The ISO received comments on the 2013-2014 Transmission Planning Process Stakeholder Meeting on September 25-26 from the following:

1. AES Southland (AES)
2. Bay Area Municipal Transmission (BAMx)
3. California Department of Water Resources State Water Project (CDWR)
4. California Energy Storage Alliance (CESA)
5. California Public Utilities Commission (CPUC)
6. California Wind Energy Association (CalWEA)
7. CalPeak Power, LLC (CalPeak)
8. Clean Coalition
9. Critical Path Transmission
10. Comments from David Cohen
11. Eagle Crest Energy (ECE)
12. Imperial Irrigation District (IID)
13. Interstate Renewable Energy Council (IREC)
14. Large-scale Solar Association (LSA)
15. LS Power Development, LLC (LS Power)
16. Nevada Hydro Company (Nevada Hydro)
17. NRG Energy, Inc. (NRG)
18. Pacific Gas & Electric (PG&E)
19. Pinnacle West Capital Corporation (PNW) and MidAmerican Transmission (MAT)
20. San Diego Gas & Electric (SDG&E)
21. Southern California Edison (SCE)
22. Transmission Agency of Northern California (TANC)
23. Western Area Power Administration (WAPA)

Copies of the comments submitted are located on the *2013-2014 Transmission planning process* page at: http://www.caiso.com/Documents/Comments%20on%20Sep%2025-26,%202013%20meetings under the Meetings Sep 25-26, 2013 subheading.

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

No	Comment Submitted	ISO Response
1	**AES Southland (AES)** **Submitted by: Eric Pendergraft**	
1a	SCE proposed the Mesa Loop-In project and indicated that the "Mesa 500 kV Loop-in can reduce 734 MW to 1,200 MW of gen need" in the Western Los Angeles Basin. Since the viability of this solution is largely dependent on the assumptions used in the simulations, AES SL respectively requests that the following information be made available for review: How much additional generation, if any, may need to be procured from other areas as a result of this reduction?	The ISO is considering the proposal and will document its analysis in the 2013/14 Transmission Plan.
1b	What criteria did SCE use to determine the magnitude of the generation reduction (such as mitigation of specific thermal overloads)?	Please refer to the response above.
1c	The location of generation that was simulated to be reduced and the location of other generation that had to be increased or added to the solution.	Please refer to the response above.
1d	The assumptions that cause the generation reduction to vary from 734 MW to 1,200 MW.	Please refer to the response above.
1e	Other reliability measures that may need to be assumed (such as voltage support) to ensure all reliability requirements are met.	Please refer to the response above.

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2	**Bay Area Municipal Transmission (BAMx)** **Submitted by: Robert Jenkins, Barry Flynn and Pushkar Wagle**	
2a	**General Comments** ***High Voltage Transmission Access Charge Estimating Model*** BAMX supports the CAISO efforts to post a High Voltage TAC model in October. BAMx encourages the CAISO post the model and documentation so that Stakeholders can use the model and potential prepare sensitivity analysis of the future HV TAC charge impact of some of the large projects under consideration in the 2013-14 Transmission Planning Process (TPP).	The High Voltage TAC model was posted on October 10 2013, and a stakeholder call reviewing the model was conducted on October 14, 2013. The model, used in the 2012-2013 transmission planning cycle, will be updated in the 2013-2014 transmission planning cycle.
2b	***Economic Planning Studies*** BAMx appreciates the description provided by the CAISO staff during the stakeholder meeting providing a comparison of study assumptions in the new simulation model and the last year's model. The CAISO staff indicated that the simulation model takes into account the Energy Imbalance Market (EIM) modeling that is only applicable to real-time market. BAMx seeks more clarification of how day-ahead versus real-time market operations are modeled in the chronological 8,760 hourly simulations using the production cost tool that models future years. We understand that the CAISO will evaluate economic benefits and costs of not only the Delaney-Colorado River project, but also several other projects such as, the *Harry Allen –Eldorado 500 kV line* project. During the last year's planning cycle, the CAISO's Net Present Value (NPV) calculations of the benefits of the candidate transmission projects were questionable. In our comments on the 2012-13 Transmission Plan, we conducted an exercise to demonstrate that the CAISO's calculation of the benefits based on only two years of data was highly susceptible to how the extrapolation of these benefits are calculated.2 We encourage the CAISO to seek stakeholder input into extrapolation of benefits associated with the candidate transmission projects based upon only two years of production cost studies.	Yes, the EIM is only applicable to the real-time market. To precisely model the EIM in its entirety and within the larger framework of the ISO market would require a DA-HA-RT multi-tier dispatch model. However, that level of modeling is not feasible for the computationally-intensive analysis in the transmission planning horizon. Therefore, an approximation is made in the planning database with the 8,760 hourly dispatch model. The approximation is not to enforce EIM in unit commitment (UC) phase but to enforce EIM in economic dispatch (ED) phase. Although the production simulation is based on two years (i.e. 2018 and 2023), the future-year benefits beyond the second year is not dependent on the trending of the two points. The calculation of Net Present Value (NPV) is based on established TEAM methodology. The ISO is open for stakeholder comments and discussions to clarify the TEAM approach.
2c	***Determining an Effective Mix of Non-Conventional Solutions to***	Thank you for the comment. This is the general approach the ISO taking.

No	Comment Submitted	ISO Response
	Address Local Needs in the TPP BAMx supports the direction of increased reliance on Preferred Resources in this TPP. Reliance on a portfolio of Preferred Resources not only supports the environmental objectives, but also manages the risk of delay or failure of any one project through diversification. BAMx supports the CAISO's plan in the 2013-14 TPP to first model the non-conventional resource mixes in the transmission system models and then determine the remaining conventional resource and transmission mitigation needs with these potential mixes of non-conventional resources. The CAISO should develop scenarios that rely only on conventional generation and the preferred resources to meet the reliability needs. Then, it should develop transmission alternatives that reduce the level of conventional generation needed to ensure reliability. This would allow those combinations to be evaluated in Phase 4 of the LTPP to identify the least cost approach for ratepayers. BAMx is concerned that the conventional generation resources will be only considered for the residual reliability need after both Preferred Resources and new transmission development have been identified. This approach does not allow a full economic evaluation of the transmission vs. generation tradeoffs.	
2d	**CAISO Reliability Assessment Results** ***San Francisco Bay Area – East Bay*** BAMx appreciates the acknowledgement that there continue to be Category B situations in the East Bay where non-consequential load loss will occur. While PG&E has submitted a conceptual project for the Moraga-Oakland J 115 kV reconductor, there is no project proposed for this cycle, which eliminates the non-consequential load loss. We request that a mitigation to eliminate this Category B violation be included in this planning cycle. The current base case model reflects two Oakland CTs on-line as a base case assumption. We understand that these CTs are limited in their hours of operations due to emissions restrictions. Oakland CT historical operation levels show that the CTs are not in operation or are operated very little during many months of the year, including the winter months when the load in the East Bay peaks. We understand that the CTs are also dispatched to facilitate maintenance activities in the East Bay. Additionally, these CTs are	The ISO continues to work with the PTO on an action plan which includes opening Grant-J line at Oakland J following RCEC outage. The ISO will continue evaluating the potential of reconductoring Moraga-Oakland J 115 kV Line as well as other viable cost-effective solutions. The TPP reliability assessment identified constraints with the Moraga-Claremont #1 and #2 115 kV lines in the year of 2023. In the meantime, the LCR that ISO procured is adequate to address the related reliability issues. The ISO recognizes the aging issues of the CTs and will reassess in the 2014-2015 TPP.

No	Comment Submitted	ISO Response
	old, having been installed in 1978. Given their age, we are concerned about an over-dependence on these units through the full 10-year planning horizon. Therefore, based on their past operation, age and emissions limits, we recommend that the CAISO and PG&E consider modeling these CTs off-line in base case, but available to be paralleled and dispatched as part of system adjustment between contingencies. We also recommend maintaining the current planning practice of assuming one CT fails to start when called upon. As the base case has been set for this planning cycle, we request that this change in assumptions be reflected in the 2014-15 TPP. The reliability issues in serving the Station J area, the operating history of the Oakland CTs and the emerging issues on the Moraga-Claremont #1 and #2 115 kV lines (even with the CTs online), reflects the need to take a broader look at the long-term reliability in the East Bay area. Coupled with the seismic risk of an event on the Hayward fault, we believe that the CAISO's statement in the August 6 stakeholder meeting on San Francisco Peninsula Extreme Events that "TPP has not identified deficiencies in Oakland area, will consider beyond 10 year horizon in write-up" should be revisited and alternatives that can contribute to reliability in both the East Bay and the SF peninsula should be favored over those that only serve one function.	
2e	***San Francisco Bay Area – San Francisco*** This year's assessment again shows very high thermal overloads on the Potrero-Larkin #1 and #2 115 kV cables. (See SF-SP-T-03, SF-SP-T-06, SF-SP-T-08, SF-WP-T-04, and SF-WP-T-06 cases in this year's assessment). For several cycles the solution has been described as an action plan to transfer loads. We understand that rather than a load transfer, the proposed solution is a switching procedure at Larkin following the initial contingency. The ultimate plan is to rebuild Larkin into a BAAH configuration. As this item has appeared previously and the potential overloads are very high, what is the status of these action plans and what remains to complete the mitigation?	The previously approved Potrero 115 kV Bus Upgrade project will remove the existing unused connections to the retired Potrero Power Plant, move the location of the Potrero-Larkin No. 1 (AY-1) Cable and Potrero 115/12 kV Transformer No. 2, and add two sectionalizing 115 kV breakers. This project protects against NERC Category C1 and C2 contingencies and reduces the amount of distribution transformers lost for bus and breaker faults. In the interim period, between the years 2012 and 2015 NERC compliance is provided by conducting operator switching actions and/or load curtailment. In addition some of the other reliability constraints are effectively mitigated by the existing TBC Runback scheme. The ISO will continue to assess if the Runback scheme needs to be modified as required in future cycles.

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2f	***San Francisco Bay Area – San Jose/De Anza/Peninsula*** The San Jose area contingency, SanJ-SP-T-27 (a category C5 event), shows an overload on the Trimble-San Jose B 115 kV line. We understand that this limitation is due to terminal equipment and the upgrade cost is modest. However, the upgrade was not submitted into the request window by PG&E. Will this work be included in the 2013-14 Transmission Plan? In the DeAnza area we have previously seen some high contingency loadings on the Metcalf- Monta Vista No. 1 and 2 230 kV circuits, though they were not overloaded in the 2012-13 Transmission Planning cycle. However, when we ran the below C5 contingency on the GBA 2023SP case, we observe a 1.9% overload on the Vasona-Saratoga 230 kV section. This overload does not appear in the assessment files. C5_17 "Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line " #B2_7 "Metcalf-Monta Vista No. 3 230 kV Line " line 30735 30705 "3 " 1 0 # line from METCALF 230.00 BRKR to BRKR MONTAVIS 230.00 #B2_8 "Monta Vista-Coyote Sw. Sta. 230 kV Line" line 30741 30705 "4 " 1 0 # line from CAL MEC 230.00 BRKR to BRKR MONTAVIS 230.00 Please include this contingency in your reliability assessment and describe your proposed mitigation in this year's plan. We understand that CalTrain has initiated a Peninsula Corridor Electrification Project (PCEP) where they will be converting the existing diesel locomotives on the Peninsula and South Bay to electric propulsion with a goal of being in operation in 2019. This is expected to add a variable load of high peak demand to the system. We also understand that the loads will be unbalanced and potentially inject harmonics into the system. Given the time horizon, consideration of these loads should be included in future TPP cycles.	The ISO will continue to work with the PTO to assess the issues with the limiting conditions in future planning cycles. For the DeAnza area, ISO has approved the previously approved Monta Vista 230 kV Bus Upgrade Project which has resolved numerous contingencies that have been identified in the previous TPP. Therefore, some contingencies do not appear in this year TPP. The ISO will continue to review the potential CalTrain's Peninsula Corridor Electrification Project with the PTO as well as what is included within the CEC load forecast with respect to electrification of this nature.

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2g	**PTO Request Window Project Applications** ***Southern California Reliability Assessment with SONGS shut down*** While both SCE and SDG&E presented transmission options for potential mitigation of reliability issues associated with SONGS shut down, the potential solutions were prepared independently. Additionally, these alternatives were prepared using the initial TPP base case assumptions for Preferred Resources. Therefore, it is difficult to assess the relief provided and the potential for local resources to defer the need to large transmission expansion. Given the CAISO's role as a central transmission planning agency, we expect it to take a comprehensive approach in reconciling the generation and transmission needs within both SCE and SDG&E areas.	Thank you for the comment. This is the general approach the ISO is taking.
2h	***Southern California Edison Metro*** The Mesa Loop-In project is presented as a mitigation to address two different T-1-1 (C3) contingencies. Loss of a 500/220 kV transformer is very rare. WECC published data indicate a failure rate of about one in 27 years (compared to once in seven months for a transmission line). That would suggest that the probability of the independent overlapping loss of two transformers would be extremely rare. Therefore, before concluding that the appropriate mitigation is the construction of a $500M-$700M transmission expansion, consideration should be given to less expensive measures including fire walls between transformers, system spares in addition to the on-site spare and utilizing customer interruption as a backstop measure. Since customer interruption is allowed under WECC and NERC standards for Level C events and is the mitigation used on the CAISO grid for rare but much more likely events, it should be considered for this extremely unlikely event/overlapping contingencies.	We acknowledge that, taken in isolation, the preliminary results for the SCE Metro area the ISO presented at the September 25 stakeholder session could give the appearance that the Mesa Loop-In project was being considered as a potential solution to address two T-1-1 contingencies. However, that is not the case as explained below. First, the results for the SCE Metro and San Diego area should be viewed together to get a more complete picture of the post-SONGS reliability requirements in particular since the L-1-1 outage of Sunrise Power Link and Southwest Power Link is the most limiting contingency for the combined study area. Secondly, the preliminary results assumed additional local capacity in the LA Basin and San Diego areas, over and above the amount the CPUC authorized in its 2012 LTTP Track-1 decision, would be available to replace SONGS. As a result of this assumption, the preliminary results did not reveal the full extent of the post SONGS reliability concerns in the area. Due in part to similar questions from stakeholders during the September 25-26 meeting and partly based on developments in the CPUC Track-4 proceeding, the ISO has provided updated results which document the post-SONGS system performance with only authorized local capacity amounts modeled. The updated results are available at: http://www.caiso.com/planning/Pages/TransmissionPlanning/2013-2014TransmissionPlanningProcess.aspx.

No	Comment Submitted	ISO Response
		The ISO is evaluating the Mesa Loop-In Project as one element of the Post-SONGS solution that is needed to: • address the Post-SONGs reliability concerns as presented in the final results for SCE Metro and San Diego areas • alleviate the increased overall loading on transmission facilities in the LA Metro and San Diego areas resulting from the retirement of SONGS and OTC generation as well as longer term load growth and • reduce the amount of new local capacity needed to replace retired generation.
2i	***San Diego Gas & Electric Major Projects*** The SDG&E proposed HV AC/DC Alternatives are very costly and have a high level of permitting uncertainty. Preferred resources and local conventional generation should be considered as strong alternatives to the identified transmission expansion project. As the SONGS shut down is a recent event, sometime will be necessary to determine whether the market for local resources is able to respond. Therefore, such transmission projects should not be immediately approved, but should be allowed to compete against a solicitation for local conventional resources. The CPUC, as part of its LTPP proceeding, would then be in a position to select an optimal solution of transmission and/or local generation. Given the urgency of the need and the long lead-time to develop transmission, early development work on the transmission alternatives may need to occur prior to the decision on local generation versus transmission. If the CPUC determines this to be the case, it may be appropriate to provide a reasonable level backstop funding for early work to maintain the transmission schedule. The proposed Sycamore and Mission Reactive Support Projects propose to install +240/-120 MVAR of synchronous condensers at each substation. While the posted CAISO assessment identifies some minor post-SONGS voltage violations on the high voltage system, it identifies numerous voltage violations on the low voltage transmission system. Before such high voltage solutions are approved, solutions to the low voltage transmission issues should be identified. Reactive devices installed to address these issues on the low voltage systems may potentially address the few high voltage	The ISO is developing a comprehensive overview of the effectiveness of the various proposed mitigations to be included in the 2013-2014 draft transmission plan.

