The ISO received comments on the topics discussed at the January 11, 2018 stakeholder meeting from the following:

1. BAMx
2. California Energy Storage Alliance (CESA)
3. CEERT
4. City of Oxnard
5. Clean Coalition
6. Sempra Renewables
7. Sierra Club and California Environmental Justice Alliance (CEJA)
8. Southern California Edison

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

1	BAMx Submitted by: Robert Jenkins	
1a	BAMX Comments on the Moorpark-Pardee 230 kV No. 4 Circuit Project Evaluation Materials from the January 11, 2018 Stakeholder Meeting The Bay Area Municipal Transmission group (BAMx)1 appreciates the opportunity to comment on the materials presented during the Moorpark-Pardee 230kV No. 4 Circuit Project stakeholder call that took place on January 11th, 2018. We request that the CAISO address these issues in its draft comprehensive Transmission Plan expected in January 2018.	
1b	<u>LCR Need Driven by an Extreme Event Type of Contingency</u> In assessing the local capacity requirements for the Moorpark Area, the CAISO indicated that it has followed the Local Capacity Technical Study Criteria as defined in the CAISO Tariff.2 These criteria are to "determine the minimum amount of Local Capacity Area Resources in MW that must be available to the CAISO within each identified Local Capacity Area." Meanwhile reliability driven transmission solutions are identified "to ensure System Reliability consistent with all Applicable Reliability Criteria and CAISO Planning Standards."3 There is a distinction between the standards used in identifying transmission reliability upgrades and the Local Capacity Technical Study Criteria. This difference specifically is in the treatment of a particular Extreme Event as follows: "No voltage collapse or dynamic instability shall be allowed for a Contingency in Category D – extreme event (any B1-4 system readjusted (Common Mode) L-2), as listed in Section 40.3.1.2."4 This performance requirement is beyond that required in the NERC TPL-001-4 Categories P0-P7 and is not specifically addressed in the CAISO Planning Standards. As such, from a transmission planning perspective, the loss of a single element followed by the loss of a double circuit tower line would be categorized as an Extreme Event. Extreme Events are not routinely used to justify reliability projects in the CAISO Transmission Plan.	In general, the ISO has considered the need for new transmission or conventional or preferred resource capacity to address a local capacity need – whether that need for new capacity was driven by load growth or other circumstances such as the retirement of once-through-cooling generation – as a reliability issue, as the bulk of the reliability criteria in the NERC planning standards and the ISO Planning standards is generally consistent with the local capacity criteria set out in the ISO tariff and economic considerations are taken into account in any event in selecting alternatives to address the local need. Similarly, the ISO has considered economic-driven transmission to address reductions in local capacity requirements, where the reliability need would otherwise be addressed by existing resources. Two such examples are included in this year's 2017-2018 Transmission Plan. The Moorpark area local capacity requirements are based on requirements that are unequivocally part of the local capacity criteria, and the consideration is an economic comparison of the proposed transmission upgrade combined with some level of preferred resources, to a larger basket of preferred resources that would otherwise need to be acquired. This is specifically enabled by the ISO tariff as a means to identify transmission as well as other alternatives as set out in Section 24.4.6.7 of the ISO tariff, that states:

		"…the CAISO will conduct the High Priority Economic Planning Studies selected under Section 24.3.4 and any other studies that the CAISO concludes are necessary to determine whether additional transmission solutions are necessary to address: … *(b) Local Capacity Area Resource requirements;"* For ease of presentation to our stakeholders, the ISO has left the comprehensive discussion of the need and consideration of alternatives in one location – chapter 2 – and categorized the need as a reliability need. Given the above discussion, the Moorpark-Pardee transmission project could also be reasonably categorized as an economic-driven project. The ISO has clarified this in the draft transmission plan. Nonetheless, BAMx is incorrect in its "understanding that the LCR criteria is used to determine the generator capacity within a local area which would need to contracted and not used in determining transmission expansion plans" (emphasis added) as section 24.4.6.7 specifically enables transmission solutions to address local capacity area resource requirements, howsoever required.
1c	In summary, the CAISO tariff seems to confirm our understanding that the LCR criteria is used to determine the generator capacity within a local area which would need to contracted and not used in determining transmission expansion plans. For the Moorpark area, the LCR deficiency is driven by just such a contingency, "*the loss of the Moorpark–Pardee #3 230 kV line followed by the loss of the Moorpark–Pardee #1 and #2 230 kV lines, which causes voltage collapse*."5 So the performance of the Moorpark area has not been shown to violate Applicable Reliability Criteria and CAISO Planning Standards, yet still shows a LCR deficiency. It should be noted that LCR deficiencies occur in other LCR areas which have not been identified as requiring reliability driven transmission upgrades.6 So this situation is not unique.	Please refer to the above response.to 1 (b). Regarding the comment "It should be noted that LCR deficiencies occur in other LCR areas which have not been identified as requiring reliability driven transmission upgrades", the ISO notes the reference is to the footnote is: "See 2018 Local Capacity Technical Analysis: Final Report and Study Results, May 1, 2017, page 2." The ISO refers BAMx to the longer term LCR analysis conducted in the 2016-2017 transmission planning cycle, which demonstrates planned upgrades and other changes addressing the deficiencies identified in the 2018 Local Capacity Technical Analysis.

	Nonetheless SCE's proposed Moorpark-Pardee 230kV No. 4 Circuit Project is driven by the Local Capacity Technical Study Criteria deficiency caused by the retirement of generation in the Moorpark area.	
1d	BAMx members request that the CAISO provide additional clarification as to why this project is necessary to meet the Applicable Reliability Criteria and CAISO Planning Standards and whether this area is an exception for which reliability driven upgrades are being proposed for an extreme event. If Moorpark is an exception, further information is needed as to why it is exceptional. If it is not an exception, additional stakeholder involvement is needed and the CAISO Planning Standards would need to be modified before such a performance requirement is routinely applied.	Please refer to the above responses.
1e	<u>Conclusion</u> BAMx appreciates the CAISO reviewing this project and providing an opportunity for Stakeholder comment on the Moorpark-Pardee 230kV No. 4 Circuit Project before the issuance of the draft TPP plan. We look forward to the CAISO addressing our comments.	Please refer to the above responses.

