe that this project will be built, and what mechanisms would be in place to ensure the proposed in-service date of 2021 is met.	Typically the barriers to the development of a transmission project are lack of funding and permitting. The funding barrier will be addressed once the ISO approves the project.
	11) Also with regards to the S-Line upgrade proposal, SDG&E observes that this project would be complementary with SDG&E's proposed HVDC conversion project. The S-Line upgrade would provide some reduction in LCR; however, as noted by CAISO staff in the stakeholder meeting on February 8, 2018, to obtain any additional LCR benefits once the S-Line upgrade is in place, further upgrades to IID's system become necessary, which the ISO would not have control over. In addition, increased flow across the IV-NG interface increases downstream congestion on the east of Miguel and Suncrest-Sycamore Canyon interfaces. The HVDC conversion project, in combination with the S-Line upgrade, offers full system optimization while protecting the IID and CFE systems from uncontrolled loop flow.	The comment has been noted.
	12) Finally, note that SDG&E is currently performing a series of joint studies with the sponsor of the NG-IV#2 project (Southwest Transmission Partners, LLC) to explore possible capital cost, operational, and system optimization synergies between the two projects that may result in a larger total set of benefits and better benefit/cost ratio than could be obtained by each project considered separately.	The comment has been noted.
	13) On page 207, there is a discussion of the Mira Sorrento Loop-In Project. SDG&E continues to receive customer load additions in the area. In addition, public links below identify a couple major projects in the area contributing to the continued growth. http://www.sandiegouniontribune.com/business/real-estate/sd-fi-westfield-residential-20170907-story.html http://www.sandiegouniontribune.com/business/growth-development/sdut-utc-expansion-nordstrom-parking-2015jul14-story.html	With the CEC 1 in 10 load forecast for the SDG&E system modeled, no P3 contingency overload concerns were identified in this subsystem. Working with SDG&E to evaluate the historical load for this subsystem, the ISO estimated that over 3% load growth over the next five years would be needed to result in P3 contingency overloads, assuming the loss of all three customer owned generating units currently netted with the load should be considered a G-1. The ISO looks forward to working with SDG&E in the next planning cycle on reviewing well documented quantitative evidence of the load growth and resource

No	Comment Submitted	CAISO Response
	The Mira Sorrento load pocket has a high percentage of industrial and commercial customers. Based on SDG&E Loss of Load estimates, it will cost millions to customers if load is dropped in this area. Furthermore, if needed based on future load forecast trends, the scope of the proposed project can easily be adjusted to replace small segments of underground conductors needed to relieve the Peak Shift scenario overloads. This small adjustment is estimated to be around $5.5 M. Finally, SDG&E and the CAISO have had several discussions regarding a P3 overload in the area that can only be mitigated by shedding load. As this is not in agreement with CAISO standard practice, SDG&E urges the CAISO to reconsider the Mira Sorrento Loop-in Project.	assumptions in this subsystem. In the meantime, the ISO recommends that this subsystem be targeted for preferred resource development.

16. Smart Wires
Submitted by: Todd Ryan

No	Comment Submitted	CAISO Response
	Vaca – Lakeville 230 kV Corridor Series Compensation Project. The project is in response to P2 and P6 contingencies in multiple scenarios including starting as early as 2019. We were glad to see that the CAISO validated Smart Wires' submission and recognize it as a "*feasible alternative for the Vaca-Lakeville 230 kV Corridor Series Compensation Project*." We are happy to be able to contribute in a meaningful way to the TPP and look forward to working with PG&E in implementing this project.	The comment has been noted.
	South Bay – Moss Landing enhancements. As noted in the draft plan, these enhancements provide at least 400 MW of LCR reduction to the South Bay – Moss Landing area at a very reasonable cost of $14 M. The LCR reduction is achieved through a combination of enhancements: • a re-rating (*Moss Landing – Los Aguilas 230 kV line*), • a re-scoping of a previously approved project (*South of San Mateo Capacity Increase*), • terminal equipment upgrades (*Moss Landing – Panoche 230 kV Path Upgrade*), and • power flow control (*San Jose – Trimble 115 kV Series Reactor*). This project demonstrates CAISO's keen ability to plan using a variety of tools to achieve a holistic solution that is best for consumers.	The comment has been noted.