No	Comment Submitted	ISO Response
	transmission violations. Additionally, if reactive compensation remains necessary after the reactive devices are installed for lower voltage issues, additional less costly additions to the lower voltage system should be evaluated. And after this evaluation, if a 230kV solution is chosen, the proposed use of synchronous condensers needs future justification. While SDG&E indicated that synchronous condensers have similar initial capital costs compared to static VAR devices, the operating costs must be considered as well. The high maintenance cost of rotating equipment and high energy losses should be considered.5 SDG&E also identified the inertia provided by synchronous condensers as justification. However, the reliability assessment did not identify any transient stability issues that would indicate the need for additional inertia. The Imperial Valley Flow Control project proposes to install two 500 MVA phase shifters to control the power flow between the CAISO system and the IID/CFE systems. Before deciding on a phase shifter solution, lower cost measures should be explored. These could include system arrangements such as splitting the Imperial Valley 230 kV bus to isolate the CFE and IID connections onto one 500/230 kV transformer.	
2j	***Application of Planning Standards for N-1-1 Contingencies*** In identifying the reliability deficiency in the LA Basin and San Diego, transmission studies have shown a widely different assessment of the reliability need depending on the Transmission Planning Criteria applied. While all analyses met the FERC/NERC mandated minimum Planning Standards, whether loss of customer load is allowed following less probable events (such as the overlapping loss of two transmission circuits) is discretionary to the local jurisdiction. There are many locations within the CAISO grid where loss of load is acceptable for such events, including an existing automatic load interruption scheme in San Diego. Also, given that the critical contingency driving the reliability need is for two transmission circuits that are not on common structures and have a separation exceeding the WECC minimum necessary to address common mode failure risks, the likelihood of this event during high load periods is extremely small. In such cases, planned and controlled interruption of pre-selected loads is worthy of consideration.	The ISO has consistently applied the framework that large blocks of urban load shedding should not be relied upon as long term planning solutions for category C n-1-1line outages. This issue has been thoroughly addressed by the ISO in recent CPUC proceedings. Please see pages 16-19 of the ISOs Opening Brief in Track 4 of the CPUC Long-Term Procurement Planning Proceeding. http://www.caiso.com/Documents/Nov25_2013-Track4OpeningBriefR_12-03-014.pdf The ISO intends to conduct a process to amend the ISO Planning Standards in 2014 to clarify this issue.

No	Comment Submitted	ISO Response
	Therefore, as part of the development of the reliability needs for this area, public vetting and well-analyzed and supported decision-making process is necessary to establish whether and how much load shedding should be allowed in the area for such events. (Note that a decision to implement a load shedding scheme can be modified if future events warrant it; however, a decision to install large capital facilities, whether transmission or local generation, are longlived).	
2k	***Valley Electric Area (VEA) Nevada West Connect 230 kV New Line*** The VEA proposed Nevada West Connect 230 kV line lacks sufficient justification for such a major transmission expansion. From a reliability perspective, the CAISO assessment identified much lower cost solutions to the identified forecasted reliability deficiencies. Such a massive transmission project is certainly not justified to address voltage issues on VEA's remote 10 MW (peak) load area in the Fish Lake area. As for enhancing access to renewable energy projects to export beyond the VEA system, this must be measured against the portfolios provided by the CEC and the CPUC into the Transmission Planning Process. Also, the proposal is incomplete as the proposed project, though already very costly, does not address how the potential renewable energy would move beyond Inyo or Eldorado Substations, both of which already have identified renewable energy potential in excess of the planned transmission capacity.	Since the reliability issues reported as part of reliability assessment can be addressed by system readjustment, the ISO has determined that Nevada West Connect Transmission Project is not needed to be approved in this planning cycle. The ISO will continue to evaluate reliability issues in the future planning cycle.
2l	***Conceptual Projects*** Additional information should be made available on the conceptual transmission projects envisioned by PG&E. This would provide Stakeholder an opportunity to engage in the development of these potential projects while they are still in their formative stage. BAMx members are particularly interested in concept of bring additional 230 kV transmission facilities into the San Jose area and very large projects such as the Table Mountain-Tesla Transmission Project. The Table Mountain-Tesla Transmission Project, in part, was described as being in response to the potential loss of the CDWR loads and resources in HVAC SPS. The CAISO analysis indicated that after the transmission upgrades already approved and planned to be in place by 2018, the Path 66 transfers would not be adversely impacted for northern California	The ISO's transmission planning process does not include provisions for the consideration of "conceptual projects", but continues to provide transparency by making the information received available to other stakeholders. Stakeholders may wish to pursue their own discussions, or participate in future planning cycles when these projects may become more relevant.

No	Comment Submitted	ISO Response
	hydroelectric conditions below 70 percent and only modestly impacted for hydroelectric generation levels up to 80 percent. While certainly additional economic analysis is necessary to assess this impact, such major transmission expansion does not appear to be justified.	

No	Comment Submitted	ISO Response
3	**California Department of Water Resources State Water Project (CDWR) Submitted by: Aseem Bhatia**	
3a	1. CDWR requests that CAISO provide a brief description of each contingency and its results, to supplement the summary table, which is not as descriptive. For example, it is not easy to identify which contingency switch file is associated with each identified overloaded facility. CAISO should also post the dynamic files (.dyd) along with their associated basecases that were used for their preliminary TPP studies for validation.	Detailed studies of the CDWR RAS including descriptions of contingencies and RAS that were studied are included in Appendix B of the Draft Transmission Plan. Dynamic files are posted on the ISO secured website.
3b	2. On Slide 3 of the "PG&E Bulk Transmission System Preliminary Reliability Assessment Results" presentation, CAISO states COI flow as 4800 MW (N-S) for years 2015, 2018, and 2023 summer peak. CDWR understands that PG&E's RAS with CDWR's participation helps establish the COI path ratings. CDWR further understands that some COI path owners believe that CDWR's participation in PG&E's RAS remains essential for this reason. The TPP study results suggest that, absent CDWR's participation in PG&E's RAS, there appear to be overloads in certain cases that could be resolved by reducing certain path ratings, leading to potential reliability impacts. Please clarify if CAISO would be able to achieve the existing COI path rating of 4800 MW North to South without CDWR's participation in PG&E's RAS? In addition, did the CAISO notice any impacts on Midway-Vincent Path 26 and Path 15 ratings, with and without CDWR's participation in PG&E's RAS?	The PG&E Bulk Transmission system was studied for the most critical conditions, such as North-to-South flow on COI at 4800 MW and Northern California hydro output at 80% of the plants' capacity. The studies identified some Category C overloads under these conditions if the CDWR RAS were not applied. Therefore, nomograms were developed to determine the operational limits depending on COI flow, Northern California hydro output and output of the Colusa and Hatchet Ridge power plants. It was concluded that absence of the CDWR RAS will not impact the COI rating of 4800 MW, but the system should be operated within COI nomograms. Currently, the system is also operated within existing seasonal COI nomograms, which are updated every season and will be continued to be seasonally updated when the contract with CDWR expires. CDWR RAS did not have impact on the Path 15 ratings because the RAS for this Path includes PG&E load shedding and tripping the loads armed by the Path 15 RAS is sufficient to mitigate overloads without the CDWR RAS. The studies did not show any limitations on Path 26 that would require tripping any of the CDWR facilities.
3c	3. CAISO's preliminary study results only show impacts with and without Hyatt/Thermalito generation tripping as part of CDWR's participation in PG&E's RAS. Can the CAISO clarify whether there were any impacts analyzed with and without CDWR's load dropping?	The impacts were also analyzed with and without CDWR pump load dropping. Since the absence of pump dropping was the most critical and it did not show any problems, only results without pump dropping were posted.
3d	4. Did the CAISO run all the contingencies with and without CDWR's participation in PG&E's RAS? For example, were contingencies run for the Los Banos area with and without CDWR's participation in RAS, since it is	Yes, the ISO ran all the contingencies with and without CDWR participation in the RAS, including Path 15 (Los Banos area) contingencies. For the Path 15 contingencies, Path 15 RAS were modeled that includes 5 groups of

No	Comment Submitted	ISO Response
	highly congested and CDWR's participation in PG&E's RAS was originally considered necessary to alleviate congestion issues in that area?	generation and load tripping. If all 5 groups are armed, CDWR RAS appeared not to be necessary to mitigate the congestion.
3e	5. While performing this preliminary TPP analysis, did the CAISO identify any transformer overloads without CDWR's participation in PG&E's RAS?	On the contrary, the studies determined that the Table Mountain 500/230 kV transformer may overload with a 500 kV double outage south of Table Mountain under peak load conditions if the CDWR generation (Hyatt and Thermalito) is tripped by RAS. Without Hyatt and Thermalito tripping this transformer will not overload. Another transformer overload identified in the PG&E Bulk system studies was Category C overload of the Olinda 500/230 kV transformer under off-peak load conditions. This contingency (Malin-Round Mtn 500 kV lines # 1 and # 2) does not require CDWR RAS, but requires Colusa SPS that will mitigate the overload.
3f	6. The nomograms on Slide 15 of the "PG&E Bulk Transmission System Preliminary Reliability Assessment Results" presentation indicate the COI flow limits without CDWR's participation in PG&E's RAS for heavy summer cases in years 2015 and 2018 due to a double line outage at the Table Mountain-Tesla and Table Mountain-Vacaville Dixon 500kV Transmission Lines. It shows that in year 2018, without CDWR's participation in PG&E's RAS, with Hyatt generation at 710MW, the COI path will be able to tolerably support 4800MW, with up to 70% Northern California Hydro (NCH). However, in the 2018 summer peak case, the ratings persist to drop significantly to as low as 2600MW as NCH increases beyond 80%. Did CAISO further perform their assessment on spring off-peak cases with high NCH? For direct comparison, could CAISO also provide nomograms for similar basecases, with and without CDWR's participation in PG&E's RAS?	The studies of the 2013-2014 Transmission Plan included summer peak and off-peak cases, but did not include spring off-peak cases. These cases, as well as other peak and off-peak cases are studied by the ISO Operation Engineering for each season in the short-term planning. The ISO Operation Engineering develops COI nomograms each season for various system conditions. They are not included in the ISO Transmission Plan, but included in the ISO Operational Procedures. It should be also noted that the conditions of high import (high COI flow) together with high Northern California hydro output (beyond 80%) and full output of the Colusa and Hatchet Ridge plants is unlikely based upon past operation. In addition, the economic studies did not show any congestion on COI, so no transmission upgrades were proposed at this time.
3g	7. Can CAISO verify if CDWR's participation in PG&E's RAS tripping is no longer needed to mitigate for any Diablo-Canyon related generator or transmission line contingencies?	Diablo Canyon related generator or transmission contingencies don't include tripping of any CDWR facilities.
3h	8. On Slides 10 through 14, CAISO presented contingencies including several associated with a double line outage at Table Mountain-Tesla and Table Mountain-Vaca Dixon 500 kV causing several Category C thermal overloads without CDWR's participation in PG&E's RAS:	Re-rating the Delevan-Cortina 230 kV line is being proposed in this planning cycle. The COI path ratings are not going to be reduced if CDWR is not participating in the COI RAS. However, the system will be operated

No	Comment Submitted	ISO Response
	a. On Slide 10, for a Delevan-Cortina 230kV thermal overload, as mitigation, CAISO recommends reducing COI import, upgrading the existing line or modifying RAS to trip Colusa generation. • It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. How would CAISO enforce reducing the COI path ratings if CDWR's participation in PG&E's RAS is not available? Also, is a modification or upgrade to this line already being considered in PG&E's transmission reliability plan mitigations? What would be the estimated capital costs for modifications or upgrades to this line?	according to COI seasonal nomograms, the same way as it is operated now. The nomograms will be updated every season as it is done now.
3i	b. For a Cottonwood E-Round Mountain 230kV Line #3 overload, without CDWR's participation in PG&E's RAS, CAISO's recommended mitigations include modifying the existing Cottonwood E- Round Mountain #3 line or reducing COI import capability or modifying RAS to trip other generation and do switching. • It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. Can CAISO clarify if they go with the first option to upgrade the line, what is the length of this line and is it a feasible solution? What would be the estimated capital cost to re-conductor this line? Secondly, how would CAISO enforce reducing the COI path ratings if CDWR's participation in PG&E's RAS is not available? And for the third alternative, can CAISO specify which other RAS would be modified and which generating facilities would be switched?	Overloads due to local contingencies are Category C events for which tripping generation (Pit area for example) depending upon the system condition during the contingency condition helps mitigate the identified overloads in the interim. Regarding the PG&E Bulk system contingencies and COI path ratings, see response to the previous question.
3j	c. Similarly for overloads at Pease-East Marysville 115 kV, Pease-East Marysville 115 kV, Rio Oso -E. Nicols 115 kV, Rio Oso – Green leaf Tp 115 kV, E. Marysville – Olive Hurst 115 kV; CAISO recommended mitigations including to modify RAS to trip other generation and perform switching, or reducing COI import, until South of Palermo project is complete. • It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. What is the estimated online date of the South	The current estimated in-service date for the South of Palermo project is May 2019. Overloads due to local contingencies are Category C events for which tripping generation (Colgate PH for example) and system reconfiguration (opening Table Mtn.-Palermo 230 kV line for example) depending upon the system condition during the contingency condition help mitigate the identified overloads in the interim. Regarding the PG&E Bulk system contingencies and COI path ratings, see

No	Comment Submitted	ISO Response
	of Palermo project and how is CAISO planning to mitigate the overloads without CDWR's participation in PG&E's RAS in the mean time? Could CAISO provide more details on what other generation and at what locations might be tripped by PG&E's RAS signals and where would CAISO perform switching? Regarding the potential reduction of COI path ratings, how would CAISO enforce reducing the COI path ratings if CDWR's participation in PG&E's RAS is not available?	response to the question 3h.
3k	d. For a *Table Mtn-Rio Oso 230 kV* overload, CAISO's recommended mitigations include upgrading terminal equipment or modifying RAS to trip 100MW load in Table Mountain area. • It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. Does CAISO have cost estimates for the upgrade terminal equipment? Can CAISO clarify whether the 100MW load they are considering to drop is either firm or non-firm load?	Terminal equipment at the Rio Oso 230 kV Substation will be upgraded when the substation is converted to the Breaker-and-a-Half (BAAH) configuration. This is PG&E maintenance project and it doesn't need CAISO approval. Therefore CAISO doesn't have cost estimates for this project. If the system is operated within COI nomograms, load tripping at Table Mtn will not be needed. 100 MW of load tripping was preliminary alternative of this overload mitigation. In addition, the economic studies did not show any congestion on COI, so the CAISO doesn't consider tripping load for this Category C contingency.
3l	e. For an *Eight Mile-Lodi 230 kV* overload, CAISO's recommended mitigations include modification of RAS to trip other generation, or installation of series reactors on this line, or upgrades to the line. • It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. Can CAISO provide more details on which RAS are they considering to modify and where it is located? Does CAISO have preliminary cost estimates for the installation of series reactors or an upgrade to the line?	The mitigation measures such as installation of a series reactor or the line upgrade were preliminary. They are no longer being considered. If the system is operated within COI nomograms, upgrades of the Eight Mile-Lodi 230 kV line, or modification of RAS will not be needed. In addition, the economic studies did not show any congestion on COI, so no transmission upgrades were proposed.
3m	9. Currently PG&E meets its southern island load tripping obligation for a complete three 500kV line loss or full COI intertie separation by including CDWR's participation in PG&E's RAS as well as tripping some of PG&E's own load groups. Has the CAISO reviewed whether the system can withstand a COI intertie separation without CDWR's participation in PG&E's RAS? What would be substituted in place without CDWR's participation in PG&E's RAS including a non-instantaneous (5 minute) trip of part of CDWR's largest pumping plant, Edmonston, in Southern California Edison ("SCE") territory?	If CDWR no longer participates in COI RAS, the NE/SE separation scheme will need to be modified. The CAISO studies showed that the COI intertie separation can be achieved without CDWR participation in RAS.
3n	10. CDWR is also concerned about comments provided by the CAISO staff	

No	Comment Submitted	ISO Response
	to the effect that if a derate to the Path 66 or Path 15 is needed, then economic studies would need to evaluate what would be needed to bring the rating back to the existing levels. Congestion management would not appear to be a complete substitute for CDWR's participation in PG&E's RAS. CDWR is not aware that congestion management can trip units in 13-18 cycles like the CDWR's load and generation drop is capable.	COI and Path 15 are not going to be de-rated if CDWR doesn't participate in RAS. The system is operated within COI seasonal nomograms that are updated every season. When CDWR RAS are no longer available, the nomograms will be developed without consideration for the CDWR RAS.
3o	11. On Slide 16 of the "Fresno & Kern Areas Preliminary Reliability Assessment Results" presentation presented by the CAISO on September 25, how does CAISO propose to mitigate the 25% post-transient voltage deviation at Buena Vista Pumping Plant without a curtailment of CDWR's firm pump load? Based on discussions at the TPP stakeholder meeting, PG&E has a reactive support project planned to be in service in the area in the 2016-2017 that has already been approved and is supposed to mitigate the low voltage problem, but until then, can the CAISO provide more detail of what they propose?	The ISO will continue to work on their action plans until the identified project is in service. These will include actions such as open other end of Midway-Wheeler Ridge #2 230kV. 2013 Request Window Project - Wheeler Ridge Junction 230kV substation between Kern PP and Wheeler Ridge.

No	Comment Submitted	ISO Response
4	**California Energy Storage Alliance (CESA)** **Submitted by: Don Liddell**	
4a	CESA appreciates the opportunity to submit these comments on the CAISO Staff paper entitled *Consideration of Alternatives to Transmission or Conventional Generation to Address Local Needs in the Transmission Planning Process,* issued September 4, 3013 ("TPP Alternatives Paper"). Now is clearly the time to consider how energy storage can provide non--conventional solutions to meet local area needs that otherwise would require new transmission or conventional generation infrastructure. CESA's comments primarily highlight the importance of close coordination of the methodology described in the TPP Alternatives Paper with parallel agency and utility activity discussed below that is also well underway Although much detail remains to be filled in, the proposed TPP methodology should prove critical in grid area situations where a non--conventional alternative such as energy storage or some mix of preferred resources could be selected as the preferred solution in the CAISO's transmission plan rather than the transmission or generation solution that would be avoided by implementing the non--conventional solution. This process should be expected to seamlessly compliment adoption of flexible resource adequacy capacity requirements that specifically include energy storage for inter--hour, load following, and ramping needs. CESA makes the following specific recommendations for improvement s to the TPP Alternatives Paper: ● Input for the catalog should state how much energy storage can contribute to transmission issues, and why the duration categories are valuable for alleviating the need for new transmission. ● More clarity should be provided as to how energy storage will be considered in the TPP. The TPP Alternatives Paper focuses more on the	Thank you for the comments. The ISO is currently studying several preferred resource development scenarios provided by stakeholders in the LA Basin and San Diego areas. The results of this analysis will be provided in the 2013-14 TPP report, and will provide information regarding the benefits of preferred resources in various quantities with various characteristics.