No	Comment Submitted	CAISO Response
2	California Energy Storage Alliance (CESA) Submitted by: Jin Noh	
2a	CESA appreciates the opportunity to comment on Southern California Edison Company's ("SCE") proposed Moorpark-Pardee 230-kV No. 4 Circuit Project. SCE submitted their Moorpark Procurement Plan on December 21, 2017, which aims to procure preferred resources and energy storage in combination with a potential transmission solution to meet the local capacity requirement ("LCR") of the Moorpark sub-area and to address resiliency objectives in the Goleta area. Specifically, SCE identified a transmission solution – *i.e.*, a fourth 230-kV line between Moorpark and Pardee – in the 2017-2018 Transmission Planning Process ("TPP") that could reduce the LCR deficiency in the Moorpark sub-area by 232 MW to 76 MW and address voltage collapse issues from the first three Moorpark-Pardee lines[1]. As CESA understands it, the fourth line would be developed on the existing infrastructure for the other lines and mitigate the Moorpark LCR needs but not the 105 MW Goleta area resiliency needs. The California Independent System Operator ("CAISO") presented their overview, reliability assessment, and economic assessment of the Moorpark-Pardee 230-kV No. 4 Circuit Project during a stakeholder call on January 11, 2018. During the call, the CAISO also presented on various non-transmission alternatives considered, which in addition to SCE's proposed plan ("Alternative 1") includes a 318-MW resource portfolio of preferred resources and energy storage ("Alternative 2") and a 240 Mvar dynamic reactive power support coupled with 135-MW resource portfolio of preferred resources and energy storage ("Alternative 3"). The CAISO analysis demonstrated increased grid resilience but higher operational complexity, capital costs, and maximum thermal loading on the existing Pardee-Santa Clara 230-kV line under a critical contingency for Alternative 2 relative to Alternative 1. The CAISO did not indicate which solution that it would recommend but noted that it will include a recommendation in the Draft 2017-2018 Transmission Plan on January 31, 2018.	

[1] SCE Moorpark Procurement Plan, p. 12.

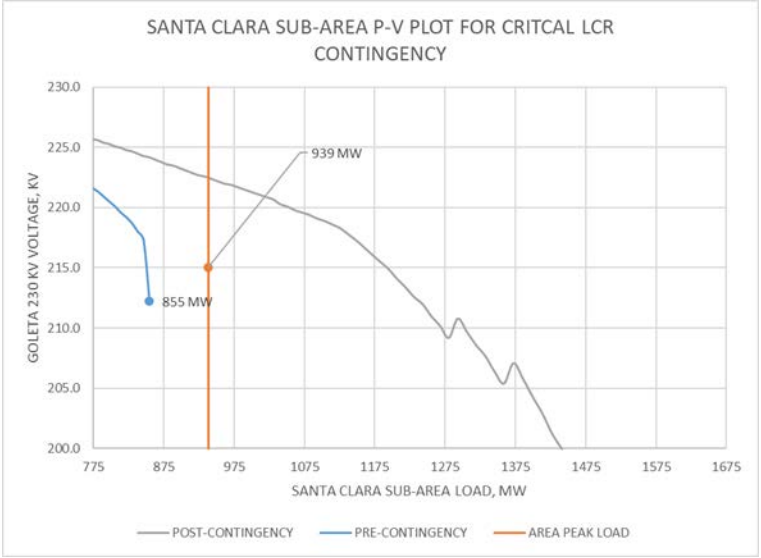
No	Comment Submitted	CAISO Response
	CESA supports the CAISO's efforts to study alternatives and SCE's consideration of preferred resources and energy storage to meet their LCR and resilience needs in the Moorpark sub-area. The leadership by CAISO and SCE is instrumental to ensuring grid reliability while advancing the state toward its clean energy and environmental goals. In these comments, CESA seeks to further understand the underlying grid needs and to encourage the CAISO to carefully consider the relative costs and benefits of transmission solutions and non-wires alternatives and how they link to the underlying grid needs and procurement objectives. By all means, CESA believes that transmission solutions may be appropriate and necessary in some conditions to ensure that local areas can receive operations under relevant reliability planning standards. CESA also notes, however, that there may be opportunities for generation-type solutions or for non-wires transmission alternatives to meet those same planning standards while meeting other key objectives such as resiliency that may not be fully captured or accounted for in those planning standards. In this instance, CESA requests further consideration on whether the reliability outcomes and expectations are appropriate, even if reliability standards may be met. Further, CESA requests careful review and calculation of expected costs and project online dates. All of these variables must be assessed in a defensible manner and should inform any CAISO determination. CESA appreciates the CAISO's consideration of these comments.	The comment refers to "other key objectives such as resiliency that may not be fully captured or accounted for…" Specific input on those objectives would be helpful and the ISO encourages that information to be brought forward in subsequent comment opportunities. The ISO Planning Standards – as well as the local capacity criteria established in the ISO tariff - do address requirements beyond the minimum requirements of NERC mandatory standards. The ISO would appreciate any specific feedback on the application of those standards. The ISO agrees that cost information should be reasonably considered, and refers CESA to the additional responses of SCE provided below.
2b	Reliability Study Results CESA understands that there are three existing Moorpark-Pardee lines: the No. 1 and No. 2 lines strung on the same transmission tower and the No. 3 line on an adjacent two-circuit transmission tower with an open position for the proposed No. 4 line. Further, CESA understands that planning standards authorize CAISO to drop load after two contingencies, if needed, to stabilize the grid. For the Moorpark-Pardee lines, a loss of the No. 3 line (N-1 contingency), followed by an outage of the No. 1 and No. 2 lines (N-2 contingency) could lead to voltage collapse. The cascading loss of the three lines also creates an LCR	

No	Comment Submitted	CAISO Response
	need in the Moorpark sub-area as there is limited generation in the sub-area to reliably serve the load without any of the transmission lines. Under the current planning standards, the Moorpark LCR needs are being driven by this N-1/N-2 contingency event,[2] whereby the proposed No. 4 line would serve to reduce the LCR in the Moorpark sub-area and avoid voltage collapse by creating redundancy in the two-circuit transmission tower with the existing No. 3 and proposed No. 4 lines. In light of this assessment of how the line outages affect reliability, CESA understands that the addition of the Moorpark-Pardee line may support compliance with applicable grid contingency standards but may not support local reliability in cases where all lines are out. For this reason, if CESA understands it correctly, CESA requests clarification and further differentiation of how localized generation (including from energy storage resources) may actually boost the actual reliability and service-delivery to customers in the affected area in a case of the expected contingency. Furthermore, CESA understands that the CAISO is reasonably assessing the proposed No. 4 line to meet established planning standards, which only requires actions to remedy a single contingency (when the N-1 contingency event occurs first) and does not require assessing and taking action toward mitigating potential extreme weather events that may disrupt an entire transmission corridor. While the CAISO is only required to study transmission reliability issues and assess mitigation solutions for narrowly defined situations, CESA believes that there may be opportunities for non-wires alternatives to address the same planning standards that simultaneously address some of the resilience concerns in the Moorpark sub-area. CESA believes this line of questioning is appropriate and reasonable because conditions prompting an outage on any of the Moorpark-Pardee line might very well affect both lines. Particularly given recent and unfortunate natural disasters in the area, CESA understands the transmission tower for the No. 1 and No. 2 lines could be taken out of service at the same time as any outages to lines No. 3 and No. 4, leading back to the underlying issue driving the LCR and voltage stability need in the Moorpark sub-area. While planning standards should	The ISO acknowledges that local resources in the Moorpark area result in a more resilient electric power supply system for the local area for certain transmission contingencies that are more severe than the critical LCR contingency. However, the cost of energy storage is expected to far exceed the cost of the transmission alternative. Further, the necessity for load curtailment in the Moorpark vicinity under these extremely rare events would be minimized to rely on the capability of the Pardee-Moorpark and Santa Clara-Moorpark circuits and the preferred resources that are being planning in the area.