17. Southern California Edison
Submitted by: Rabi Kiran

No	Comment Submitted	CAISO Response
	AltaGas Services Proposed Colorado River 230 kV Bus – Julian Hinds 230 kVTransmission Circuit Project In regard to the letter submitted on October 13, 2017 by AltaGas in support of their CAISO window submission form for its Colorado River 230 kV Bus – Julian Hinds 230 kV Transmission Circuit Project, SCE would like to address the following statement: "However, SCE agreed with AltaGas that those reliability concerns with the Project should all be resolved if the Guardians were implemented (albeit, at a larger size and higher cost) on the Colorado River to Julian Hinds 230 kV transmission line." SCE would like to clarify that there was not an agreement that reliability concerns with the AltaGas proposed project can be resolved if additional Smart Wire devices were implemented at a higher cost on the Colorado River-Julian Hinds 230 kV line. SCE had concluded that AltaGas's proposed project would create a significant disadvantage by introducing a new system limitation.	The comment has been noted.

18. Transmission Agency of Northern California (TANC) Submitted by: David Oliver		
No	Comment Submitted	CAISO Response
	The Transmission Agency of Northern California (TANC) appreciates this opportunity to provide additional comments on the California Independent System Operator's (CAISO) Draft 2017-2018 Transmission Plan ("TPP"), February 8, 2017 stakeholder meeting, and the CAISO's Responses to stakeholder comments. These comments respond to the CAISO's reply to previous comments submitted by TANC. On November 30, 2017, TANC provided the CAISO with comments with respect to TANC's concerns over the level of congestion reflected on Path 66 in the CAISO's economic planning studies. On February 7, 2018 the CAISO published responses to TANC's and other stakeholder's comments. The response to TANC's comments on the economic modeling was: *The comment does not identify the source of the congestion data described in the comment. Based on the comments regarding the same issue that have been submitted in previous planning cycles, the congestion data in this comment are likely representing day-ahead COI congestion. While the ISO agrees that the day ahead congestion represents real costs, these are issues best explored at the market level rather than assuming that infrastructure solutions are appropriate and attempting to fully incorporate these factors into transmission planning analysis. Therefore, the transmission planning analysis will continue to focus more on physical congestion – generally experienced in real time – and will continue to track progress on improved market efficiencies in addressing the day ahead congestions and other issues identified by TANC.* The CAISO is correct that TANC refers to the Day-Ahead market when presenting comparable numbers of actual congestion. Although, it is important to note that the COI experiences instances of congestion in each of the CAISO's markets. Based on the CAISO's response, it is unclear why congestion in the Day Ahead market, which the CAISO agrees represents a real cost, is not a cost to be potentially mitigated in its TPP. In its response to TANC's comments, the CAISO makes a distinction between Day-Ahead congestion and Real-Time operations which simply raise more questions	The ISO's response remains unchanged at this time regarding the COI day-ahead scheduling congestion issue. In addition, it should be noted that the DMM report did not identify significant real-time congestion on COI, which is consistent with the ISO's long-term production cost simulation results for this specific path. Recognizing the difference between the day-ahead and real-time market models, the ISO will continue to track any progress on market issues in addressing the day ahead congestion on COI.

No	Comment Submitted	CAISO Response
	regarding the role of the TPP to provide solutions for transmission constraints on COI. The Day-Ahead market attempts to operate efficiently based on the same physical transmission grid as the Real-Time market. Recognizing that Day Ahead congestion costs on PACI alone exceeded $60 million in 2017 alone, it is important for the CAISO's TPP to provide a venue for identifying and addressing all congestion costs, including Day-Ahead congestion on the intertie and potential transmission or other solutions to address constraints and economic inefficiencies.	
	TANC continues to strongly supports improvements to the transfer capability between California and the Pacific Northwest, and also supports the request made by the California Energy Commission and California Public Utilities Commission in their February 15, 2018 joint letter to the CAISO.	The ISO has included a special study in the 2018-2019 transmission planning process study plan related to the joint letter from the CEC and CPUC.