No	Comment Submitted	ISO Response
	benefits of demand response, and does not specifically identify how energy storage will be considered in the TPP. ● The TPP Alternatives Paper should much more clearly detail the process to be used for the 2013/2014 Reliability Assessment that has identified procurement targets in the LA Basin and San Diego. While it's a step in the right direction to provide quantities, there needs to be transparency in how the values were determined, as well as the process for evaluating these proposals and more information about how energy storage will be considered. Specifically, the CAISO detail proposed alternatives that are submitted into the open request window. ● The TPP Alternatives Paper should provide more detail as to procurement milestones for non-conventional alternatives will be defined, both via the LTPP process as well as the TPP. CESA recognizes that once the CAISO identifies a potentially effective non-conventional solution to meet an identified local area need and presents this solution in an annual transmission plan alongside the transmission or conventional generation solution it could eliminate, the CAISO must continue to monitor the progress of the various elements of the solution toward implementation and their readiness to provide the needed services. It makes good policy sense that the CAISO must be able to make a timely decision to revert to the best feasible solution in the event that the non-conventional alternative is not materializing as needed.	
4b	CESA agrees that the correct focus of the methodology for the LA Basin and San Diego is to first identify the amount of non-conventional alternatives and the needed performance attributes that could effectively address the local reliability needs in these two priority areas as part of a basket of resources. This identification should include the evaluation of specific benefits energy storage may potentially provide in these areas, including, but not limited to: ● Fast and tightly controllable response relative to other resources;	Thank you for the comments. The focus of the ISO analysis described in the response above is on preferred resources that can be activated quickly following a contingency in order to prepare for the next contingency. Voltage/Var support transmission options are also being considered in the mix of potential mitigation.

No	Comment Submitted	ISO Response
	● No interruption or limitation on customer service; ● Utilization of curtailed renewable energy, allowing energy that might have been curtailed to contribute to CA's RPS; ● Voltage/VAR support as needed; ● Other ancillary services such as regulation and spin at times when transmission support is not needed. This information should then inform any CPUC decisions on authorizing procurement of additional preferred resources in these areas and inform the procurement activities of SCE and SDG&E. The 2013-14 transmission planning process should also evaluate various transmission options for addressing the reliability needs of the LA Basin and San Diego areas and potentially recommend identified options for CAISO Board approval. Of course, it is entirely appropriate that the CAISO staff plans to coordinate this transmission evaluation effort with the CPUC's ongoing RA and LTPP Track 4 proceedings. On August 26, 2013, the SCE filed LTPP Track 4 direct testimony calling for development of preferred resources, transmission, and conventional gas-fired generation to replace SONGS. SCE proposed a preferred resource and energy storage "Living Pilot" to procure and evaluate the ability of preferred resources to meet LCR in addition to the CPUC's LTPP Track 1 procurement requirement. SCE says in its testimony that it intends its Living Pilot to help inform electric system operators, transmission planners, and procurement entities about the ability and availability of preferred resources and energy storage to perform where and when needed to meet local reliability, while ensuring grid stability and resiliency. The CAISO's proposed TPP methodology very clearly should also be closely coordinated with the *Southern California Reliability Preliminary Plan* presented jointly by the staffs of the CEC, the CPUC and the	As described in the response above, the ISO analysis is based on stakeholder provided preferred resource scenarios, and SCE is a major contributor to the development of those scenarios.

No	Comment Submitted	ISO Response
	CAISO on September 9, 2013. As or more important in the near term, is the interaction between the TPP Alternatives Paper and exploring the suitability of preferred resources and energy storage in the Johanna & Santiago areas to mitigate contingencies on the Serrano and Ellis corridors as described in the *Draft Preferred Resource Pilot Targeted Scope* published by SCE under the auspices of the CPUC's Policy and Planning Division on September 25 2013.	

No	Comment Submitted	ISO Response
5	**California Public Utilities Commission (CPUC)** **Submitted by: Keith White and William Dietrich**	
5a	**1. _Modifications Made To TPP Assumptions To More Closely Align With Long Term Procurement Plan (LTPP) Proceeding Assumptions Should Be Clearly_ Described Both in the Next Posting of Study Results and in the Transmission Plan.** The CAISO is participating in the CPUC's LTPP proceeding. Slide 10 of the CAISO's September 25 "Introduction and Overview" presentation indicated that TPP assumptions for the Los Angeles Basin and San Diego areas "have been aligned with the LTPP Track 4 study assumptions, resulting in some changes from the original 2013/2014 TPP study plan." These changes were not listed, and they should be clearly described in the CAISO's final reliability study results and in the 2013-2014 Transmission Plan itself. The CPUC's work in the LTPP proceeding will be facilitated by understanding CAISO's changes in assumptions as soon as possible.	The ISO is pleased with the level of coordination being achieved with the state agencies, and expects that key results from the 2013-2014 transmission planning cycle will be input into the next LTPP proceeding.
5b	**_2. The CAISO Should Continue to Assess Bulk Transmission Solutions (in Combination with Non-Wires Options) for the Combined Los Angeles Basin and San Diego Areas, and More Localized Solutions for Each Area Should be Approved Only if Urgent or Needed Regardless of Which Bulk System Solutions are Ultimately Selected._** With substantial local thermal capacity retirements, electric reliability solutions for the Los Angeles Basin (LA Basin) and San Diego areas have been a subject of intensive analysis and discussion. While the ultimate strategy is not fully identified, it is clear that transmission, conventional gas-fired generation and nonconventional resources will likely all be utilized. It is also clear that solutions for the LA Basin and San Diego areas strongly interact, with key electric reliability investments in one area significantly impacting (generally benefitting) reliability in the other area. Therefore, it is essential that transmission additions for reliability continue to be evaluated in a comprehensive manner that includes both the LA Basin and San Diego areas, also considering conventional (gas-fired) and nonconventional non-wires options. As also emphasized under Topic 6 below, this assessment should be consistent with assumptions and	Thank you for the comments. The current ISO efforts are generally consistent with these comments.

No	Comment Submitted	ISO Response
	scenarios adopted in the CPUC's LTPP proceeding and in ongoing multi-agency collaborative planning efforts. The specific implication of the above points for results presented at the September 25-26 stakeholder meeting, and especially the PTO-proposed reliability solutions, is that major bulk transmission projects such as identified by PTOs for their own areas should be assessed in a holistic manner for the entire South Coast load center, in combination with non-wires options. Furthermore, any more localized reliability transmission solutions identified by individual PTOs should be considered by the CAISO for approval only if shown to be so urgent that they cannot wait for better resolution of the larger South Coast reliability strategy, or if they are shown to clearly be needed and cost-effective regardless of how the larger strategy unfolds.	
5c	***3.* In the Next Posted Reliability Results and also in the Transmission Plan*,* *the* CAISO Should *Describe for Projects Costing $30 Million and Above Both the Magnitude of Avoided Load Shedding and the Reasons for Increased Need Relative to Last Year's Studies, and Should Clarify the Role of Benefit-Cost Ratios ("BCR") for Projects in General.*** Substantial reliability transmission additions were proposed as mitigations at the September 25-26 stakeholder meeting (on the order of $2 billion). For any projects that the CAISO is considering approving that have estimated costs $30 million and above, the CAISO should clearly describe (1) what has changed since last year's studies such that these projects are needed despite the large amounts of reliability projects approved in recent years, and (2) what is the avoided amount of load drop (e.g., under modeled contingencies) avoided by such projects. Additionally, as stated in CPUC Staff comments last year, benefit-cost ratios (BCR) can be helpful for understanding the value and justification of reliability transmission projects. However, BCR are only reported for a few, generally smaller, proposed reliability projects. It appears based on past discussions that BCR may be calculated only when a studied contingency impacts a radially-supplied load such that the load drop under a contingency	The ISO is open to discussion of projects on a case by case basis. As noted in the question, the BCR calculations are not always relevant to the need to comply with mandatory reliability standards, and the ISO does not consider it appropriate to commit to analysis in all cases, whether relevant or not to the issue at hand.

No	Comment Submitted	ISO Response
	is readily characterized. However, CPUC Staff request clear and accessible (to all stakeholders) documentation explaining exactly under what circumstances BCR are and are not calculated, including why BCR are not calculated for certain circumstances. It appears that circumstances where BCR are not calculated are in fact the circumstances giving rise to the largest and most costly reliability transmission projects. As explained above, CPUC Staff request that for such projects there be identification of what load drop is being avoided. If circumstances make this impossible or ambiguous to quantify, then the CAISO (or PTOs) should explain why this is so and, in that event, should identify what measure we have of the reliability benefit of the proposed project.	
5d	**4. For The Valley Electric Area, the Next Posted Reliability Results and the Transmission Plan Should Clearly Distinguish Transmission Needs (and Benefits) for Reliability Versus Any Additional Transmission That Might Support Potential Future Generation.** The September presentation by the Valley Electric Association (VEA) identified a large 230 kV transmission project for both reliability and support of potential new generation. In contrast, the CAISO staff report identified largely operational solutions to address reliability issues. In its upcoming report on final reliability solutions for the VEA area, the CAISO should clearly distinguish transmission serving reliability versus generator interconnection purposes, and should identify what if any load drop would result after applying operational solutions (including opening lines, adjusting taps) without substantial transmission investment.	The draft TPP will address the reliability issues and mitigations in Chapter 2 and in Appendix B.
5e	**5. For Production Simulation Studies (Such as Economic Studies) the Impacts (on Results) of the Most Important Data and Modeling Changes From Previous Years' Studies Should Be Clearly Identified in Posted Study Results and in the Transmission Plan.** The CAISO clearly puts substantial effort into annually updating and improving data and assumptions for production simulation modeling, including making local refinements to the Transmission Expansion Planning Policy Committee's ("TEPPC") west-wide base ("Common") case. CPUC Staff appreciate having such updates and refinements listed, as was done for the September 25-26 stakeholder meeting.	The ISO changes to the TEPPC database are documented in a database release notes. The release notes were published on the ISO Market Participant Portal on 19-Nov-2013. The file name is "ISO DB release notes - Full release (DB131112).xlsx". As for the "Delaney-Colorado River project study", the "most impactful changes to data and modeling assumptions" are as follows: 1. "(C226)": BAA model 2. "(C229)": Inter-BAA wheeling model 3. "(C251)": Palo Verde Trading Hub

No	Comment Submitted	ISO Response
	It is unrealistic to expect the CAISO to explain or test the impact of each data or modeling revision, and stakeholders may choose to seek clarifications regarding particular revisions of interest to them. However, more generally for the overall stakeholder audience, CPUC Staff request that reported results of the CAISO's production simulation studies (such as an update of the Delaney-Colorado River project study), include explicit identification of the impacts (on results) of major, most impactful changes to data and modeling assumptions. For example, removing the SCE 60:40 internal generation constraint and changing the representation of west-wide hurdle/wheeling rates between areas may have significant impacts on results, and furthermore such impacts may not be straightforward or intuitive. This may also be true for other potentially impactful modeling changes. Both stakeholder understanding and valuable discussion/vetting would benefit from reporting the impacts of such changes.	4. "(C252)": Mead Trading Hub 5. "(C260)" Reomote resources, i.e. ISO dynamic resources 6. "(C310)" and "(C311)": CA AB32 model 7. "(T101)" through "(T105)"" Enforcement of transmission limits 8. "(T199)": Hoop in Hoodoo Wash into HA-NG#2 line 9. "(T200)": Modeling of transmission what-if contingencies in CA 10. "(T315)": Fix line ratings and add winter ratings 11. "(T434) through (T468)": Recently approved transmission projects 12. "(G560) to (G584)": Fixes for the existing RpsCA generators 13. "(G751) to (G756)": Update to the latest coal retirement assumptions 14. "(G800) to (G855)": CA OTC assumptions 15. "(G910) to (G992)": CEC NAMGas model for natural gas prices 16. "(G202)": CA RPS 33% net short portfolio
5f	***6. The New Methodology to Assess Nonconventional Options for Meeting Local Reliability Needs Should be Clarified in Several Respects, Should be Fully Discussed With Stakeholders as the Methodology Evolves for Application, and Should be Designed to Inform and be Consistent with the CPUC's LTPP Proceeding and with Ongoing Multi-Agency Collaborative Planning Efforts.*** CPUC Staff appreciate the CAISO's initiative to more fully integrate into the TPP a methodology to consider "alternatives to transmission or conventional generation to address local needs." This can support continuing efforts to address three major planning challenges: a. Assessing "non-wires" alternatives within the TPP; b. Pursuing the state's "loading order" emphasizing demand-side, renewable and distributed resources, along with beginning deployment of storage; and c. Meeting the electric reliability needs of the important Los Angeles Basin and San Diego "local capacity" areas facing retirement of large amounts of once-through cooled generation (now including SONGS) - - in a timely manner that balances energy, environmental and economic priorities.	Thank you for the comments. As described in the responses above regarding the current ISO preferred resource analysis, our efforts are generally aligned with these comments as well.

No	Comment Submitted	ISO Response
	We expect that the CAISO's initial proposal for a methodology to assess nonconventional options as part of local area reliability solutions will need to be fleshed out and refined as it is applied and tested, and as both planning and commercial programs evolve, particularly for major load centers. Nonconventional options are assumed to include energy efficiency, demand response ("DR"), storage and distributed generation such as PV and possibly CHP. With the request window for reliability solutions closing on October 15, it is clearly too late to expect a robust set of proposals for nonconventional options to be submitted for assessment in the current TPP cycle. However, we hope that during the remainder of the 2013-2014 TPP cycle there will be opportunity for meaningful, realistic application of the proposed methodology to assess nonconventional options. This should (1) give all parties a better idea of the intended assessment process and its challenges, (2) provide an opportunity for stakeholders to discuss and comment on the methodology, and (3) provide a clear starting point for refining the methodology going forward. A TPP-based methodology for characterizing, combining (e.g., into portfolios) and assessing nonconventional solutions to local needs must be consistent with, and should complement, resource planning priorities and scenarios in both the CPUC's LTPP process and in ongoing multi-agency collaborative planning processes. The nonconventional options assessment methodology as initially applied and subsequently refined should specifically aim to inform the LTPP and collaborative processes regarding desirable characteristics, magnitudes, locations and combinations of nonconventional options, as well as tradeoffs with transmission and conventional generation. Additionally, both the nonconventional options examined and identified, and the transmission and conventional resource investments they might displace should be explicitly related to and explained in terms of planning scenarios being addressed in the LTPP and collaborative processes. This will maximize the value of the CAISO's nonconventional local options assessment, and will reduce potential for confusion or inconsistency among planning processes.	
5g	To support the above objectives, CPUC Staff request that several specific	Thank you for the comments. As described in the comments above

No	Comment Submitted	ISO Response
	priorities be followed as the proposed TPP-based methodology for assessing nonconventional options to meet local needs is applied and refined. This should be accomplished through posting of study results and discussion with stakeholders leading up to posting of the 2013-2014 Transmission Plan, where applicable within the Plan itself, and on an ongoing basis in future TPP cycles. i. There should be an open transparent process for developing, applying and refining a methodology for assessing nonconventional options for meeting local area needs, including two-way interaction with stakeholders. We hope that this outcome is implied in establishing this endeavor as a "stakeholder initiative." ii. The methodology and its application should provide full opportunity for nondispatchable options such as energy efficiency, dynamic pricing tariffs and PV (and perhaps some CHP) as well as dispatchable options, and the approach to assessing, comparing and combining the varied kinds of nonconventional options should be clearly described, discussed with stakeholders, and adjusted as necessary, such as in response to both planning and commercial developments, and in response to lessons learned during application of this methodology. iii. It is important to clarify how the peak load-shaving versus contingency response attributes of different nonconventional options will be addressed and interrelated in the CAISO's assessment methodology. Ability to provide and/or combine peak-shaving and contingency response will differ significantly among options. To date, limited illustrations of the proposed methodology have emphasized both peak load shaving and the importance of speed and duration of response to contingencies, where the latter may or may not correspond to peak loads. iv. Related to topic iii. above, CPUC Staff hope that there will be further clarification and discussion of the types of modeling and analyses conducted, since the nature of both local area reliability problems and	regarding preferred resources, much progress will be made on this initiative in this transmission planning cycle. However, further work may be needed in future planning cycles to address all of these comments.