[2] In the situation where there is a loss to the No. 1 and No. 2 lines on the same transmission tower, the CAISO is allowed to shed load when the first events is an N-2 contingency event under current planning standards. Thus, as CESA understands it, the first N-1 contingency of the loss of the No. 3 line is one of the core drivers of the Moorpark Procurement Plan and the proposed No. 4 line.

No	Comment Submitted	CAISO Response
	inform decisions and determination, it may be that the standards fail to respond to the actual conditions in ways that fully or more functionally support customer reliability. In the case of a major event impacting a transmission line, CESA is concerned that stringing an additional line on an existing transmission tower may not reduce susceptibility to extreme weather events (*e.g.*, wildfires, earthquakes, and mudslides). In addition, while the proposed No. 4 line would reduce the Moorpark LCR needs, it does not appear to increase the amount of load that could be served especially if the Moorpark-Pardee transmission corridor is compromised.	
2c	Transmission Proposal Approval The proposed Moorpark-Pardee 230-kV No. 4 Circuit Project has a requested in-service date by December 31, 2020 to time it with the scheduled once-through-cooling generating unit retirements. Meeting this online date is obviously key; however, CESA seeks to determine whether this transmission solution requires approval in the 2017-2018 TPP or whether it is feasible to postpone its potential approval to the 2018-2019 TPP cycle. Given the concerns highlighted above, CESA believes that continued study by the CAISO on the reliability impacts and costs of non-wires alternatives would be beneficial. In addition, SCE will have launched its Moorpark LCR / Goleta Resilience Request for Proposals ("RFP"), according to the proposed schedule in its Moorpark Procurement Plan, through which indicative offers could directly inform the CAISO's economic analysis with actual, up-to-date cost numbers. Ultimately, CESA defers to the CAISO and SCE on whether a 12- or 18-month deployment and construction timeline is feasible for the proposed No. 4 line, but requests that, if it can reasonably be accomplished, it should be delayed to allow for more careful consideration of non-wires alternatives and how it can address both the LCR and resilience needs of the Moorpark sub-area.	The ISO understands from SCE that approval in the 2017-2018 time frame would be necessary to achieve in service before 2021, and avoid the need for an extension to OTC compliance for the Ormond Beach facility.
2d	Study Assumption Updates on Energy Storage Costs and Societal Costs CESA believes further study of alternatives to the proposed Moorpark-Pardee 230-kV No. 4 Circuit Project could be in the best interests of reliability and of ratepayers. These studies should reflect more updated forward-looking energy storage price inputs. This could inform non-wires alternative studies as well as cost-comparisons to the proposed Moorpark-Pardee No. 4 line. For instance, based on discussion on the January 11, 2018 stakeholder call, the CAISO study assumed capital costs of energy storage using inputs to the CAISO's Moorpark Sub-Area Local Capacity Alternative Study in August 2017. CESA	Based on the ISO's previous cost analysis and SCE's cost analysis provided as comments below, the cost of the energy storage alternative far exceeds the cost of the transmission alternative.

No	Comment Submitted	CAISO Response
	noted in previous comments to the California Energy Commission ("CEC") regarding the review of the Puente Power Project on how CAISO's study used capital cost numbers that were outdated by several years, leading to the CAISO issuing a letter that the best means of price discovery on more up-to-date cost numbers for energy storage would be through a competitive solicitation. Study assumptions should also attempt to reflect the costs and likelihood of sustained outages CESA again understands that the CAISO is not required to study reliability issues beyond what is required by established planning standards, but the greater consideration of non-wires alternatives and the need to enhance grid resilience are worthy policy objectives that may warrant delay for the approval of the proposed transmission project.	
2e	Conclusion We appreciate CAISO's consideration of CESA's comments and look forward to ongoing participation in the TPP.	
3	Center for Energy Efficiency and Renewable Technologies (CEERT) Submitted by: Jim Caldwell	
3a	The Center for Energy Efficiency and Renewable Technologies (CEERT) makes the following comments on the studies performed on the above project as presented in the stakeholder call of January 11 for consideration in the 2017-2018 TPP. CEERT commends the CAISO for the professionalism shown in the studies and the obvious commitment to transparency and true stakeholder collaboration in this matter. Given that a primary purpose of the study is to judge the efficacy of the Pardee-Moorpark No. 4 in meeting the Moorpark sub-area LCR need, CEERT believes that the studies conducted to date are sufficient to make a reasonable judgment of that project in the Draft 2017-2018 TPP to be published at the end of January. CEERT has no further comments on the transmission upgrade itself at this time.	The comment has been noted.
3b	A second purpose of the study is, assuming the transmission upgrade project is approved, to define the next largest LCR need in the area. Apparently, the study shows that this LCR need is defined by loss of the Pardee-Santa Clara 230 kv line followed by the loss of the Moorpark-Santa Clara 230 kv line leading to a ~86 MW LCR deficiency. Given that this LCR need is the subject of an RFP for preferred resources about to be issued by Southern California Edison, CEERT believes it is important to more carefully define that need to guide the bidding in that RFP. CAISO should publish:	In response to each of the requests: - The Santa Clara sub-area P-V curve for the critical contingency is provided below. - The reactive power margin (deficiency) at nominal voltage under the critical contingency is about 220 Mvar at the Goleta 230 kV bus and 190 Mvar at the Santa Clara 230 kV bus.

No	Comment Submitted	CAISO Response
	- the Santa Clara sub-area P-V curve for the critical contingency, the reactive margin available pre and post contingency and any reduction in T&D losses associated with improving that reactive margin. - the 2022 peak day load shape used for the study that resulted in an estimated 86 MW LCR need. Note that since this need will be met with use limited preferred resources, it will be necessary to publish not only the single point peak hour load, but the entire 24 hr peak day load shape starting with documentation of the historic load shape used, and then the modifications to that load shape to account for load growth to 2022 and the impact of AAEE and BTM solar PV. - the scaled up 2022 load duration curve for the Santa Clara sub-area so that bidders can estimate the non-LCR value of resources used to satisfy the LCR need on off peak load days.	Improving the reactive margin by installing reactive device such as an SVC is not expected to cause material reduction in T&D losses considering the device would typically be operated with a near zero output under normal operating conditions and losses in the device itself. - As indicated in the January 11 presentation (see Slide #5), hourly load data was not used in the determination of the ~86 MW LCR need. The ISO will collaborate with SCE as needed in performing the hour-by-hour analysis to validate the RFP results. -The hourly load shape and forecast data for the area has not been updated from that used in the Moorpark local capacity alternative study that was performed for the CEC. Since the source of all of the data is SCE, bidders can obtain the data and any updates directly from SCE. Since the CEC will be releasing a new demand forecast in February including the impact of AAEE and BTM solar PV, the ISO expects future analysis and data for this area will be based on this new forecast. 

No	Comment Submitted	CAISO Response
3c	In addition, there should be a discussion in the Draft TPP about the status of the pending revised CEC load forecast that will endogenously include forecasted quantities and hourly load shapes for AAEE and BTM PV solar. The discussion should include the date when CAISO expects that revised forecast to be available from the CEC, and the process to be used to incorporate that revised forecast in the studies used to affirm that the portfolio of resources proposed for procurement by SCE will indeed mitigate the Santa Clara LCR need. The discussion should affirm that the CAISO will study the storage/preferred resource portfolio as a whole rather than simply sum up individual resource NQC values. The CAISO should confirm that it will also render judgment that the portfolio is dispatchable by grid operations given that the bulk of the portfolio is likely to consist of battery storage configured to supply spinning reserve to cover the N-1 on any day when forecasted Santa Clara load is above the remaining transmission import limit plus committed existing local resources. These new battery storage installations will likely not cover the full duration of LCR need on the peak load day by themselves, but be backed by IFOM solar PV and/or slow response DR. Finally, CAISO should confirm that the DR itself must be "firm" by contract with the SC bidding the battery storage (SCE calls this "Standby DR") that does not need to be bid into either the day ahead or real time CAISO market and can be dispatched post contingency to "recharge" the batteries during the contingency event.	The ISO expects that the detail of these issues will be addressed in SCE's procurement process.
3d	Ventura County endured 2017 with numerous natural disasters of biblical proportions including two greater than 1 in 10 heat storms in late June and early September, the largest wildfire in California history that caused an area wide blackout with apparently serious black start issues plus numerous smaller fires that threatened other transmission corridors, plus deadly and devestating landslides that compromised both electric and gas infrastructure. Regardless of the TPP recommendation on the Pardee-Moorpark No. 4 line or the CAISO judgment later this year on the relatively novel SCE RFP results, the electric infrastructure in Ventura County will undergo a very significant make-over in the next few years. This make-over will be judged by the entire population of Ventura County and various interest groups at the state and federal level -- not simply the transmission planning professionals at the CAISO. A forensic analysis of the performance of the existing infrastructure and the likely performance of the new infrastructure if 2023 were to be any thing like 2017 needs to be performed and published. Simply referring to an obscure generic	The ISO agrees that the circumstances over the past summer have been extreme, and has both been involved in and monitored the efforts to provide service through those challenging times. The ISO will support efforts of the local utilities and service providers in their ongoing outreach and discussions.

No	Comment Submitted	CAISO Response
	planning standard from NERC or the interpretation of that standard in the CAISO tariff will not be sufficient for this diverse audience. The Draft TPP should commit to making such an analysis.	
3e	Finally, CEERT notes that this Moorpark sub-area analysis is hardly unique. The California grid is on the cusp of a veritable revolution where preferred resources plus local battery storage take over a significant share of the LCR duty from conventional gas fired resources. Four pending preferred resource LCR RFPs in PG&E service territory in the Bogue, Pease, South Bay/Moss Landing, and Oakland C sub-areas are on tap for this year. The next wave of OTC retirements is drawing near. The Los Angeles Department of Water and Power has suspended its in basin gas repowering program pending a comprehensive bottom up study of local generation needs for the low carbon grid of the future. The Aliso Canyon gas storage facility is slated for early retirement. San Diego LCR needs will change significantly with the package of resources procured following the closure of SONGS including the proposed S Line upgrade proposed in this TPP coming on line. Most parties have observed that more events such as these are on the horizon as we adjust to a grid that will certainly be majority intermittent renewable resources and potentially as much as 100% carbon free in the planning horizon. The Moorpark sub-area issues, how they are defined, how they are studied, and how they are resolved is a template for the future of the entire grid. The whole world is watching.	The comment has been noted.

4	City of Oxnard Submitted by: Shute, Mihaly & Weinberger, LLP	
4a	On behalf of the City of Oxnard, we submit these comments regarding CAISO's consideration of Southern California Edison's proposal to construct a new Moorpark- Pardee transmission line. As CAISO is aware, the City has a significant interest in resource planning in the Moorpark subarea and is especially concerned about any proposal to add gas fired generation to the area. Oxnard has long shouldered a disproportionate share of the area's energy production requirements and is opposed to any new gas power plant located within Oxnard or the surrounding community. Given this history, the City appreciates CAISO's consideration of a transmission upgrade that would avoid constructing new fossil fuel plants the Moorpark subarea.	
4b	After considering the alternatives that CAISO presented to stakeholders on January 11, 2018, the City supports Edison's proposal to construct a new 230 kV transmission line between the Moorpark and Pardee substations to meet the Moorpark LCR need. The City is confident that alternatives that rely on procuring reactive support technology and/or greater renewable generation in lieu of a transmission line are also feasible options, but constructing a new transmission line strikes a prudent balance to addressing grid resiliency needs. The City therefore urges the CAISO Board to approve Edison's proposal to construct the new transmission line.	The comment has been noted, and the support is appreciated.
5	Clean Coalition Submitted by: Doug Karpa, J.D., Ph.D.	
5a	As always, we are grateful for CAISO's efforts and the opportunity to comment to assist in the rigorous analysis of proposals in order to deliver the most cost-effective and efficient renewable energy solutions to California's energy needs. Please accept these comments from the Clean Coalition as our effort to assist CAISO in its work. I. Summary The Moorpark-Pardee transmission line should be analyzed, subject to the understanding that meeting the Local Capacity Requirement (LCR) of the Moorpark area with relatively cheaper DER is the preferable alternative for ratepayers, reliability, and the environment. Only if the procurement of DER under the Moorpark RFP fails to procure adequate resources should the Moorpark-Pardee line be approved. However, in that event it is critical that the	