No	Comment Submitted	ISO Response
	characteristics of nonconventional solutions suggest that "snapshot" powerflow (reliability) analyses will be necessary but not sufficient, and that other kinds of analysis may be needed - - but this needs to be clarified. v. In assessing nonconventional options and their ability to displace "conventional" solutions, the CAISO should not disqualify particular options based on criteria (such as ability to provide reactive power, inertia, or specific bus locations) not initially specified as desired characteristics for assessment. Refer also to Topic vi. below. vi. Following from item v. above, the CAISO should clarify if, how and when specification of required characteristics in greater detail (such as specific locations or reactive power) may be pursued under certain conditions, such as under high reliance on nonconventional options. Any method to require or assess increased locational specificity should be consistent with and designed to utilize locational information provided by existing and developing procurement programs such as for energy efficiency and DR. vii. CPUC Staff requests that the CAISO clarify the process and expectations for modifying any initial framework for characterizing required operational characteristics (e.g., involving parameters such as response time and duration of response) based on proposals received, lessons learned from initial application of the assessment methodology, or planning and other developments occurring outside of the TPP. This should include coordination with new CPUC proceeding R.13-09-011 focused on modifying DR programs to best align with today's resource planning needs, and with similar efforts to align demand-side resource programs with planning needs. viii. The CAISO should provide a schedule or at least a process for sharing and discussing with stakeholders the results of this new methodology that interacts so strongly with other planning processes. ix. In applying this new methodology in the present TPP cycle and beyond, the CAISO should provide specific insights and findings regarding the tradeoff between nonconventional options and different magnitudes and	

No	Comment Submitted	ISO Response
	locations of transmission investment. Furthermore, it is not too early to begin discussing and clarifying how implementation of nonconventional options would be monitored and verified (e.g., appropriate evaluation, measurement and verification methods, as well as milestones) to avoid or defer transmission or other investment. x. The treatment of and distinction between limited nonconventional options already embedded in the TPP base case versus additional nonconventional options needs to be clarified and discussed, including explicit identification and enumeration of each (embedded versus incremental).	

No	Comment Submitted	ISO Response
6	**California Wind Energy Association (CalWEA)** **Submitted by: Nancy Rader**	
6a	The California Wind Energy Association wishes to express its strong support for the "Mesa 500-kV Loop-In" transmission expansion plan as proposed by Southern California Edison Company (SCE) in its presentation at the California Independent System Operator (CAISO) 2013-14 Transmission Planning Process (TPP) Stakeholder meeting on Preliminary Reliability Assessment Results. Due to our full engagement over the years in various initiatives and forums aimed at determining the most beneficial transmission upgrades to meet the state's reliability, economic and policy goals -- including the CAISO's TPP, the Desert Renewable Energy Conservation Plan (DRECP), the Renewable Energy Transmission Initiative (RETI), the California Transmission Planning Group (CTPG), and the Tehachapi Renewable Transmission Project (TRTP) -- we have become familiar with this project in the various forms it has taken. We have also had the opportunity to review and confirm the many reliability, economic and policy benefits that would ensue from the project. We are particularly supportive of the specific proposal made by SCE in the CAISO 2013-2014 TPP stakeholder process as it is the least costly and has the least environmental impact of all the possible variations of this project, while capturing the vast majority of its benefits.	Thank you for the comments.

No	Comment Submitted	ISO Response
7	**CalPeak Power, LLC (CalPeak)** **Submitted by: Clifford D. Evans, Jr.**	
7a	The 2013/2014 Transmission Planning Process Stakeholder Meeting on September 25-26, 2013 indicates that SDG&E is proposing to add four +60/-30 MVAr Synchronous Condensers operated at 13.8 kV to the Sycamore and/or Mission Substation 230 kV Bus. SDG&E estimates that it will cost in the range of $126 to $158 million dollars for both the Sycamore and Mission sited. CalPeak proposes to modify and operate two of its existing assets (CalPeak Power - Border Unit 1 and CalPeak Power – Enterprise Unit 1) as synchronous condensers at a significantly lower cost, with less environmental impact, and with an earlier in-service date than the solution offered by SDG&E. These plants would have the ability to operate as synchronous condensers without sacrificing their ability to deliver energy and flexible capacity as peaking plants. The primary modifications required to allow the plants to operate as synchronous condenser are minor software changes. In its stakeholder presentation, SDG&E provided ample justification for adding reactive power support, stating that it is necessary to meet NERC 2.5% and 5% reactive margin requirements by 2020 and to partially replace the inertia and dynamic reactive capability of retiring once-through-cooling (OTC) generation (South Bay in 2010, SONGS in 2013 and Encina in 2017). The project would further the Renewable Integration objectives of the State of California and the CAISO by providing dynamic reactive capabilities that wine and photovoltaic solar generation cannot provide while at the same time reducing the risk of voltage collapse during high import conditions. It would also provide improved voltage control and increase the secure operating range for the Grid Operators. Earlier this year, CAISO approved the installation of synchronous condensers at the Talega substation to be placed into service prior to Summer 2015 and is condensing converting one of San Onofre generators into a synchronous condenser.	In the evaluation to consider the need for additional reactive support in the SDG&E area and in general, the ISO will assume that all available existing generation is at full MW output and producing reactive power as required by the ISO Tariff. It is the ISO's understanding that under these conditions, converting the CalPeak facilities to operate as synchronous condensers would not provide any additional reliability benefit to the ISO grid. Moving the CalPeak border area generation from the 69 kV system to the 230 kV system would not be expected to affect the need for reactive power in the San Diego area. The 230 kV system in that border area already includes over 500 MW and potentially over 800 MW of generation. Real and reactive power tends to flow from the 230 kV system to the 69 kV system in that area even with the 69 kV generation operating during peak load conditions.

No	Comment Submitted	ISO Response
	For the reason sited above, CalPeak also proposed to modify its existing units in PG&E's service territory (CalPeak Power-Panoche Unit 1 and CalPeak Power – Vaca Dixon Unit 1) to provide reactive power support as synchronous condensers while maintaining their existing electric generation capability. PG&E is proposing their Gill Ranch 115 kV Tap Load Interconnection project. This project is to interconnect a new customer owned substation via a tapped connection to PG&E's Gill Ranch 115 kV Tap and to reliably serve the maximum proposed 17 MW load, the addition of 30 MVAr voltage support is proposed at Mendota (under 90% post-project voltage for Category B contingencies). The proposed in-service date is June 1, 2014. Estimated cost for the interconnection is between \$1M to \$2M and the network upgrades are another \$5M to \$10M. CalPeak Power's Panoche facility is ideally situated to provide some of the reactive power need that PG&E proposes to meet with voltage support at Mendota. We believe the above solutions offer benefits superior to those provided in the 2013-2014 Transmission Planning Process Stakeholder Meeting on September 25-26, 2013. These solutions: ▪ Can be available within a few months ▪ Offer less expensive solutions that those proposed ▪ Have no known environmental impacts or required permit modifications ▪ Can help meet revenue requirements necessary to keep much needed peaking plants without Power Purchasr Agreements A second are we would like to have studied related to the point of interconnection for the Border and Enterprise units. These facilities are currently interconnected at the 69 kV level, but the point of interconnection could be relocated to the 230 kV system if the reactive power support is more beneficial at that level. The relocation of the Border Unit 1 interconnection to Otay Mesa 230 kV Substation would also resolve an issue identified in the 2012 Grid Assessment Study related to dispatch limitations for the Border Gens 1,2 and 3 which has not yet been corrected.	

No	Comment Submitted	ISO Response
	Additional, we believe our proposals addressed the need for procurement of reactive power from alternative sources as presented by FERC in its February 4, 2005 Staff Report entitled "Principals for Efficient and Reliable Reactive Supply and Consumption". We appreciate the opportunity to provide these comments and request that the CAISO withhold approval of the Utilities' proposals to provide reactive support until the CAISO has fully studies our proposal. If the use of these existing peaking plants for reactive voltage support is determined to be, as we believe, an efficient and economical component of the solution to the identified grid needs, we ask that CAISO and/or the utilities enter into negotiations with is regarding an agreement with CalPeak for this service.	

No	Comment Submitted	ISO Response
8	**Clean Coalition** **Submitted by: Stephanie Wang and Dyana Delfin-Polk**	
8a	**Comments on the Non-Conventional Alternatives Approach** The Clean Coalition supports the ISO's proposed Non-Conventional Alternatives (NCA) approach to new methodology for evaluating preferred resources as alternatives to transmission and conventional generation to meet local area reliability needs. This focus on proactive planning for local preferred resources as alternatives to transmission and conventional generation is consistent with our recommendations to the ISO on several occasions, as well as recent comments to the California Energy Commission (CEC). As noted in the ISO proposal, past approaches have "not required that each such assessment be scoped individually to fit the specific alternative that was proposed. As such it was very labor-intensive, was reactive to specific proposals, and did not provide any criteria for such alternatives." The Clean Coalition commends the ISO for proposing a proactive process for evaluating alternatives to conventional transmission but will address specific concerns regarding the details of the proposed process in these comments. In general, the Clean Coalition recommends that the new methodology be revised to capture the full value of NCA resources, facilitate better coordination of distribution grid planning and policies among the ISO and the California agencies, give utilities more flexibility in implementing NCA resource mixes, clarify that a NCA mix cannot be discarded outside of a TPP, and ensure that stakeholders have ample opportunity to weigh in throughout the process. The Clean Coalition also supports using the Southern California reliability area as the initial pilot local area. Southern California Edison's (SCE) Preferred Resources "Living Pilot" is the ideal opportunity to showcase the ability of preferred resources to cost-effectively replace conventional resources for providing real power, reactive power, and grid services. As noted in recent comments to the CEC from SCE, the SCE living pilot is "a means of informing future policy decisions surrounding the procurement of	Thank you for the comments. Please see responses above regarding comments on the current ISO work on preferred resource alternatives.

No	Comment Submitted	ISO Response
	preferred resources and their ability to meet local reliability. A key component of this program…will be leveraging SCE's extensive experience in developing and managing EE, DR, and Advanced Technology projects and programs." The Clean Coalition offers the following comments on each step of the proposed methodology. Appendix A describes the Clean Coalition's recommended alternative process for evaluating non-conventional resources.	
8b	**Step 1: Develop generic resource catalogue** Starting the process by defining the relevant performance characteristics of resources makes sense, as it gives all participants clarity about which attributes are important to the ISO for reliability planning. However, rather than creating a generic resource catalogue of resources that focuses on minimum criteria, the ISO should create a specific resource catalogue that reflects the full value of NCAs for three reasons. First, the generic resource approach creates a bias against NCAs in favor of conventional solutions, since minimum criteria tend to be defined in relation to conventional resource performance characteristics. Second, a generic resource catalogue does not reflect the full value of NCA resources. Focusing on minimum criteria hides the strengths of preferred resources and highlights the differences between NCA resources and conventional resources, which is counterproductive. For example, many cost-effective energy storage technologies respond much faster than natural gas plants, but are available for shorter durations. Recently, the Federal Energy Regulatory Commission (FERC) has issued orders to address this issue. For example, FERC Order 784 requires transmission providers to take into account the "speed and accuracy" of regulation resources in the determination of reserve requirements for regulation and frequency response service. The Clean Coalition's recommends that ISO create a specific catalogue of resources that includes the performance characteristics of each specific resource. Advocates and industry stakeholders should be given the opportunity to take part in defining the specific resource catalogue so that it captures the full benefits and value of each NCA resource. The three performance characteristics defined in the ISO proposal	Thank you for the comments. Please see responses above regarding comments on the current ISO work on preferred resource alternatives.

No	Comment Submitted	ISO Response
	(duration, response time, and availability) are a good starting point. In addition to the three performance characteristics identified in the proposal, the catalogue should also include at least three other attributes. First, it should specify whether the resource provides real and/or reactive power. For example, the catalogue should include advanced inverters paired with distributed solar or storage for providing reactive power for the reasons set forth in Appendix B. Second, it should include the expected date when the resource will be approved to deliver power with the performance characteristics described in the resource catalogue. For example, the catalogue listing for advanced inverters should note that commercial implementations are expected to begin in October 2015 as described in Appendix B.3 As long as the resource will be available during the planning window, such resource should be included in the resource catalogue. Accordingly, the resource catalogue should be updated regularly in the beginning of each TPP cycle to reflect technological advances and expected approvals of new technologies. Third, the catalogue should specify whether the resource is capable of both supplying power and increasing load. For example, energy storage can both dispatch energy to supply power and charge to increase load. The Clean Coalition also recommends that the ISO clarify the definitions of "demand-side" vs. "supply-side" resources, and confirm that such definitions are consistent across agencies, such as with the recent CPUC rulemaking on demand response that differentiates between "demand-side" and "supply-side" demand response markets. Further, the Clean Coalition recommends that the ISO propose a method of evaluating demand-side resources without undervaluing the ability of such resources to mitigate system needs and free up supply-side resources. For example, demand response may be used to address ramping issues (net load shape) raised by the ISO "Duck Chart," as noted in the NCA proposal.	
8c	**Step 2: Determine effective mix of resources** The Clean Coalition recommends that the NCA process explicitly include coordination with the distribution planning processes of the CPUC, CEC and IOUs. The validation process for the NCA resource mix should be	Thank you for the comments. Please see responses above regarding comments on the current ISO work on preferred resource alternatives.

No	Comment Submitted	ISO Response
	synchronized with the utility distribution planning process of AB 327, a bill recently signed into law that creates a new requirement for IOUs, by July 2015, to "submit to the [CPUC] a distribution resources plan proposal, as specified, to identify optimal locations for the deployment of distributed resources, as defined.5 In developing these distribution resources plans, the IOUs must determine the optimal locations for the deployment of distributed energy resources, based on value to the ratepayer. The potential for a resource to become part of a validated NCA resource mix would add significant value to the resource for utility planning purposes. Conversely, resources that are already included in an IOU's plan should automatically be factored into any resource mix being considered as an alternative to conventional generation or transmission that was targeted for that area. Such resources will have already been deemed applicable to local needs and thus do not need further validation. Similarly, the ISO should coordinate with the CEC and CPUC to ensure that the proposed resource mix reflects existing and near term policies and programs, like the proposed storage procurement targets and the demand response proceeding. Since policies may change, the TPP should give utilities flexibility for compliance in Long Term Procurement Plans to meet long-term renewable and reliability goals instead of requiring one specific validated resource mix. The TPP, in coordination with CPUC and CEC, should also identify which policies and programs may need to change so that the NCA mix can be deployed cost-effectively. For example, a new "locational benefits" adder may be required for power purchase agreements (PPAs) for 100 megawatts (MW) of distributed generation (DG) in a certain location. Locational benefits referred to the grid services provided by DG in that specific location, which can be considerable, as was found by E3 in a report for the CPUC in the RPS proceeding (R.11-05-005). As a more specific example, the Long Island Power Authority (LIPA) has recently proposed offering a 7¢/kWh premium to 40 MW of appropriately sited solar DG facilities to encourage locational capacity sufficient to avoid $84,000,000 in new transmission costs that would otherwise be incurred, resulting in a net savings of $60,000,000. LIPA's guidance states: "The rate	

No	Comment Submitted	ISO Response
	will be a fixed price expressed in $/kWh to the nearest $0.0000 for 20 years applicable to all projects as determined by the bidding process defined below, plus a premium of $0.070 per kWh paid to projects connected to substations east of the Canal Substation on the South Fork of Long Island."	
8d	**Step 3: Monitor development of NCA** The NCA proposal should clarify that the validated NCA resource mix will only be reexamined and potentially discarded in the TPP. If the ISO is not satisfied with the progress of a validated NCA resource mix, stakeholders should have the opportunity to propose modifications and replacement of the NCA resource mix rather than defaulting to a conventional solution. This is consistent with increased transparency efforts in practice at the CPUC, which includes an established stakeholder participation process.	Thanks for the comments. Please see responses above regarding comments on the current ISO work on preferred resource alternatives.

<table>
<tr><th>No</th><th>Comment Submitted</th><th>ISO Response</th></tr>
<tr><td>9</td><td>Critical Path Transmission
Submitted by: Wayne Stevens</td><td></td></tr>
<tr><td>9a</td><td>Critical Path reminds the CAISO that there is a significant possibility that the Coolwater-Lugo CPCN application will be denied by the CPUC for a variety of reasons. Given this real prospect and the general consensus that

1. there is a need for transmission infrastructure in the region,
2. the CAISO has determined that AV Clearview Project is, from an electrical and reliability perspective, a viable alternative to the Coolwater-Lugo project and
3. any delays in building needed infrastructure in the region is not in the best interests of the CAISO, the generator community or in meeting California's RPS goals,

Critical Path recommends that the CAISO either continues the separate AV Clearview Project study that is part of the 2012/2013 Transmission Planning Process or includes AV Clearview as a "contingency alternative project" in the 2013/2014 Transmission Planning Process should Coolwater-Lugo not move forward at the CPUC. In such a contingency, the CAISO should be prepared to initiate a process for including a Coolwater-Lugo alternative in the Transmission Plan without delay.</td><td>As discussed during the stakeholder meeting, the ISO plans to participate in the Coolwater-Lugo Transmission Project CPCN proceeding and will provide input into that process pertaining to its evaluation of the proposed SCE project and the Critical Path proposed project alternative.</td></tr>
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<tr><th>No</th><th>Comment Submitted</th><th>ISO Response</th></tr>
<tr><td>10</td><td>Comments from David B. Cohen
Submitted by: David B. Cohen</td><td></td></tr>
<tr><td>10a</td><td>The following are my personal suggestions to improve the Model the CAISO presented on October 14, 2013. I understand what the CAISO has done, It is a reasonable first step. I printed out the entire workbook and that is how I got the page numbers I am referring to.