	line be deployed as the second best among the many options, especially those involving fossil fuel generation. 1) The Clean Coalition's economic analysis demonstrates that DER can provide reliability at a lower overall ratepayer cost to meet the LCR when the cost of Operations and Maintenance, return on equity, and depreciation costs (jointly "O&M costs") are included as well as credit for the value of DER supplied energy, contrary to the unsupported statements in the LCR Plan. 2) The placement of the fourth transmission line in the same right of way as the other three lines is a less preferable solution that local generation because many of the events that could cause a N-2 contingency would also remove all four lines from service. The right of way crosses rugged terrain prone to fires, just outside the foot print of the Thomas fire, prone to landslides, such as those to the north in Montecito or to the south in Burbank, and prone to earthquakes. Thus, the proposed line is a less preferred alternative to using DER to meet the LCR.	The ISO has reviewed the Clean Coalition's economic analysis, and does not agree with the Clean Coalition's analysis or conclusions, as noted below. As with the City Oxnard (please refer to comment above), which supports the 4th circuit as "a prudent balance to addressing grid resiliency needs" the 4th circuit meets the criteria needs and provides a balance of costs and resiliency.
5b	II. Description of the Stakeholder The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of DER—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with load serving entities, DER developers, and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.	
5c	III. Transmission is not cheaper than DER and should be viewed as a first alternative to DER only if needed. 1. The Full Costs of Transmission are greater than the full costs of DER reliability services. The proposed Moorpark-Pardee line is both more expensive to ratepayers than the DER alternative and is highly vulnerable to foreseeable disruptions. It is imperative that CAISO evaluate the full costs and values of both the transmission line and the DER alternative. Although costs of operations &	The ISO does not consider that the material cost gap between the transmission alternative – combined with preferred resources - and the more-expensive mitigation of exclusively relying on preferred resources warrant the delay, given the consequences of delay. In this case, the consequences of those delays would reasonably be to require the delay in the Ormond Beach Generating Station complying with once-through-cooling compliance dates.

	maintenance, return on equity, and depreciation costs (jointly "O&M costs" here) typically scale with the capital cost, this is not the case when looking at non-wires alternatives. In this case, a solar+storage solution would be more cost effective when the long-run costs of energy exceed approximately $55/MWh. A full-cost analysis reveals that when the and the value of energy are incorporated, Distributed Energy Resources are likely to be cheaper than new transmission. SCE states without any support that "[t]he proposed transmission option reduces the LCR procurement need to 76 MW, at a customer cost that is much lower than what supply-side resources would yield."[3] While this statement is true if only capital costs are compared, if the full costs are compared, it is almost certainly false. A full-cost comparison includes both all costs and an accounting for additional services. On the cost side, both options must include both capital costs and O&M costs over 30 years for both options. On the services side, it is critical to recognize that while transmission provides only reliability services, DER capacity provides both energy and reliability services. Thus, an actual comparison of the cost of providing reliability services must account for the value of the energy that also comes with DER. The following analysis relies on the best publicly available data and estimates we have access to, and we fully expect that CAISO will use somewhat different parameterizations where we do not already use CAISO's own parameter estimates (e.g., O&M Cost escalators for transmission). However, the general principles are sounds and represent the current best estimate of the comparative costs. *Estimated Transmission Costs* The full costs of a fourth transmission line must include the full costs of capital and the O&M costs. Based on CAISO's O&M estimates of cost increment schedule, the O&M costs over 30 years will be over five times the capital costs.[4] (Although the costs are likely incurred over a 50-year window and thus represent higher total costs, we modeled only the first 30 years.) While the	In general, the ISO does agree that basing capital investment decisions solely on upfront capital costs is simplistic and can only be considered in straightforward cases involving similar types of assets. However, in this particular case the capital cost of the transmission alternative is about 5% of the cost of the resource alternative. The cost is much smaller than even the accuracy range of any planning level cost estimates that can be obtained for the resource alternative. Under these circumstances, the ISO questions the prudence of making investment decisions based on an economic analysis that relies on a set of revenue and cost assumptions going up to 30 years into the future. The ISO does consider the more detailed approach of assessing annual revenue requirement costs and benefits in other circumstances, as set out in detail in chapter 4 of the draft transmission plan and the ISO's Transmission Economic Assessment Methodology (TEAM) referred to in the plan. The ISO notes SCE has provided overall cost and benefit comparisons in its comments which further support the ISO's conclusions. Regarding the cost comparison provided by the Clean Coalition, the ISO has identified a number of issues with that analysis, including: - The "Total Cost" line (line 13) sums the capital cost of the Moorpark-Pardee circuit of $45 million (row 5) to "30 year O&M, return and depreciation" (line 12). As line 12 includes recovery of depreciation over the term of the project, this double-counts the capital cost of the project. (As for the storage and+ solar alternative, line 12 appears to be exclusively the cost of O&M for the solar, this double-counting appears only to be applied to the transmission option.) - There does not seem to be a cost of O&M for storage included in the analysis – only the solar.

[3] Southern California Edison, "Moorpark Sub-Area Local Capacity Requirements Procurement Plan of Southern California Edison Company Submitted to Energy Division Pursuant to D. 13-02-015" December 21, 2018, at 12.

[4] The O&M, return on equity, and depreciation costs for transmission are based on CAISO O&M escalator estimates integrated over 30 years.

	capital costs of new transmission over hilly terrain can run upwards of $1.7 million per mile,[5] the long-term ratepayer commitments to O&M, equity return for the transmission owners, and depreciation (jointly "O&M costs" hereinafter) that run 3.91 times the capital cost according to CAISO's O&M schedules.[6] With the long-term ratepayer commitments added in over 30 years, the total costs of transmission to over $8.5 million per mile or more. Based on the $45 million capital cost reported by CAISO,[7] the proposed 26-mile transmission line would cost ratepayers some $221 million over 30 years in 2018 dollars. (Since the cost to ratepayers is the relevant comparison, it is imperative to use the ratepayer discount rate. Since ratepayers are not borrowing to finance electric bills for the most part and the ratepayers change identity over time, the appropriate discount rate is the rate of inflation.) These costs flow to ratepayers and must be included in the evaluation of the comparative costs. *Estimated DER Costs* By comparison, a solar+storage system would provide both reliability and also energy to the local community, displacing energy imports from outside the Moorpark area. Thus, the cost to ratepayers of the reliability service would be the capital and O&M costs minus the value of the energy these resources provide. Although the precise mix of the incremental DER needed to replace the transmission line to meet the LCR is somewhat flexible, our model identifies a combination of 240 MW of solar and 825 MWh of batteries (comprised of 210 MW of battery power capacity with a mix of two and four hour durations) to the most cost effective alternative DER replacement for the proposed transmission line, based on the load profiles from the model of the Moorpark subarea needs presented by CAISO to the Energy Commission in the Puente Application for Certification proceeding in August 2017. (We recommend that CAISO also model this same system to ensure adequate performance during the worst solar day in addition to the peak load day already measured to ensure that the modeled system can perform under the full range of conditions.) Overall ratepayer costs after the ITC and component cost declines by 2019 and including O&M would cost ratepayers on the order of $850 million. However,	- A 7.87% Rate of Return (ROR) is applied in the case of the transmission alternative but not in the case of the resource alternative - Beyond O&M, there does not seem to be life-cycle replacement/augmentation of solar and storage and round-trip efficiency of storage (~85%, Lazard) included in the analysis. - The ISO cannot comment on the "real" escalation of O&M applied to transmission by the Clean Coalition as no reference was provided, other than it being over three times the currently-relied upon value relied upon by the ISO as set out in chapter 4 of the draft transmission plan and previous years' plans. - The ISO conducts its economic analysis recognizing the time value of money, and applies a social discount rate of 7% (real) with sensitivities at 5% as necessary, as set out in chapter 4. Accounting for the more straightforward modeling discrepancies in the Clean Coalition analysis and updating the economic parameters, the results appear to more reasonably converge on the SCE results provided below. The ISO also notes that Clean Coalition appears to overestimate PV output in their hourly load and resource analysis by using hourly capacity factors (last row in the table below) that it apparently obtained by dividing total ISO area PV output for each hour of the day by the maximum ISO area PV output for that day (8300 MW). Clean Coalition should have used total ISO area PV installed capacity rather than the maximum ISO area PV output for the day (8300 MW) to calculate the hourly PV capacity factors used in its analysis. The total ISO area PV installed capacity was about 10,677 MW in 2017.

[5] Western Energy Coordinating Council, "CAPITAL COSTS FOR TRANSMISSION AND SUBSTATIONS: Updated Recommendations for WECC Transmission Expansion Planning" (2014) available at https://www.wecc.biz/_layouts/15/WopiFrame.aspx?sourcedoc=/Reliability/2014_TEPPC_Transmission_CapCost_Report_B%2BV.pdf&action=default&DefaultItemOpen=1

[6] For the calculations, see the "Cumulative Ratepayer Costs" tab of the attached excel model.

[7] Presentation on Moorpark-Pardee 230 kV No. 4 Circuit Project, January 11, 2018, http://www.caiso.com/planning/Pages/TransmissionPlanning/2017-2018TransmissionPlanningProcess.aspx

	the 11.5 TWh of energy produced over 30 years would deliver a value of nearly $700 million, assuming a long run energy cost of $60/MWh. Thus, the residual costs of the reliability service that such a solar+storage system would be approximately $156 million, resulting in a $65 million savings for ratepayers compared to the transmission line. Under these assumptions, any long-run energy cost above $54.38/MWh drives a net rate payer savings from DER. [Refer to posted stakeholder comment for table] Overall, whether the fourth transmission line is more expensive and by how much depends on a detailed assessment of the precise mix of DER that would replace it and the long run value of the energy provided. However, under reasonable assumptions, the transmission line would in fact cost ratepayers more for the reliability service than the DER solution. Given that reality, there is scant justification for incorporating a transmission line as the preferred solution. Instead, SCE should be required to procure DER sufficient to meet the full LCR. Therefore, we request that CAISO perform a similar evaluation of the full costs of the transmission line, including O&M, compared to the cost of the DER that would replace it, including credit for the produced energy in determining the relative value of the two solutions. However, if the DER procurement from the SCE RFP falls short of the full LCR need, we recommend the transmission line be considered as the first alternative approach.	
5d	2. Transmission is a vulnerable reliability solution Although a transmission line is clearly preferable to any natural gas plant of any size, the proposed fourth line in the same right-of-way as the existing lines would be vulnerable to natural disasters, especially wildfire, landslides, and earthquakes. Although the LCR is designed to meet an N-2 contingency, the physical location of all four transmission lines in the same right-of-way increases the odds of an N-4 contingency. The right of way is located in wildlands immediately south of the Thomas fire, which may have been caused by electrical lines and was exacerbated by the failure of the grid to provide power because of the reliance on remote energy to power emergency equipment and water pumps. Last week, catastrophic mudslides wreaked tremendous damage on both sides of the proposed transmission line in Montecito and the Sun Valley/Burbank area. With greater risks of catastrophic fire under drier and hotter conditions, and mudslides under more extreme storms due to climate change, a DER solution should be deemed even more valuable for its resilience value, given the vulnerability of a transmission	Please refer to the above responses. Also, the reference to “an N-2 contingency is not accurate. Please refer to the local capacity technical criteria set out in the ISO tariff.

Hour	11	12	13	14	15	16	17	18	19
CAISO PV Generation Data	6666	7500	7950	8300	8333	6666	4166	833	0
CAISO PV Generation Factor	0.80	0.90	0.95	1.00	1.00	0.80	0.50	0.10	0.00

	reliability solution to a local event that could remove all four lines from service causing an N-4 contingency. Thus, the transmission line should be considered as an alternative non-preferred approach, only if robust and legitimate DER procurement processes fail to meet the full LCR.	
5e	3. Co-located solar+storage obviate the need for any transmission lines. Although not directly related to the transmission line, CAISO should be aware than several other arguments against the role of DER provided in the LCR Plan are simply wildly mistaken. Thus, CAISO should carefully evaluate similar claims made by project proponents by considering the full range of capabilities of DER, much as CAISO did in the Puente Power Project proceeding. For example, statements in the LCR plan and related presentation that "[under] an N-2 [contingency], no ability to charge battery storage units (need energy)" are mistaken, since of course batteries would be charged from co-located solar in the system we model in association with these comments. Similarly, SCE states: "energy storage would be required to continuously discharge during the day in order to serve peak load and re-charge during hours when Goleta load is minimal. Given the limitations of the 66 kV tie lines from the adjacent system, there may not be enough energy in the off-peak hours to charge energy storage and serve the Goleta peak load needs the following operating day." Similarly, this would also not be true if the storage were to be charged during the day when solar generation exceeds local load. In fact, the Clean Coalition modeled an hour-by-hour dispatch of solar+storage based on the CAISO model, which in our understanding is the most up-to-date model of the Moorpark LCR need on an hourly basis.[8]6 In our modeling, the Clean Coalition demonstrated that with the 270MW of solar capacity, the addition of 130MW/990 MWh of storage (4-hour batteries) would be more than adequate to meet the LCR, including daily full charging from solar (of which 35 MW solar + 165 MWh would be needed even with the transmission line and the 240MW + 825 MWh would represent the additional capacity needed without the transmission line). Given that solar+storage can meet the entirety of the projected peak load under an N-2 contingency, numerous other statements in the LCR Plan are similarly misguided. For example, SCE dismisses the capability of solar to meet LCR needs "For instance, if LCR needs are associated with peak demands and the local capacity area is summer peaking, then distributed solar resources may be	An analysis to determine the ability of storage to be charged from co-located solar while still continuing to serve firm load would depend on the assumed amount of solar and other resources in the study scenario. If the solar were needed to serve firm load then it would not be available to charge the storage at the same time. If a large amount of solar were installed so that there was a surplus, then that surplus could be used to charge the storage. However, it may not be feasible to install a large amount of solar in the area. The ISO further notes that the proposed transmission project does nothing to reduce the 86 MW (NQC) Santa Clara sub-area LCR need or SCE's 105 MW Goleta resiliency objective. With or without the transmission upgrade a 35 MW solar + 165 MWh (4 hour) storage (which equals 76 MW) will not be adequate to meet the Santa Clara LCR need or SCE's Goleta resiliency objective even if both the solar and storage produce maximum output at the time of the peak load.