Update model for all PTO's
Add a sheet for INPUTS by PTO stating the latest FERC Dockets that establishes:

HV Base TRR,
TRBAA
Identifying if the PTO HV Base TRR is based on a "Transmission Formula" accepted by FERC or a Section 35.13 filing "Stated Rate" with a Period I & II Statements
For each PTO that has a Transmission Formula, please identify the ROE used and Composite Transmission Depreciation rate.

An ROE of 12.00% is to high.

Please identify the Base ROE using FERC DCF Method (Median) and indicate that the PTO is added 50 basis point for CAISO participation.

If a PTO receives FERC Incentive treatment for "new Transmission projects" add a footnote identifying which incentives they got: (Abandoned Plant, Accelerated Depreciation, CWIP).
Starting at page 4 line 81 and continuing on to the next page, please recognize that the CAISO's approach to ratio for PTO for O&M is not going to be consistent with a PTO "Black-Box" settlement under a Section 35.13 filing "Stated Rate" with a Period I & II Statements. For example, PG&E's TO14 Period II is forecasted CY 2013 TRR, but now in PG&E's TO-15 filing Period I is Recorded Adjusted CY 2013. The Transmission O&M dollars in the forecast do not match the Recorded Adjusted 2013 Transmission O&M. This same comment would apply to Rate Base, Amortization.
</td><td>The ISO has incorporated a number of the suggestions that help clarify the sources of information the ISO drew upon in updating its model for its high level estimation of the impact of the capital program on the ISO's High Voltage Transmission Access charge. The model is not an attempt to perform detailed analysis on any particular PTOs individual requirement, however, nor track individual filing detail such as abandoned plant recovery considerations.</td></tr>
</table>

No	Comment Submitted	ISO Response
11	**Eagle Crest Energy** **Submitted by: Susan Schneider, Consultant to Eagle Crest Energy**	
11a	Eagle Crest Energy (ECE) appreciates the opportunity to submit these comments on the CAISO's September 4th document, Consideration of Alternatives to Transmission or Conventional Generation to Address Local Needs in the Transmission Planning Process (Proposal), and the discussions about the Proposal on the September 18th stakeholder conference call and September 25th Transmission Planning Process (TPP) meeting. ECE is developing a 1,300 MW pumped-storage plant in southern California. The project is far advanced in the complex state and federal licensing processes and is expected to receive all required permits in 2014. The project should come on-line in the 2019-2020 timeframe. This plant will be capable of providing, among other things: (1) fast Regulation service; (2) ramping/load-following services; (3) multi-hour energy storage services (e.g., storing off-peak energy, for use in on-peak periods and/or to ameliorate over-generation conditions); and (4) relief of import congestion from the southwest. It thus should help the CAISO meet the future integration challenges that have been identified in CAISO studies of operations under 33% and higher penetration of Variable Energy Resources (VERs). The Proposal describes a methodology to consider "non-conventional" or "preferred" resources (energy efficiency (EE), demand response (DR), renewables, and energy storage) as an alternative to conventional resources (conventional generation and/or transmission) to serve demand in three transmission-constrained Local Capacity Areas (LCAs) – the LA Basin, San Diego, and the Big Creek/Ventura area (Moorpark sub-area) in the annual TPP. The methodology could be deployed more widely in future annual TPP cycles. However, it became apparent in the stakeholder discussions that CAISO	Thanks for the comments. The ISO continues to evaluate the need for renewable integration resources and the potential need for policy driven transmission upgrades associated with needed renewable integration resources. At this time it is not expected that any such analysis will be available to be included in the 2013/14 TPP report. Regarding the ISO's preferred resource analysis, please see responses above regarding this subject that describe the ongoing ISO analysis that is expected to be included in the 2013/14 TPP report.

No	Comment Submitted	ISO Response
	consideration of preferred or non-conventional resources included only those physically located in the subject areas. The use of transmission to enable use of such resources located outside those areas to serve demand inside them would automatically be labeled an ineligible "conventional" alternative under the Proposal. The Natural Resources Defense Council (NRDC) challenged the CAISO's locational restrictions, and its exclusion of transmission-enabled preferred-resource alternatives from consideration under the Proposal. Eagle Crest supports NRDC's position and offers here a framework for consideration of transmission as part of a preferred or non-conventional resource solution. This framework would be based on the CAISO's current "policy-driven" concept used to identify transmission needed to meet state objectives such as the 33% Renewables Portfolio Standard (RPS). It would expand that objective to include transmission needed to enable preferred/non-conventional resources to serve demand in the three subject areas (and other such areas in the future). The two ways that transmission could be used to accomplish this policy objective are listed below. ▪ **Enable imports of preferred/non-conventional resources outside the subject areas:** The CAISO could include additional transmission to areas with the potential for development of these resources up to and beyond the 33% RPS portfolios considered in the TPP. Increased development of such resources outside the subject areas would contribute as much to achievement of the greenhouse-gas and related state objectives as the development of preferred resources inside those areas, and potentially at a lower cost. Adding transmission resources would reduce the amount of conventional resources necessary to meet local requirements, while improving the value of resources already procured for the 33% RPS. ▪ **Enable use of integration resources outside the subject areas to**	

No	Comment Submitted	ISO Response
	increase use of preferred/non-conventional alternatives inside and outside the subject areas: As the CAISO has noted, the lack of flexibility of some preferred resources (e.g., rooftop solar) inside the subject areas may limit their use as a replacement for conventional resources. Transmission that allows integration resources to provide that flexibility could increase the penetration and viability of less-flexible preferred resources inside the subject areas as a viable alternative. Eagle Crest notes that consideration in the TPP of transmission to enable use of integration resources is already required by the CAISO tariff. Tariff Section 24.4.4.6 ("Policy-Driven Elements") requires consideration of integration resources in determining policy-driven transmission upgrades – specifically, consideration of the following in determining the need for "Category 1" transmission elements: …The potential for a particular transmission element to provide access to generation and non-generation resources needed to support renewable integration **(e.g., pumped storage)**… *(emphasis added)* The CAISO has never complied with this requirement, and the Proposal may finally offer an opportunity to do so. (Eagle Crest notes that the Eagle Crest Project itself could be considered under FERC rules as a transmission asset if it operates under direct CAISO control, and Eagle Crest would welcome such discussions in this stakeholder process.) These two alternatives are not mutually exclusive. For example, transmission to the East Riverside area would allow demand in the subject areas to be served by either/both: (1) additional preferred (e.g., solar) resources in that area; and/or (2) additional integration resources (e.g., the Eagle Crest Project, or existing/planned natural-gas plants in Nevada or Arizona). While it is true that any resources – including conventional resources – can use transmission facilities once they are built, that is true of any of the transmission facilities approved to date to meet the 33% RPS. The	

No	Comment Submitted	ISO Response
	presumption is that transmission to areas rich in development potential for those resources will be used for them, and this very same presumption can be applied as well under this new framework. (This same presumption applies, in a modified fashion, under the Location-Constrained Resource Interconnection Facility (LCRIF) rules.) In summary, Eagle Crest strongly supports broadening the solutions considered under the Proposal to include transmission-based alternatives to new conventional generation inside the LA, San Diego, and Moorpark areas under the new methodology. The CAISO should evaluate transmission alternatives as preferred/non-conventional solutions if they enable use of such resources to replace new conventional resources in the subject areas.	

No	Comment Submitted	ISO Response
12	**Imperial Irrigation District (IID)** **Submitted by: Paul G. Peschel**	
12a	Imperial Irrigation District (IID) appreciates the opportunity to provide the following comments to the 2013/2014 CAISO Transmission Planning Process (TPP) Preliminary Reliability Assessment Results. IID is a transmission owner and operator and a certified Balancing Authority (BA) in Southern California with two points of interconnection with the CAISO BA. There is a significant amount of renewable energy being developed in the Imperial Valley that is connecting to the CAISO near the Imperial Valley Substation (IV Substation). As such it is important that IID and the CAISO closely cooperate in order to ensure that affected system issues are managed and the interconnection of new generation does not impact reliability. IID was recently selected by the CAISO to be the project sponsor for the Imperial Valley Policy Element. IID is working closely with CAISO on the development of this project. In addition, IID is developing a transmission plan of service to facilitate the interconnection of new renewable generation in the Imperial Valley. This plan of service may also address several other issues affecting Southern California, including: (1) assist in replacement of generation due to the retirement of San Onofre Nuclear Generation Station; (2) eliminate the need for flow control devices electrically near the IV Substation; and (3) provide voltage support on the SDGE system. While not identified in the CAISO's Preliminary Reliability Assessment materials, SDG&E has included a multi-page description of flow control devices that it proposes to be considered to mitigate flows on the IID system. This proposal mirrors what SDG&E proposed, and the CAISO rejected, last year. IID opposes the proposal to place a flow control device, or phase shifter, at or electrically near the IV Substation at this time. As SDG&E's description makes clear, SDG&E is proposing unilateral modifications to IID facilities in a manner inconsistent with SDG&E's obligations under the California Transmission System Participation Agreement ("Participation Agreement") to which IID and SDG&E are	Thank you for the comments. The ISO will continue to coordinate our transmission upgrade and generation interconnection plans with IID's transmission upgrade and generation interconnection plans through both the transmission planning and generation interconnection processes.

No	Comment Submitted	ISO Response
	parties. This unilateral proposal also runs counter to requirements for coordinated planning and the numerous discussions that have been held between IID, SDG&E, the CAISO as substantial generation has been added around the IV Substation. While IID does not have specific numbers to provide at this time, it is IID's judgment that actual upgrades to IID's system would be lower in cost and provide greater system capabilities as compared to SDG&E's proposed flow control devices. IID looks forward to working with the CAISO, SDG&E and other stakeholders to craft durable and cost effective upgrades to the transmission system that will enable achievement of the State's renewable energy portfolio and greenhouse gas goals.	

No	Comment Submitted	ISO Response
13	**Interstate Renewable Energy Council (IREC)** **Submitted by: Edward Burgess**	
13a	***1. Preliminary Reliability Study Results and proposed PTO solutions*** Several of the proposed PTO mitigation solutions are purported to increase imports/exports or otherwise impact neighboring planning regions. In general, IREC supports transmission options that facilitate regional coordination and the ability to increase imports/exports between neighboring regions. These characteristics are important for providing the flexibility needed to operate the Western Interconnection as the penetration of renewable energy increases. However, transmission solutions that impact neighboring planning regions should not be considered in isolation. Thus, for specific PTO-proposed solutions affecting neighboring planning regions, we encourage CAISO to conduct direct outreach to WestConnect, Northern Tier Transmission Group, and Columbia Grid (or subregional planning groups therein such as the Southwest Area Transmission group within WestConnect). This type of interregional coordination aligns with CAISO's obligations under FERC 1000. Furthermore, several of the PTO-proposed projects are reported as helping to enable the development of renewable energy projects. IREC would appreciate any technical guidance CAISO can offer regarding the level of renewable energy these projects will be capable of delivering. Finally, CAISO should specify any reliability needs driven by flexible ramping constraints and how transmission solutions might alleviate these constraints by increasing access to flexible resources outside the ISO footprint.	Thank you for the comments. The ISO analysis of these alternatives to the identified reliability needs will be focused on those reliability needs and the current renewable portfolios. This analysis will be documented in the ISO 2013/14 TPP report, and coordinated as generally described these comments.
13b	***2. CAISO Proposal on Non-conventional Alternatives:*** *Prioritize in Current TPP Iteration* IREC applauds the steps CAISO has taken in this planning cycle to develop this proposal and views it as real progress towards enabling fair consideration of non-conventional alternatives (NCAs) in its transmission	Thank you for the comments. Please see ISO responses above to similar comments.

No	Comment Submitted	ISO Response
	planning process. Although we understand that the proposed methodology is still in its early stages, we urge ISO to prioritize its development in the current iteration of the TPP so that there is sufficient detail to inform CPUC procurement decisions in 2014. To this end, the CAISO should specify more details about what procurement milestones are sufficient to ensure that NCAs are considered viable alternatives for meeting resource adequacy requirements. Also CAISO should urge the PUC to establish proper compensation mechanisms to incent NCA development in a way that is compatible with these milestones and comparable to conventional solutions. *Comparison to Conventional Alternatives* In its presentation of possible NCAs in the forthcoming Draft Transmission Plan, the ISO should strive to make direct and fair comparison to conventional transmission solutions in all instances where NCAs are presented. In its consideration of NCAs' relative effectiveness in meeting transmission needs, CAISO should explicitly weigh the advantages and disadvantages of these options. More specifically, NCAs can potentially be developed within a shorter timeframe and thus their procurement is potentially more responsive to changing transmission needs and thus more valuable. Moreover, to the extent that NCAs constitute a portfolio of smaller projects, they potentially have lower development risk versus larger conventional projects. On the other hand, NCAs may not be able to provide certain benefits that conventional options can, such as access to remote resources that provide additional operational flexibility. *Economic and Public Policy Needs* While the proposal focuses on reliability needs, the ISO should also identify how NCAs can be used to address economic and public policy needs. For instance, recent WECC analysis has determined that distributed resources (e.g. EE, DR), may actually enhance the economic value of new transmission projects (rather than reduce as is often assumed).1 That is, NCAs might provide economic benefits by relieving local area import limits and allowing a greater proportion of California's energy needs to be served by low-cost distant resources. Prioritizing NCAs also appears to comport	

No	Comment Submitted	ISO Response
	with obligations under FERC Order 1000 to meet public policy requirements by prioritizing California's preferred resources. *Additional Reliability Contributions of NCAs* CAISO's proposal focuses on reliability in terms of contribution to local area needs in terms of load shape. However, IREC recognizes that NCAs may contribute to other reliability needs beyond resource adequacy such as voltage control and reactive power. To the extent that smart inverters from distributed generation can provide these services, there may be an opportunity to contribute to reliability needs (particularly in light of the retirement of SONGS, which IREC understands was a major contributor to reactive power in the region). To this end, IREC suggests that non-conventional resources that provide reactive power or voltage control be considered as possible additions to the generic resource catalogue developed in Step 1 of CAISO's proposal. This would also anticipate potential changes that might arise from FERC's Notice of Proposed Rulemaking (NOPR) regarding Small Generator Interconnection Procedures (SGIP) issued earlier this year.	
13c	***3. Request for an update on Delany-CO River project*** While not technically part of the reliability results, IREC would like to take this opportunity to request an update on the status of CAISO's analysis regarding the Delaney-Colorado River transmission project. IREC notes that the CAISO committed to providing an updated analysis on this project within the year following the release of the 2012-2013 Transmission Plan. We applaud CAISO's determination to examine the ongoing value of this project and look forward to the release of the updated analysis. We note that this project has significant potential to enhance "regional coordination" in support one of the four fundamental strategies identified in CAISO's strategic plan.2 Furthermore, if the preliminary results of this project are accurate, it stands to provide significant economic benefits to the region. Meanwhile, it also has the potential to lead to significant carbon reductions by allowing renewable energy development in heavily fossil-dependent states outside of California. We urge CAISO to provide additional information about this project in light of its critical impact on the rest of the	Regarding the Delaney – Colorado River study, the latest information was presented on the ISO Transmission Planning stakeholder meeting on Nov 30, 2013. The presentation materials are: Economic planning studies – Part 1: Introduction Economic planning studies – Part 2: Methodology and database Economic planning studies – Part 3: Study assumptions Economic planning studies – Part 4: Preliminary results More detailed information will be documented in the draft and final Transmission Plan documents in early 2014.

No	Comment Submitted	ISO Response
	Western Interconnection in terms of reliability, economics, and public policy objectives.	

No	Comment Submitted	ISO Response
14	**Large-scale Solar Association (LSA)** **Submitted by: Susan Schneider, Consultant to LSA**	
14a	**Proposal overview** The Proposal (as supplemented by the stakeholder discussions) describes a methodology to consider "non-conventional" or "preferred" resources as an alternative to conventional resources (conventional generation and/or transmission) to serve customer loads in three transmission-constrained Local Capacity Areas (LCAs) – the LA Basin, San Diego, and the Big Creek/Ventura area (Moorpark sub-area). The methodology would be applied in the TPP, starting with this planning cycle, and it may be applied in other areas in future TPP cycles. The preferred resources considered would be limited to those located in the subject areas. Preferred resources outside those areas that require transmission upgrades to serve reliability needs in those areas would automatically be considered "conventional" and would not be eligible for inclusion under the proposal. **LSA comments** LSA strongly supports the CAISO's efforts to think "outside the box" and develop creative solutions to allow preferred resources to meet the significant reliability needs in the subject areas caused by SONGS closure and load growth. However, consistent with the position advanced by the Natural Resources Defense Council (NRDC) on the September 18th conference call, LSA believes that the Proposal is crafted too narrowly, by effectively excluding preferred resources outside the subject areas that might require transmission upgrades to help meet local needs. Specifically, transmission that would enable preferred-resource solutions to meet the needs in these areas should be considered under the Proposal, as a "policy-driven" upgrade. The "policy-driven" transmission concept has been applied to transmission needed to meet state objectives, such as the 33% Renewables Portfolio Standard (RPS), and it could apply here as well. FERC Order 1000, which requires that public policy requirements be accounted for in transmission planning, provides the framework for approval	Thank you for the comments. Please see ISO responses above to similar comments.