[8] Puente Scenarios Cost Models (Supplemental Testimony of Dr. Doug Karpa re CAISO Study, Puente Power Project Application for Certification, Docket Number 15-AFC-01, Exhibit 7035, TN# 220961)

	valuable." In fact, storage co-located with solar would not discharge during the day, but would rather charge from co-located solar and so would not need to rely on the 66kV system for recharge, and neither would the ability of solar co-located with storage be limited to meeting peak demands during summer daylight hours. Similarly, SCE mischaracterizes the operational capabilities of demand response. Today, Demand Response (DR) is not limited to a small number of calls to large industrial users, but rather includes capabilities such as automated DR of non-critical load. When SCE mistakenly suggests that "[i]f LCR needs occur only on rare occasions associated with such summer peak periods, then DR programs with a limited number of calls may be valuable" SCE is ignoring the modern capabilities of DR technologies. For example, small reductions in air conditioning or electric water heaters would be capable of repeated calls at any time such calls were needed, even if sporadic and outside of summer peaks.	Existing DR programs have specific limits on the frequency and duration that the load can be required to respond. Exceeding these limits would require the creation of new DR programs and the amount of customer participation and cost is presumably unknown at this time.
5f	IV. Conclusion Overall, the proposed Moorpark-Pardee line is the second best alternative to a full DER procurement to meet the Moorpark and Goleta LCRs. However, in recognition that that procurement has not yet been implemented successfully, it is critical that CAISO proceed to ensure that this alternative is available in the event that not enough DER are procured. However, CAISO should proceed with awareness that this alternative is almost certainly more expensive than the DER solution or at best only marginally cheaper. We appreciate CAISO's diligence in these matters and look forward to being of assistance.	Please refer to the above responses.

6	Sempra Renewables Submitted by: Randall Nicholson		
6a	Sempra Renewables appreciates the opportunity to comment on the CAISO's proposal to participate in upgrading the IID S Line. The proposal would upgrade the current 18.1 mile line from IID's El Centro substation to SDG&E's Imperial Valley substation by replacing the 230 kV single circuit wood pole construction with a 230 kV double circuit steel tower construction, along with the required termination equipment. The CAISO believes the upgrades will provide significant economic benefits, including reducing the combined San Diego - Imperial Valley local capacity requirements by 250 - 500 MW, and reducing approximately $6M in annual congestion on the ISO system. In addition to these economic benefits, the upgrade may increase deliverability from the Imperial area. The IID S line proposal comes at the tail end of the 2017-2018 Transmission Planning Process – a process that began more than thirteen months ago, and that will substantively conclude in a few weeks with the publication of the draft transmission plan in early February. Given the timing relative to the overall planning process, and the request for expedited approval, Sempra has the following questions/requests in order to better assess the proposal:		
	• Did the CAISO consider any alternatives, including non-wires alternatives, that could achieve the same or similar economic benefits at a comparable cost? If not, will there be an opportunity to explore alternatives prior to a final decision?	The ISO has reviewed other alternatives and a discussion is provided in the draft transmission plan.	
	• Will the S-Line upgrade potentially require additional upgrades within the IID system to achieve the desired economic benefits? That is, are there potential weak points downstream of the S-Line upgrade that will need to be addressed to realize the fully stated S-Line's economic benefits? Have these upgrade costs been considered or factored into the S-Line proposal's cost estimates?	The draft transmission plan will address this in more detail. The project economics are being calculated assuming the benefit from the upgrade alone. Other future reinforcements could yield further value from the upgrade and those are being acknowledged but not relied upon at this time.	
	• With the S-Line rating increased and CFE's use of a phase-shifter (installed to eliminate unscheduled flows on its system for loss of IV-North Gila 500=kV, Delany-Colorado River 500-kV, IV-Miguel 500-kV or Sunrise 500-kV line(s)), it seems as if there will be impacts on IID's underlying voltage systems (i.e.,161-kV, 92-kV). Assuming this to be	More detail on this concern would be helpful. Upgrading the S-line the LCR by 213 MW in the ISO's LCR analysis reduced. The next constraint was an El Centro transformer. In the ISO's production cost simulation work, upgrading the S-line mitigated	

	the case, will they be mitigated as part of the S-Line project, by IID or be assigned to new generators through "Affected System Studies"?	the congestion without seeing loading issues on the El Centro transformer.
	• Will the CAISO share the load flow study results underlying the proposal?	Please see the 2017-2018 Transmission Plan.
	• Will the CAISO share the Grid View economic study results?	Please see the 2017-2018 Transmission Plan.
	• Will the proposed upgrade require the WECC Path 46 ("West-of-River) rating to be modified since the S-Line expansion would no longer be a "net zero" contribution to the path flow?	No.
	• Who will be responsible for permitting and interconnecting the project?	IID will be responsible for the permitting and construction of the S-Line upgrade and termination facilities at El Centro. San Diego Gas and Electric will be responsible for the interconnection facilities inside the Imperial Valley substation.
7	The Sierra Club and the California Environmental Justice Alliance (CEJA) Submitted by: Alison Seel (Sierra Club), Matt Vespa (Earthjustice), Shana Lazerow (on behalf of CEJA)	
7a	Sierra Club and the California Environmental Justice Alliance ("CEJA") submit the following comments to express strong support for both the California Independent System Operator's ("CAISO") proposed Moorpark-Pardee 230 kV No. 4 Circuit Project and its participation with the Imperial Irrigation District ("IID") to upgrade IID's existing S-line. Sierra Club and CEJA appreciate CAISO's effort to move these cost-effective projects forward. Both will provide significant environmental benefits and we urge their approval by the CAISO Board.	The comments have been noted.
7b	1. The Moorpark-Pardee Circuit Project Avoids the Need for New Gas-Fired Generation to Meet Local Area Need in the Moorpark Subarea and Will Facilitate Achievement of California's Environmental Justice, Climate Adaptation and Clean Energy Objectives. Sierra Club and CEJA strongly support the proposal to string a fourth 230 kV circuit between the Moorpark and Pardee substations. As CAISO is well aware, the Puente project, which had originally been contracted to meet local area need, posed significant environmental justice, sea level rise, and biological resource concerns and was strongly opposed by the City of Oxnard, numerous state legislators, and environmental justice and environmental organizations. In contrast, extending a new transmission line on existing transmission towers is	

	an efficient use of the built environment with minimal environmental impact. The Moorpark-Pardee Project is a significant component of Southern California Edison's recently issued procurement plan to meet local area need in the wake of Puente's pending rejection by the California Energy Commission. By substantially reducing the local capacity deficiency in the Moorpark Local Capacity Resource (LCR) area, the transmission upgrade obviates the need for new gas-fired generation to meet local area need and avoids the many impacts posed by the Puente project. We applaud CAISO's efforts to identify environmentally preferable alternatives to Puente and urge the CAISO Board to approve this important project.	
7c	2. Upgrades to the S Line Upgrade Will Provide Significant Environmental Benefits and Improve Resilience in the San Diego Area in the Event of Limits on Gas Imports. Sierra Club and CEJA also strongly support the CAISO's efforts to upgrade and reconductor the S Line connecting San Diego to the Imperial Valley sub-area. Import capability into San Diego is currently constrained by thermal limits on the S Line. Adding a second circuit to the S Line would increase the amount of energy that could be imported to San Diego, improving electric reliability and resiliency in the region. Additionally, greater access to energy imports from the Imperial Valley will increase San Diego's access to renewable resources: the Imperial Valley is recognized as one of the highest potential sources of geothermal generation, and is designated as a Competitive Renewable Energy Zone and included in the Renewable Energy Transmission Initiative. An upgrade to the S Line has the added benefit of increasing grid reliance in the event gas supplies cannot be delivered to the San Diego to power in-basin gas generation. Notably, San Diego Gas and Electric and Southern California Gas Company are currently requesting authorization at the Public Utilities Commission to construct a redundant gas pipeline into San Diego, justified in the name of system resiliency. The utilities claim one reason the new pipeline is needed is to ensure electric reliability in San Diego in the event an unexpected, extended pipeline outage of existing Line 3010 curtails gas deliveries to in-basin generators. (An unplanned outage of Line 3010 has only occurred once, for a day, in 1985 and did not result in a loss of customer service.) The utilities estimate the project will cost ratepayers $2 billion and be ratebased through at least 2063.[9] Upgrading the S Line, by contrast, would reduce reliance on in-	

[9] A.15-09-013, Application of SDG&E and SoCalGas for a Certificate of Public Convenience and Necessity for the Pipeline Safety and Reliability Project (Filed Sept. 30, 2015).

	basin gas generation in the event such an outage occurred and, at the CAISO's estimated cost of under $50 million, would represent significant cost savings. At a time of rapid decarbonization of the energy sector, the proposed S Line upgrade represents a much more forward-thinking investment than a costly expansion of fossil fuel infrastructure.	
7d	Accordingly, Sierra Club and CEJA urge CAISO to approve both the Pardee-Moorpark and S Line transmission upgrades.	
8	Southern California Edison Submitted by: Jonathan Yuen	
8a	Southern California Edison (SCE) appreciates the opportunity to provide comments to the California Independent System Operator (CAISO). SCE reviewed CAISO's presentation on the Pardee-Moorpark No. 4 230 kV transmission circuit (the Project) and participated in the January 11, 2018 stakeholder meeting regarding the same. Below please find SCE's comments regarding specific sections of the presentation as well as general comments made during the stakeholder meeting.	
8b	"Goleta Resiliency" (slides 2, 5, & 6) For consistency with the terminology used in SCE's Moorpark Sub-Area LCR Procurement Plan submitted to the California Public Utilities Commission (CPUC) for approval on December 21, 2017, please replace all instances of "Goleta resiliency *needs*" to "Goleta resiliency *objectives*" on slides 2, 5 and 6 of the CAISO's presentation.	These changes will be addressed in future presentations and material.
8c	"Comparison of alternatives" (slide 8) CAISO's Alternative 1 is categorized as "Achievable" in terms of meeting the required 12/31/2020 in-service date. While SCE cannot guarantee at this point that full procurement is 100% "achievable" by the 12/31/2020 date, SCE is taking the necessary steps towards procuring and interconnecting resources to meet the LCR need by the 12/31/2020 OTC retirement compliance deadline. SCE recommends that the CAISO change its presentation to represent Alternative 1 as "Tx: Achievable, 86MW by 12/31/2020: Aggressive" and Alternative 3 as "Achievable" to "More aggressive."	The comment has been noted. Future material will take these comments into account.

8d	<u>Licensing requirements for the No. 4 circuit</u> SCE anticipates the Project will not be subject to the CPUC licensing requirements under General Order No. 131-D because SCE currently plans to install "new or additional conductors, insulators, or their accessories on (or replacement of) supporting structures already built" which would not be subject to a Certificate of Public Convenience and Necessity (CPCN). SCE will work with the CPUC and other regulatory agencies as needed to meet the 12/31/2020 OTC compliance deadline.	The comment has been noted.
8e	<u>Estimated cost range of Preferred Resources in lieu of the No. 4 circuit (slide 8)</u> Based on its procurement experience, SCE offers an estimated range of net costs for the additional Preferred Resources that would be needed to meet the Moorpark LCR need in lieu of the proposed Moorpark-Pardee No. 4 line. As indicated on slide 8 of the CAISO's presentation, with Alternative 2, 318 MW of Preferred Resources will be needed absent the Project, and with Alternative 1 only 86 MW of Preferred Resources will be needed if the Project is installed. The 232 MW difference (318 MW minus 86 MW) between Alternatives 1 and 2 has an estimated net cost range of $850 million to $1 billion. For clarity, this estimated net cost range is solely for 232 MW of Preferred Resources and does not include the remaining 86 MW of Preferred Resources required to completely fulfill the 318 MW requirement described in Alternative 2 (slide 8). Further, it should be noted that SCE considered the benefits (in dollars) of the Preferred Resources (e.g., energy value, capacity value, etc.) in its calculation of the estimated cost range. As such, the $850 million to $1 billion represents the estimated net costs of the additional 232 MW of Preferred Resources.	The comment has been noted.