No	Comment Submitted	ISO Response
	of such "policy-driven" transmission projects that could serve two critical purposes in the subject areas: (1) reduce Local Capacity Requirements (LCRs) by increasing transmission transfer capacity into an LCA; and/or (2) access remote preferred resources in renewable resource rich regions, such as those areas being considered in the Desert Renewable Energy Conservation Plan (DRECP). While LSA fully supports consideration and implementation of preferred resources to meet future LCRs, the Proposal must also consider how this effort aligns with other state policies, including increased renewable energy penetration and greenhouse-gas emission reduction goals. For example, renewable energy penetration above 33% (as currently modeled by various state agencies) will likely require additional transmission to access these resources, even without the Proposal. Additional renewable resources have been enabled by the recent passage of AB 327 (which clarifies that the RPS is a floor, and not a ceiling). When combined with targeted transmission projects, these resources could reduce future LCRs and meet other state objectives through a more efficient and less limiting (and potentially lower cost) planning approach. Therefore, LSA encourages the CAISO to ensure that this effort is aligned with these mandates and coordinated across agencies. Serving load in the subject areas with such additional renewable resources, from any location, is clearly aligned with the state's loading order, greenhouse gas reduction goals, and RPS (as amended by AB 327). As such, LSA recommends the CAISO identify promising areas outside of the LCAs in the Proposal – those with the potential for additional economic preferred-resource development beyond the 33% RPS portfolios considered in the TPP – and consider transmission solutions to enable them to serve load in those LCAs. The CAISO should also focus on identifying and constructing minor transmission upgrades, including those already proposed in the TPP, connecting LCAs to remote renewable generation, which would increase transfer capacity and reduce LCRs. These relatively minor upgrades can	

No	Comment Submitted	ISO Response
	help bridge the gap between the time when major transmission upgrades are needed and the time when such upgrades can actually be constructed. It is true – as the CAISO pointed out in the stakeholder discussions – that any resources (including conventional resources) can use transmission facilities once they are built, so there is no guarantee that only preferred resources will do so. However, that is also generally true of the transmission facilities approved to date to meet the 33% RPS. Consistent with the spirit of FERC Order 1000, the presumption in the "policy-driven" framework is that transmission to areas with high preferred-resource development potential will be used for those resources. This assumption can also be applied to such transmission eligible under the Proposal. Moreover, the likelihood that renewable resources will use these new facilities would be greatly increased by coordination with CPUC and other jurisdictions to focus resource procurement contracting in the areas served by those facilities. The Proposal states CAISO's intentions to coordinate with these oversight entities in implementing the new methodology, and LSA supports the CAISO's planned efforts in this area. In conclusion, for the reasons described above, LSA strongly supports broadening the preferred-resource alternatives considered under the Proposal to include transmission upgrades that will enable preferred resources outside the subject areas to replace new conventional resources inside those areas.	

No	Comment Submitted	ISO Response
15	**LS Power Development, LLC** **Submitted by: Sandeep Arora**	
15a	**(1) Harry Allen – Eldorado Transmission Project should be studied in this Planning cycle:** CAISO's Economic Analysis from 2012/13 Transmission Planning studies identified $637mm in economic benefits for CAISO ratepayers from a new 500 kV transmission line from Harry Allen – Eldorado ("Project"). These benefits were significantly greater than the capital cost for the project of $240mm and the estimated Total Revenue Requirement of $348mm, thereby resulting in a Benefit-to-Cost-Ratio ("BCR") of 1.83. In addition this new line is expected to provide Capacity benefits, Policy benefits, Operational Flexibility and a potential transmission planning solution for SONGS shutdown. CAISO Management did not take this project to CAISO Board for approval in March 2013 under the 2012/13 Planning cycle because at that time CAISO/NVE were performing joint studies and hence CAISO's analysis on this Project was not complete. LS Power recommends CAISO to complete this analysis as part of the 2013/14 Planning cycle. CAISO should perform an Economic study for this project under this year's economic study process and should also analyze whether this Project can solve any reliability issues identified by CAISO & PTOs as part of their reliability studies. Further, this Project will also provide policy benefits, which should also be quantified as part of this year's planning cycle. Continuing to delay making a decision on this line will cost CAISO rate payers tens of millions of dollars and deprive CAISO of several additional benefits from the Project.	The proposed Harry Allen – Eldorado 500 kV line is in the scope of this year's economic planning studies.
15b	**(2) Potential reliability benefits from Harry Allen - Eldorado line:** While this Project provides huge economic benefits and is mainly an economic project, but this could potentially provide reliability benefits as well. CAISO staff should not only perform the economic analysis again but should also analyze the additional reliability benefits this project can offer. In particular some reliability issues identified by CAISO staff in VEA area and SCE's Eastern and East of Pisgah areas may be mitigated by this	Unified study assumptions will be incorporated into the database, including e.g. SONGS retirement. In addition to production benefits (aka energy benefits), capacity benefits will also be evaluated.

No	Comment Submitted	ISO Response
	project. In addition the project does have the potential to offer part of the solution for the SONGS shutdown concerns. LS Power recommends CAISO staff to study these additional potential benefits of this project in this study cycle.	
15c	**(3) CAISO should perform studies in this year's planning cycle to quantify benefits of a new 500 kV path from Midpoint 500 kV station to Eldorado 500 kV station:** A project proposal was submitted in CAISO's 2012/13 Transmission Planning Request Window for a new project from Midpoint substation to Eldorado substation. This project comprises of three segments: (a) A new 500 kV line from Midpoint - Robinson Summit (b) An under construction 500 kV line from Robinson Summit to Harry Allen and (c) A new 500 kV line from Harry Allen – Eldorado. This combined project brings a major parallel path to CAISO's PDCI, Path 26 & Pacific AC Intertie and CAISO's Southwest intertie interfaces. LS Power recommends CAISO to perform an assessment of this project and quantify the economic and any other benefits that this project can offer to CAISO ratepayers.	The proposed Midpoint – Robinson Summit 500 kV line is not in the ISO planning authority area. Still, in the ISO 2012 study, this line was still analyzed for the economic benefits to the ISO ratepayers. For this section of line, the study did not find significant benefit for the ISO ratepayers, although the ISO did not rule out that the line can be beneficial for other areas outside the ISO-controlled area. Under this situation, in the 2012-2013 transmission planning process, it is likely that the Midpoint – Robinson Summit line will not rank among the top-five high-priority studies.

No	Comment Submitted	ISO Response
16	**Nevada Hydro Company** **Submitted by: David Kates**	
16a	Comments on the September 25, 2013 Day 1 Presentation: 1. In slide 25 of Mr. Chen's presentation with regard to SDG&E assessment results, "Alternative A" precisely describes Nevada Hydro's Talega-Escondido/Valley-Serrano 500 kV Interconnect Project (TE/VS Interconnect). SDG&E and the CAISO are well aware of this project and of the actual benefits it provides. Nevada Hydro is submitting this project to the CAISO's Request Window. 2. Mr. Sparks presentation regarding "non-conventional solutions" to address local needs in the TPP appears to Nevada Hydro as a request that Nevada Hydro submit its 500 MW Lake Elsinore Advanced Pumped Storage (LEAPS) project to the CAISO's Request Window. Please advise Mr. Sparks that Nevada Hydro is filing LEAPS to the current TPP Request Window.	Thank you for the comments. The ISO received Nevada Hydro's request window submittal and is evaluating it along with all of the other submittals.
16b	Comments on the Day 2 Presentation on September 26, 2013: 1. Alternative 2A, on page 11 of the presentation with note 1 again precisely describes Nevada Hydro's TE/VS Interconnect. Nevada Hydro has undertaken an extensive amount of work on this connection, it has been reviewed by the CAISO on numerous occasions, and is being submitted once again to the Request Window. Nevada Hydro notes that its TE/VS Interconnect could be in service in 2016 and would cost less than half the $1.6 billion to $1.9 billion estimated by SDG&E. 2. The Imperial Valley Flow Control project has not been shown by SDG&E to be able to solve the listed "Driving Factors". It appears to be an opening idea presentation without background support. 3. The cost estimates for the reactive support-voltage control equipment presented do not appear to match the equipment described. Much more detail in pricing and contingency testing is required before this proposal should be seen as real.	Thank you for the comments. The ISO received Nevada Hydro's request window submittal and is evaluating it along with all of the other submittals.

No	Comment Submitted	ISO Response
	4. (See pages 47-54 of Presentation) Testing of the L-1-1 of loss of Imperial Valley-Migual and Imperial Valley-Suncrest was not reported to have been conducted by SCE. Initial testing by Nevada Hydro of the 500 kV loop-in to Mesa showed that for this contingency, the entire L.A. Basin area and SDG&E load area will suffer a voltage collapse. Finally, as Nevada Hydro has done quite a bit of independent analysis on the situation in Southern California with the demise of SONGS, Nevada Hydro is including for consideration by the parties to this proceeding a number of extensions to Nevada Hydro's TE/VS Interconnect, which, in Nevada Hydro's view, solve many of the issues the CAISO has identified in a far easier and less costly manner than the grandiose schemes identified in these presentations. These suggestions may be found on the attached PowerPoint. [Please refer to Nevada Hydro's comments for PowerPoint]	

No	Comment Submitted	ISO Response
17	**NRG Energy, Inc. (NRG)** **Submitted by: Brian Theaker**	
17a	The CAISO envisions a three-step process for transitioning to a greater reliance on preferred resources to meet local area needs: (1) developing a generic resource catalog by differentiating resources based on their response times, energy durations and availabilities; (2) determining an effective mix of nonconventional resources that meets the needs of the local area; and (3) monitoring the development of the non-conventional generation solution. At the September 23 TPP meeting, the CAISO invited parties to bring it ideas and proposals for how non-conventional resources can meet local area needs. The CAISO intends that the results of its consideration of non-conventional alternatives will be incorporated in the initial results of the 2013-2014 TPP analyses expected to be released in January 2014. In light of California's commitment to preferred resources (Demand Response ("DR"), Energy Storage ("ES"), Energy Efficiency ("EE") and renewable resources), and the preliminary reliability plan for Southern California's emphasis on using preferred resources to meet local needs, it is both timely and appropriate that the CAISO has initiated this effort. This effort is very important and should be started now. To the extent that NRG has concerns about this effort, those concerns involve (1) the proposed schedule for this effort and (2) the lack of clarity regarding the process the CAISO is proposing, including what opportunities stakeholders and other agencies will have to participate in, review and inform the CAISO's analyses and conclusions.	The ISO's analysis of preferred resource scenarios will be documented in the draft 2013/14 TPP report for comments.
17b	With regards to schedule: NRG views this essential effort to fundamentally reshape the way in which local reliability needs are met as requiring the same level, kind and duration of engagement as other efforts to deal with fundamental aspects of how reliability is maintained, such as the efforts to develop the RMR agreement and to craft the fundamental aspects of the Resource Adequacy ("RA") program. Expecting thoughtful and durable results from this groundbreaking effort in only three months seems very optimistic.	Thank you for the comments. The ISO analysis will likely need to be continued in future planning cycles to address the concerns in these comments.

No	Comment Submitted	ISO Response
	NRG views this effort as fundamentally affecting the nature of meeting reliability requirements for the following reasons. Through its history, the CAISO has met Southern California local area reliability needs primarily, if not exclusively, through gas-fired generation. Because gas-fired generation is assumed to be fully available (except when on forced outage, an allowance for which is built into the Planning Reserve Margin used in the RA Program), if local area needs are met primarily or exclusively through gas-fired generation, it is reasonably presumed that if the area is reliable for the most affecting contingency at the time of peak demand, that area is reliable at all other times. The "top-down" nature of the RA program design makes the same assumption.1 Conversely, if the CAISO constructs a particular "mix" of intermittent, use-limited and availability-limited resources that successfully meets a narrowly defined set of reliability needs for a projected peak-hour demand in a given month, it is not clear whether that mix of resources will meet all of the local area's reliability other needs in all other hours in that month. This may be especially true when considering the ongoing need to perform transmission or generator maintenance in off-peak seasons. The need for resources to maintain reliability is not always the greatest during times of peak demand, as the CAISO's "duck chart" and initial projections of monthly flexibility requirements shows. As a result, additional analyses to determine if the resource mix that meets the reliability need at the time of peak demand also meets the area's reliability needs for all other hours in the month may be needed. This is not to say that local area needs cannot be met except through gas-fired generation. Preferred resources can and should play an important role in meeting local area needs. But reliably meeting all local area needs through preferred resources *under all conditions* will require more analysis than just peak-hour analysis of a particular resource mix.	
17c	With regards to process: NRG does not fully understand the process the CAISO is proposing and exactly what the final work product of this effort will be. For example, NRG does not understand whether the CAISO envisions developing a single mix of non-conventional resources that can meet the local area's needs at the time of peak demand, or developing alternative mixes of non-conventional resources, each of which could each meet the local area's needs at the time of peak demand. It is also not clear to NRG	The ISO has described the general scope of its analysis in its responses above to comments on preferred resources. It can be re-characterized as an informational analysis of preferred resource scenarios.

No	Comment Submitted	ISO Response
	what criterion or mix of criteria (cost, performance, speed of implementation, network effectiveness) the CAISO will use to develop the resource mix to pursue. Further, it is not clear how stakeholders and regulatory agencies will engage in this very important process. At the September 25 TPP meeting, the CAISO indicated that it was asking parties to bring proposals to the CAISO as part of this process. While such an invitation has the feel of a procurement solicitation, it is not clear how the CAISO will evaluate these proposals and what role stakeholders and others will play in that evaluation process or in the review of the final outcome. In conclusion, the time and circumstances strongly support the need for a process to consider how preferred resources can maintain local reliability, and the CAISO is to be commended for starting this work now. However, such work cannot just narrowly focus on maintaining reliability at time of peak demand, but also must ensure that any resource mix adopted maintains reliability under all other conditions. Given the importance of this process, which will transform fundamental aspects of the way the CAISO carries out its core mission, as well as the potential to establish precedents for how preferred resources will meet reliability needs for years to come, NRG respectfully requests the CAISO consider using a more rigorous, deliberative and participatory process for this critical work.	

No	Comment Submitted	ISO Response
18	**Pacific Gas & Electric (PG&E)** **Submitted by: Mark Higgins**	
18a	**PTO Submissions** On September 26, 2013, San Diego Gas and Electric Company (SDG&E) presented four alternatives for a proposed new high voltage transmission line that would reduce local capacity requirements in the San Diego local area1. Some of these alternatives have also been presented in testimony provided in Track 4 of the 2012 Long-Term Procurement Plan (LTPP) proceeding2. The consideration of these alternatives is driven by the increase in local capacity requirements given that the San Onofre Nuclear Generating Station ("SONGS") is no longer in operation3. Cost estimates for the four alternatives presented by SDG&E range from $1.6 billion to $5.7 billion. In particular, cost estimates for the Imperial Valley Substation to a new north inland substation project assuming a combination of overhead and underground lines (identified as Alternative 1B) range from $4.7 billion to $5.7 billion. As such costs could significantly impact rates on a system-wide basis, the CAISO should carefully consider the costs of each alternative as part of its assessment process, as well as consider the wide variety of other options to meet local reliability needs in southern California without SONGS that have been presented for consideration in Track 4 of the 2012 LTPP. PG&E urges the CAISO to work closely with the California Public Utilities Commission to evaluate the relative costs, benefits, and risks of approving alternatives to meeting those needs giving equal consideration to transmission, generation, and demand-side resources.	Thank you for the comments. The ISO expects that in order to address the concerns raised in these comments the ISO may need to continue its analysis of the mitigation for the identified long term reliability needs in future planning cycles.
18b	**Alternatives White Paper** PG&E commends the CAISO for its efforts to develop a consistently applied methodology to evaluate non-conventional alternatives in the transmission planning process. We support the CAISO's desire to develop a more analytical way of evaluating non-conventional alternatives. The analyses provided by the CAISO with respect to how the new methodology is to be applied in specific local pilot areas is elucidating and shows how such an analytical approach can identify particular resource attributes that would fulfill a need.	Thank you for the comments. The ISO expects that in order to address the concerns raised in these comments the ISO may need to continue its analysis of preferred resources in future planning cycles.

No	Comment Submitted	ISO Response
	With that in mind, PG&E provides the following feedback on the methodology and its application in the 2013-2014 TPP and beyond: 1. During the September 18 stakeholder call, the CAISO stated that it accounted for energy efficiency as load reduction in the pilot areas, but that it felt that existing demand response ("DR") products did not have attributes that aligned with system needs. Therefore, existing DR was not included in developing the load curves. PG&E believes the CAISO should more clearly articulate how it evaluated existing and planned demand side management (e.g., energy efficiency ("EE"), DR, storage, and distributed generation ("DG")) and incorporated these into its base case used for the analysis. The following questions arise: • How did the CAISO determine that only fast response resources could meet local area needs? • Did the CAISO's incorporation of demand side resources (i.e. EE) into the base case load curve include both existing EE programs and future savings reasonably expected to occur due to both voluntary programs funded through utility rates and changes in state and federal building codes and appliance standards? • Did the load curves include projected savings from customer-side DG as forecasted by California Energy Commission ("CEC") staff and vetted in the Demand Analysis Working Group ("DAWG") and CEC IEPR stakeholder process? If not, PG&E encourages the CAISO to consider these points in these forums, as the CAISO is already engaged in additional collaboration with the IOUs, CEC, and the DAWG to refine the process by which these business as usual savings (including all reasonably expected to occur future savings) can be allocated to LCRs and included in the TPP and the CPUC's LTPP.	
18c	2. While PG&E recognizes that day ahead DR may not be appropriate to meet all system contingencies, PG&E does not believe the CAISO needs to rely solely on fast operating resources to meet reliability needs. Day-ahead DR can also play a role in changing the load shape in a way that would alter the attributes of fast response resources needed, and can be a far more	Thank you for the comments. The ISO expects that in order to address the concerns raised in these comments the ISO may need to continue its analysis of preferred resources in future planning cycles.

No	Comment Submitted	ISO Response
	cost-effective, simpler solution to address certain types of local reliability concerns. Fast response resources should only be needed to respond to changes in load that could not be forecasted in advance, such as unplanned line outages.	
18d	3. There appears to be an assumption that DR needs to be automated ("Auto DR") in order for it to be reliable and predictable. We would like to point out that this is not a correct assumption. Most importantly, DR needs to be able to be forecasted accurately (which is something that PG&E has already been doing at a reasonably accurate level). This is particularly true for DR that is not "fast".	Thank you for the comments. The ISO expects that in order to address the concerns raised in these comments the ISO may need to continue its analysis of preferred resources in future planning cycles.
18e	4. PG&E supports the CAISO's overall methodology and approach for analyzing the potential of non-conventional alternatives in the TPP process as described in section 5 of the Alternatives White Paper. Following are our suggested changes to enhance the proposed methodology: • As expressed on the TPP conference call, PG&E urges the CAISO to consider incorporating all existing and planned Demand Side Management (EE, DR, PLS, storage and DG, collectively "DSM") into the initial analysis as a prerequisite to step one to ensure that non-conventional resources are properly included in the TPP process consistent with the loading order. The need for new DSM will be more reasonably expressed if these are included. • The catalog developed in step one of the process4 should also include the following: o Expected life of the resource– e.g., availability for 1 year, 5 years, 10 years, or longer o Location of the resource– The location of the resource may have an impact on the performance in the transmission planning process o Use of the resource– Whether the resource dedicated for use as an alternative to transmission or conventional generation to address local needs • All resources developed in step one for the catalog need not necessarily have a fast response time. EE and storage, once installed, can reduce peak demand. Also, day-ahead DR and other DR that has a longer response time	The ISO will consider these comments, and also forward these comments to staff working on other aspects of preferred resources and energy storage. For clarity, the transmission planning process does not approve as transmission assets new market-participating preferred resources or storage, but rather informs the procurement process in other processes with the necessary characteristics the resources require in order to meet transmission.

No	Comment Submitted	ISO Response
	can alter the load shape so that there is less need for fast resources (see comment #2 above). • The CAISO should consider adding a description in the methodology of CAISO's criteria for evaluation of the alternatives. The criteria may be different based upon whether the alternative is being used for as an alternative to Transmission or Generation. A new definition and/or process may need to be established for alternatives that are BOTH generation and load (i.e. storage, demand response, etc.). • The CAISO should consider adding a step in the methodology to monitor the operational performance of the resources. • In order to reliably integrate non-conventional resources within our system, operating procedures will have to be developed to clarify how the resources will be called during planned outages as well as and emergency events. Development of these operating procedures may require detailed studies to ensure that the proposed alternatives do not create unintended consequences (e.g., storage acting as a load to the system). PG&E understands that the CAISO intends for the near term pilot process to be used as a tool to inform the CAISO, CPUC LSEs, regulators and other stakeholders regarding the potential to mitigate identified local reliability issues with non-conventional alternatives. The CAISO states that such analysis could "then inform any CPUC decisions on authorizing procurement of additional preferred resources in those areas and ultimately inform the procurement activities of Southern California Edison and San Diego Gas and Electric5." While this assessment of potential is a necessary first step, PG&E recommends that the CAISO also work with the CPUC and LSEs to identify economic incentives for developers to participate in the process. For example, will selected non-conventional resources qualify to count as local RA? Will the CPUC-approved procurement mechanisms for non-conventional resources take into account whether such resources were selected in the CAISO TPP?	

No	Comment Submitted	ISO Response
19	**Pinnacle West Capital Corporation (PNW) and MidAmerica Transmission (MAT)** **Submitted by: Jason Smith and Darrell Gerrard**	
19a	MAT and PNW appreciate the opportunity to comment on the topics discussed during the September 25-26th stakeholder meeting regarding the 2013/2014 Transmission Planning Process. We recognize the efforts taken to improve the transmission planning process, including the economic study process, over the last two years and support the continued refinement and enhancement of the overall process. We specifically support the process outlined to reach a decision on the Delaney to Colorado River transmission line as presented in the stakeholder meeting to complete the process initiated with the December 2010 economic study request. We also support the conceptual Gridview refinements CAISO proposed. We feel these improvements will help inform a better decision making process in two ways. First, the changes will update the CAISO's economic analysis to the most current publically-vetted assumptions. Second, some of the fundamental changes discussed will help more accurately model what we would expect to see in terms of region-wide dispatch based on economic merit. We also support the continued valuation of other benefits such as capacity benefits using the same approach undertaken to recognize the value of the Sunrise Powerlink project as well as policy benefits.	Thank you for the comments.

No	Comment Submitted	ISO Response
20	**San Diego Gas & Electric** **Submitted by: Huang Lin**	
20a	**Below page number references to printed slide number within 09/25 ISO presentation "San Diego Gas & Electric Area Preliminary Reliability Assessment Results" section. 1. CAISO presentation slide #6: the overloaded facility and associated contingency appears to be correct on the diagram but not accurate on the text description. SDG&E concurs with CAISO's findings on the two overloaded facilities; with the identified need date for reconductoring Stuart Tap- Las Pulgas segment in 2015 and San Luis Rey-Oceanside Tap in 2016. Both segments are slated to be part of SDG&E's "Wood-to-Steel" fire-hardening upgrade; SDG&E recommends CAISO approval of both as independent reliability projects which will ensure the project's completion by the need date for the identified reliability compliance. 2. CAISO presentation slide #7: SDG&E concurs with CAISO's findings and proposed mitigation on the overloaded facilities. The loop-in of the TL617 at Rose Canyon will eliminate a three-terminal line and provide additional reliability benefit and operation flexibility. 3. CAISO presentation slide #8: SDG&E currently has an SPS to trip Talega bank 50 for this overload. Reconductor can be an option to address this issue too. 4. CAISO presentation slide #10: SDG&E has also continues finding indications of loading excursions for TL6916 [Sycamore – Scripps]. SDG&E and CAISO operations have managed loading issues for TL6916 for several years. In years predating the peaker installations, the line from Scripps to Miramar would only occasionally be opened at Scripps pre-contingency to address potential for line loading violations. Presently, managing TL6916 loading has been accomplished principally from availability and reliance on the peakers located at Miramar, MEF #1 and/or #2. In addition, as part of the Sunrise project SDG&E successfully increased the rating of TL6916 to	1. The ISO proposes to rely on the existing SPS that will trip Talega bank 50 for the Jap Mesa-Las Pulgas 69 kV section overload and continues its analysis of other mitigations in future planning cycles, and is verifying SDG&E's proposal to re-configure the Scripps-Miramar-Mesa Rim 69 kV system by re-directing generation flow out of Miramar Peakers, and will continue its analysis on the proposed Los Coches 230 kV sub and the third 230 kV circuit from Suncrest to Los Coches in future planning cycles. The ISO is currently studying various alternatives on Post-SONGS mitigations to strengthen the Southern California Bulk System. 2. Thank you for the comment 3. Thank you for the comment 4. Thank you for the comment

No	Comment Submitted	ISO Response
	the present day limit of 164 MVA continuous and emergency limits. This line has now reached its maximum rating, barring a major upgrade that would require extensive rebuilding and possibly the acquisition of additional right of way, similar in scope to the proposed Sycamore-Miramar line (TL6942) that was rejected several years ago by the CPUC. In this TPP request window, SDG&E has proposed to add a third 230 kV circuit from Suncrest to Los Coches. Among all other benefits to the 230 kV systems, this line will better distribute power coming into the load basin at Sycamore 230 kV and offload the 69 KV network at or near Sycamore, thereby addressing the loading issue on TL6916.	
	5. CAISO presentation slide #11: SDG&E concurs with ISO that building a new Artesian 230/69 kV sub and loop-in TL23051 will not only address multiple system loading issues at Poway load pocket but also provide loading relief for the Sycamore Canyon 230/69 kV transformers. SDG&E does not support installation of an SPS to mitigate this particular contingency, and generally does not support SPS mitigation for non-credible N-2 or low-probability N-1-1 contingencies. SDG&E would support development of an operating procedure that would utilize short-term emergency ratings to allow manual load shedding in the event of this contingency until the recommended mitigation (Artesian 230 kV) is in place.	5. Thank you for the comment
	6. CAISO presentation slide #12: SDG&E supports CAISO's proposal to add a class 70 (230/69 kV) transformer at Mission to fix loading issues on Bank 50 and 51 (138/69 kV). It will provide additional benefits of improving the voltage control at Mission, and eliminate the on-going circulating VAR s caused by the two class-50 transformers that operate without TCUL tap changer capability. Again, SDG&E does not support installation of an SPS to mitigate this particular contingency, and generally does not support SPS mitigation for non-credible N-2 or low-probability N-1-1 contingencies. SDG&E would support development of an operating procedure that would utilize short-term emergency ratings to allow manual load shedding in the event of this contingency until the recommended mitigation (Mission 230/69 kV bank #2) is in place.	6. Thank you for the comment.

No	Comment Submitted	ISO Response
	7. CAISO presentation slide #14: The voltage deviation identified is due to the simulated outage of TL6912 and radialized Pendleton 69 kV bus, therefore greater than 5% voltage drop post-contingency is acceptable. SDG&E recommends investigating the voltage deviations on a case-by-case basis and refrain from adopting higher Voltage Deviation criteria cross the board as a solution. 8. CAISO presentation slide #15: Note that the existing Encinitas capacitor banks (2 x 6 MVAR) may be undersized for the load served. Also the diagram shown does not include Del Mar reconfiguration, which is an approved CAISO project to loop in TL674 and RFS TL666D, with an ISD of 2015. SDG&E recommends review of the power flow case to ensure the correct system topology is in place. 9. CAISO presentation slide #17, Otay Mesa-TJI 230 kV overloads: CAISO suggests Post SONGS Transmission Plan will fix this issue. Depending on which "Post SONGS Transmission Plan" will be in place, it may help or may aggravate the TJI overloads. The problem is regional in nature and impacts other Balancing Authority Areas (BAA). As the balancing authority for SDG&E, the CAISO is ideally situated to coordinate study work with the two or three other affected BAA's (IID, CFE, and APS). In their presentation, CAISO suggests "Modify SPS to trip generation in IV prior to cross tripping TL23050 tie in the short term" but does not offer any analysis on how effective the generation tripping would be, or how much generation tripping would be required to mitigate the overloads, or for how long such a scheme would be effective. Given that this is a regional issue, and is significantly affected by generation dispatch and loading conditions in SCE, Arizona, IID, and CFE, SDG&E does not support limiting the mitigation of this regional issue only by tripping generation that is critical to serving San Diego load. In this TPP request window, SDG&E proposed a Phase Shifting Transformer Flow Control device at IV. SDG&E believes there is sufficient justification in the current study work to approve this project as a short to medium term mitigation for system issues relating to the SONGS and other	7. Thank you for the comment 8. Thank you for the comment 9. Thank you for the comment.

No	Comment Submitted	ISO Response
	OTC retirements and the effective integration of Imperial Valley renewables. CAISO has inquired of SDG&E regarding the installation of a "back-to-back DC link" at IV. SDG&E considers either type of the flow control device at Imperial Valley to be a more effective long-term fix than the generation tripping scheme. And given the fact that phase shifters can be installed within the existing IV fence line, it will provide intermediate time frame loading relief at the SDG&E-CFE ties, thus helping to bridge the many years near term to long term reliability exposure. 10. CAISO presentation slide #18, #21: These slides reflect the same regional issue as seen in slide #17. SDG&E proposed a Phase Shifting Transformer Flow Control device at IV and believes there is sufficient justification in the current study work to approve this project as a short to medium-term mitigation for system issues relating to the SONGS and other OTC retirements and the effective integration of Imperial Valley renewables. CAISO has inquired of SDG&E regarding installation of a "back-to-back DC link" at IV. SDG&E considers either type of flow control technology at Imperial Valley to be a more effective fix than the generation trip. Given that phase shifters can be installed within the existing IV fence line, it will provide intermediate time frame loading relief at SDG&E-IID ties. Note that since the IV-El Centro (S-Line) is an IID facility, it should be identified as a regional "seams" issue instead of an SDG&E area overload, and the project study work and coordination should be done at the balancing authority level. 11. CAISO presentation slide #19, Suncrest-Sycamore 230kV transmission overloads: SDG&E observed N-1 category B overloads on the same facilities, and identified an effective mitigation: adding a 3rd 230 kV outlet at Suncrest. The combination of the 3rd Suncrest 230 kV line coupled with the IV Flow Control is a better solution than SPS tripping of IV Generation as the problem can and will tend to grow over the long term. In this TPP request window, SDG&E proposed a project to build a SCR –LC 230KV line. SDG&E recommends that the CAISO consider the proposed SCR –LC 230KV line, along with the IV Flow Control, as part of "Post SONGS Transmission Plan". These projects will function to bridge across the	10. Thank you for the comment. 11. Thank you for the comment.

No	Comment Submitted	ISO Response
	immediate term to long term resource gap created by the retirement of SONGS and OTC generation. 12. CAISO presentation slide #22: Mission-Old Town 230 kV transmission: SDG&E will re-evaluate potentially splitting TL23013 [PQ-OT] into two circuits. 13. CAISO presentation slide #20 and #24: Both mentioned the cross tripping of TL23050 (IV-ROA) as part of the contingency This appears as inconsistent with respect to slides #17 and #19 where the identified potential mitigation is "Modify SPS to trip IV generation <u>prior to</u> cross tripping TL23050"? 14. CAISO presentation slide #25: Listed "Post-SONGS Transmission Strengthen Plan" alternatives address MW solely. The CAISO presentation has identified several voltage stability issues under Category B events (Slide #23 and #24), however did not identify any real solutions. Within this TPP request window, SDG&E has proposed two Synchronous Condenser projects to address the voltage stability issues, and urges CAISO approve both projects to ensure SDG&E meets the WECC 2.5% and 5% reactive margin requirements by 2018. 15. CAISO presentation slide #26: 1st bullet suggesting relying on Energy Efficiency (EE) as alternative mitigation when it is already built into the model assumptions. As indicated in slide #2, CAISO embedded in the analysis the 375 MW of EE load in the base case; yet on slide #4 and #26 mentioned EE again but as a mitigation measure, raising the possibility that there may be a certain amount of 'double-counting' of energy efficiency resources.. Also, it's not clear from the presentation if assumptions for other utilities have the EE load embedded as base case assumption or potential mitigation. 16. CAISO presentation slide #26, 2nd bullet: Suggests "Improve SDG&E 230 kV system in order to accommodate the "Post-SONGS Transmission Strengthen Plan". SDG&E has proposed several 230 kV improvements	12. Thank you for the comment 13. In some scenarios, SPS to trip IV generation is not sufficient to prevent cross tripping. 14. Thank you for the comment. 15. EE was modeled in the base case. 16. Thank you for the comment.

No	Comment Submitted	ISO Response
	which fully accommodate the Post SONGS TSP, such as Los Coches 230 kV & Suncrest-Los Coches 230 kV line, Phase Shifting Transformer Flow Control device at IV and Artesian 230 kV Expansion etc.	
20b	**Below page number references to printed slide number within 09/25 CAISO presentation "Determining an Effective Mix of Non-Conventional Solutions to Address Local Needs in the TPP" section. 1. CAISO presentation slide #7: Indicated 500 MW of DR in San Diego. Is that on top of 375 MW of EE for year 2023? 2. This section of the presentation appears to focus on the so-called "SONGS study area" which encompasses a portion of SCE service territory and majority of SDG&E's service territory. It's not clear if the same level of DR/ DG assumption has been uniformly applied to other part of the CAISO BAA?	1. Yes 2. The analysis focused on the LA Basin and San Diego area only.
20c	**Below discussion references to 09/26 SDG&E project presentation at the stakeholder meeting: 1. SDG&E proposed a comprehensive "Metro Area rebuild" during the 2012/2013 planning cycle but was turned down by CAISO. SDG&E again proposed a minimized version of TL623C and TL649D reconductor this year, strictly based on the Category B contingency overloads on these two lines. Some generation owners offered comments during SDG&E's presentation urging CAISO's approval of the comprehensive "Metro Area rebuild" to facilitate generation dispatch and enable future generation interconnection in this area. SDG&E echoes this suggestion, and recommends that CAISO reconsider and approve the "Metro Area rebuild plan", or at the very minimum approves the TL623C and TL649D reconductor projects.	The ISO will continue to coordinate our transmission upgrade and generation interconnection plans and may need to re-evaluate the proposal to re-build the Metro Area in the future planning cycle.

No	Comment Submitted	ISO Response
21	**Southern California Edison** **Submitted by: Garry Chinn, Karen Shea and Anna Ching**	
21a	**A. Comments Related to CAISO Assumption/Approach regarding Incremental Capacity** **Results from the recently completed Path 46 and Path 49 rating re-study should be incorporated CAISO's Delany Colorado River Study** Pursuant to WECC procedures, path rating studies for Path 46 and 49 was recently completed for the Devers-Colorado River project.1 The results revealed an interaction that should be incorporated into the CAISO's study of the economic benefits of the Delaney-Colorado River project. In summary, if the CAISO includes generation at Colorado River and Red Bluff, that will lower the operating limit of Path 49. Additionally, there are concerns from a reliability perspective – that is under certain conditions there is a nomogram relation when power is injected at Red Bluff and Colorado River – some power goes west bound and some power goes east bound back to Palo Verde around other lines – when this occurs under certain contingency conditions, Path 49 must be reduced to about 5000 MWs. This is a new understanding of the system and efforts in a peer review group have identified these limits and communication will be made to WECC. SCE believes these results may have a material impact on the CAISO's congestion and economic study for Delany-Colorado River. Additional details regarding this recent study are provided below: 1. The Delany Colorado River economic study assumptions do not include the Victorville-Lugo nomogram - this nomogram relation was identified in the recent WECC path re-studies for Path 46 and Path 49. These study results were presented to the CAISO and SCE operations for resolution. Modeling this nomogram may have an impact on study results. 2. The assumptions do not mention impact of DCR on WECC path ratings nor include nomogram relation between output of generation connected to Red Bluff and CR and Path 49 - this nomogram relation was identified in the	1. The suggested rating increase and nomograms associated with Path 46 and Path 49 will be incorporated in the ISO production simulation database. 2. See item #1 above 3. The benefits attributed to the potential transmission facility do not rely on a path rating increase. The ISO expects the successful project sponsor to lead and participate in any WECC path rating study work necessary.

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	recent WECC path re-studies for Path 49 in which Path 49 flows would have to be reduced to 5,240 MW when there was 4,000 MW of generation connected to Red Bluff and CR. Adding the DCR line may actually reduce the Path 49 flow limit further by lowering the impedance path east out of Red Bluff and CR. Some neighboring utilities expressed strong concerns over negative impacts of generation connections on WECC path operational limits. Modeling this nomogram may have impact on study results. 3. Assumptions do not mention WECC Path 49 rating increase or impact due to DCR. Raising the Path 49 and Path 46 ratings due to the addition of DCR would only occur with all generation connected to Red Bluff and CR modeled off line. SCE notes that at some point, the CAISO would also need to perform path-rating studies as part of the WECC path rating process to consider the impact of the Delany-Colorado River project, and it will likely aggravate the situation described above. **Additional comments regarding incremental capacity on Path 46** ▪ SCE recommends that the CAISO include the impact of SCIT in its additional analysis. ▪ As an observation, it is SCE's understanding that the CAISO study on Path 46 is an increase in capacity during summer conditions, which is not consistent with WECC Path rating study protocols. SCE has undertaken to rerate the Path 46 using the WECC protocols. Given the State of California's preferred loading order, which includes renewable resources and distributed generation, there may be impacts on transmission facilities, including the benefits of importing energy from outside the CAISO. ▪ If it hasn't already done so, SCE suggests that the CAISO coordinate with the other owners of Path 46 before the CAISO submits its recommendations to the CAISO Board. ▪ The CAISO indicated that it used a penalty price for imports that may not meet California emission standards. SCE notes that the emissions penalty increases over time and that may not be	

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	reflected given the CAISO takes benefits from 2022 and escalates them over time. SCE would appreciate clarification of its use of a penalty price for imports in the CAISO restudy.	
21b	**B. SCE recommends that the CAISO study the impact of potential future resource scenarios, including a scenario of up to 50% renewables** One of the overarching recommendations from the SCE team is for the CAISO to incorporate, or consider in its methodology on economic assessments, possible RPS scenarios and impacts on the grid. It is possible the current RPS standard may be increased at some point, and currently Legislation has been proposed for a 40% Renewable Portfolio Standard. It is critical that the CAISO incorporate future operational states in its studies of economic transmission, and must be considered in the Delaney Colorado River restudy effort. SCE suggests that it is important to understand the results of modeling higher levels of renewable resources in the CAISO grid because under those conditions the CAISO could be exporting significant amounts of power which would reduce the capacity or energy benefits associated with a proposed Delany-Colorado River project. SCE suggests that one method of incorporating the expected conditions is to reduce the amount of capacity and energy benefits significantly by 2030, possibly to almost zero. If the CAISO restudy only assumes that the capacity and energy benefits of 2022 continue indefinitely in the future, or actually escalate, such an assumption could overstate the economic benefits of the project, particularly under higher renewable resource scenarios. Lastly, a 7% NPV interest rate is not indicative of what would be used by a an investor-owned utility, or potentially other project sponsors, that might win the bid to pursue such a project. **Other Comments** ▪ SCE has suggests that the CAISO use the CEC numbers for the	The ISO's economic planning studies are based on the Transmission Economic Assessment Method (TEAM) and the established study plan methodology. The studied 2017/2018 and 2022/2023 conditions are representative of the system conditions under the unified study assumptions. The 7% real discount rate is considered to be at the higher end of the social discount rate range relied upon in assessing the present value of annual costs and benefits from a customer (not a utility) perspective. This is consistent with the team methodology in considering a project that is at ratepayer, not utility, expense. The other details will be discussed in the draft transmission plan.

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	capacity valuation rather than the WECC numbers. ▪ As discussed above, continuing the benefits beyond 2030 at the same level would be extremely optimistic. Also, SCE suggests at least understanding the economics of decreasing the benefits from 2023 to 2030 and in 2031 the benefits could be zero. ▪ SCE would appreciate seeing the detailed analysis on the CAISO balancing authority showing it is short on capacity to meet the Planning Reserve Margin (PRM) needs. One of the assumptions CAISO is using is that there is need for RA capacity, and SCE would appreciate the opportunity to review the basis for this assumption.	
21c	**C. Economic Benefits Calculated in Production Simulation** **Costs for Delaney Colorado River Project** One of the key follow up questions is what are the cost assumptions being used by the CAISO in the effort to permit, license, and construct, by 2018 to 2020, the Delaney Colorado River project? The SCE team did not have a chance to ask this during the stakeholder meeting and would appreciate understanding the costs of the proposed project that are being used for the cost benefit analysis.	The capital cost estimate was based on prior and existing experience of building transmission in the area, e.g. the Hassayampa – North Gila 500 #2 (HANG2) project.
21d	**D. Alternatives** SCE recommends that the CAISO restudy include alternatives to DCR that may be more efficient and effective. For example, the previous study indicated benefits of DCR involved Path 26. Wouldn't upgrading Path 26 be more cost effective?	The ISO's economic planning studies covers a number of alternatives to the proposed Delaney – Colorado River 500 kV line. The alternatives includes: - Building a new Midway – Vincent 500 kV line #4 - Upgrading the existing PDCI - Building a new Harry Allen – Eldorado 500 kV line - Building a new North Gila – Imperial Valley 500 kV line #2 For a consecutive number of years, the ISO has been study the economic benefits of upgrading the congested Path 26. The studies have consistently shown that the economic value of upgrading Path 26 is not cost-effective under the current study conditions.
21e	**II. SCE's Comments on the CAISO's Proposed Methodology for**	Thank you for the comments. The ISO has received the preferred resource

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	Consideration of Non-Conventional Alternatives SCE is pleased by the publication of CAISO's white paper, entitled *Consideration of alternatives to transmission or conventional generation to address local needs in the transmission planning process* ("White Paper")3. SCE is encouraged by the CAISO's goal to consider preferred resources as non-conventional solutions to meet local area needs and by the CAISO's development of the proposed methodology. However, SCE has a few concerns that need to be addressed in the implementation of the CAISO's proposed methodology (see specific comments below). Based on SCE's understanding of the proposed methodology, the CAISO would follow a three-step methodology. The first step is for the CAISO to specify performance characteristics and develop a catalog of generic technology-neutral resource types and options that would provide these characteristics. One example of a single "generic resource" could be a two-hour product, with a 20-minute response time that is available for 10 calls per month. Once this catalog of generic resources is established, the second step is for the CAISO to determine an effective mix of these generic resources to meet the performance characteristics needed for a local area. To do this, the CAISO will need to specify the performance characteristics and the amounts of each characteristic required to meet the identified needs, then develop an initial preferred volume and mix of generic resource types from the catalog to provide the performance characteristics and, finally, perform an analysis to test the mix of resources to validate that it will meet the identified reliability needs in the local area. The third step in the CAISO methodology is to monitor the development of the non-conventional solution(s) by continually assessing the progress of the selected non-conventional alternative against the timing of the need. **A. In order to properly evaluate, select and procure preferred resources, the CAISO should establish LCR attributes for preferred resources.** SCE will procure a significant portfolio of energy efficiency, demand	scenario information submitted by SCE for analysis in this process and is currently working on analyzing a number of those scenarios. This analysis will be documented in the 2013/14 TPP report and will address many of these questions and comments. The ISO may need to continue this analysis in future planning cycles in order to address all of these comments.

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	response, distributed generation, and energy storage (collectively referred to as "preferred resources") over the next few years to meet local capacity requirements ("LCR") in the western LA Basin area. SCE is currently engaged in a solicitation for up to 1800 MW of generation resources in the western LA Basin, including between 200 and 800 MW of preferred resources and energy storage. SCE has requested that the CPUC increase this procurement authority by 500 MW (all technologies including preferred resources and energy storage eligible). In addition, SCE has announced plans to pursue a Preferred Resources Living Pilot in a portion of the western LA Basin. Unlike conventional generation resources that are typically available for dispatch during most times of the year, preferred resources may have significant limitations in when they are available and may have stringent use limitations (number of times they can be operated or restrictions on the duration of performance). Given these limits, it is important to understand when LCR needs are likely to occur (by season and time of day); the duration of these needs when they occur, and how much of a particular type of generic resource can be utilized. While the framework contained in the white paper is an excellent start, SCE is not clear how the final product developed by the CAISO can be effectively used in procurement decisions. In particular, SCE needs to understand the limits of particular attributes within an overall portfolio, the relationship between peak and off peak season needs, and quantity limits that apply to the generic resources. For example, suppose SCE is considering procuring a 600 MW portfolio containing a variety of preferred resources – including 400MW from an air conditioner cycling ("A/C Cycling") program that is available only during the summer and 200 MW from rooftop solar. While the A/C Cycling program may be a valuable resource in the summer, this program is unlikely to make a contribution in the winter. If there are LCR needs greater than can be supplied by the 200 MW of rooftop solar in the winter, the portion of the portfolio associated with A/C cycling may need to be de-rated. Similarly, if LCR needs occur during evening or nighttime conditions then the solar portion of the portfolio may need to be de-rated.	

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	As another example, if LCR needs occur over a relatively long springtime mid-day and evening period with some air conditioning load, then it may be possible to rely on the solar and A/C cycling resources sequentially to supply 200 MW of LCR needs. Given the lower overall load in springtime conditions, it is possible that this could be sufficient to meet LCR needs at that time.	
21f	**B. SCE will be submitting scenarios in the CAISO request window by October 15th** The CAISO invited stakeholders to submit project proposals before the request window closes on October 15th. As noted in the previous section, SCE is not clear what information will be produced because of the CAISO's analysis of project proposals. Nevertheless, SCE plans to provide information to the CAISO as requested. In the LTPP, SCE has modeled a Preferred Resources scenario that SCE would like the CAISO to review, so SCE will be submitting this scenario, which contains information at the substation level. SCE may also be submitting additional scenarios to the CAISO to "bookend" portfolios heavy on particular preferred resource technologies to allow the CAISO to consider the limits that particular preferred resources may have. SCE will appreciate receiving feedback from the CAISO's on the effectiveness of these scenarios. SCE requests the CAISO consider how best to present its study findings in a way the clearly identified the attributes that an actual portfolio of resources should have.	Please see response to the previous SCE comment.
21g	**C. Monitoring programs should include procedures to ensure that the preferred resources and energy storage will adequately perform under real-time network conditions.** SCE agrees with the importance of a program to monitor the development of preferred resources in light of the timing of LCR need. Since preferred resources are expected to have a shorter delivery cycle than transmission or conventional generation options, it is not clear to SCE how such a monitoring program can effectively assure reliability. In the LTPP, SCE has proposed certain contingency initiatives that can "backstop" problems with the delivery of preferred resources. Ultimately, if a preferred resource fails to act when called up to meet an N-1-1 contingency and backstop initiatives	These characteristics will need to be taken into account as reliance on preferred resources and storage advance. These will likely be assessed not only through the transmission planning process but also the procurement process and related processes.

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	are unsuccessful, the CAISO may need to operate a Special Protection Scheme ("SPS") or Remedial Action Scheme ("RAS") to drop load at the target substations. SCE encourages further development of the sequencing of this process. Tracking the cumulative effects of preferred resources and energy storage may require additional metering and advanced telecommunications. The CAISO has indicated that the focus for the use of non-conventional alternatives will be on post-contingency events (N-1-1). Therefore, the CAISO will need to vet the technologies by assessing their use in "real-time" network conditions to measure their effectiveness. One potential issue is that the CAISO will need to determine how to account and reconcile for real-time load differences (especially increases in loads) at certain substations due to T&D load rolling4. This may influence the necessary resource amounts at some of the selected target substations, so there may be a need for real-time metering of substation loads to measure the impact. On the customer-side, secure telecommunication may be needed to meter the demand reduction response in real-time to test the contracted resource amounts. As part of our Preferred Resource Living Pilot, SCE is beginning to assess measurement requirements associated with the successful utilization of preferred resources. SCE recommends that the CAISO consider such requirements in its non-conventional alternatives investigation and contribute to SCE's efforts to develop measurement requirements in the Pilot.	
21h	**D. SCE's comments for CAISO consideration on Reliability issues** In order to prevent grid reliability issues stemming from N-1 leading to N-1-1 conditions, and to avoid dropping load in the metropolitan area, SCE presents the factors below for CAISO consideration to incorporate in its reliability analysis. This will ensure that DG, DR, generation, and transmission solutions will be implemented at effective locations for maintaining the grid reliability. These suggestions include:	Please see response to the previous SCE comment.

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	a. NERC/WECC Standards require mitigation for complying with the performance requirements for TPL-1, TPL-2, and TPL-3. SCE recommends that the tariff(s) and product description(s) for preferred resources include descriptions of the triggers that would result in calls for activation to prevent reliability standards violations. This will minimize the frequent calls and allow more efficient use of such measures. b. The brochure should include information on the different critical contingencies, the corresponding effectiveness factors for the different substations in the Western LA Basin and the South Orange County/SDG&E sub-areas and LCR requirements identified by the CAISO for the different sub-areas to get some idea on the effectiveness of the non-conventional resources. For example, the most critical contingencies identified by the CAISO for the LA Basin includes a) N-3 of Mira Loma AA-Bank plus two Chino-Mira Loma 230 kV lines, b) Pardee-Eagle Rock 230 plus two Pardee-Sylmar 230 kV lines, etc. This would be useful reference for evaluating the values and benefits from non-conventional resources that may be proposed and considered in the procurement RFOs for the different programs. c. More granularity will be required to consider the shifts in peak demands for the various local areas as the distributed generation becomes more pronounced. In conclusion, while SCE is encouraged by the CAISO's White Paper on non-conventional alternatives, SCE does not clearly understand how the CAISO's proposed methods can be used to inform our procurement initiatives; thus, SCE is interested in developing additional clarity. Given that SCE is in the midst of procuring up to 800MW of preferred resources and energy storage, the CAISO process and methodology is extremely important to SCE. SCE looks forward to working closely with the CAISO during the 2013/14 CAISO TPP.	

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22	**Transmission Agency of Northern California** **Submitted by: Dave Larsen**	
22a	The Transmission Agency of Northern California (TANC) appreciates the opportunity to provide comments on the results of the California Independent System Operator's (CAISO) 2013-2014 Transmission Planning Process (TPP) studies as originally posted on the CAISO website on August 15, 2013, and then at the TPP Stakeholder meetings held on September 25 and 26, 2013. TANC's comments focus on the reliability assessment results for the Pacific Gas and Electric Company's (PG&E's) bulk transmission system and on how issues associated with the PG&E bulk system can impact the California-Oregon Transmission Project (COTP) for which TANC is the Project Manager and largest Participant. TANC's primary concerns regarding these studies are the impacts which the "unavailability" of the remedial actions contracted for by PG&E with the California Department of Water Resources (CDWR) and currently participating in the PG&E remedial action scheme (RAS), would have on the ability to deliver power over the California-Oregon Intertie (COI) of which the COTP is a major component. This RAS participation provides for dropping generation and pump loads of the CDWR associated with various single-line and double-line outages on PG&E's 500-kV transmission network between the Malin and Midway substations. Studies by the CAISO as part of the TPP have indicated that removal of CDWR's participation in the PG&E RAS would reduce the amounts of power that could be delivered over the COI by several hundred megawatts. This adverse impact from loss of CDWR's participation in the PG&E RAS has been discussed with CAISO staff and other interested parties in both the TPP forum and in other proceedings/discussions. Specifically, the TPP studies have noted a number of issues due to an outage of the Table Mountain-Tesla and Table Mountain-Vaca Dixon (the "Table Mountain-South") 500-kV lines if the CDWR generation at Hyatt and Thermalito is not tripped via RAS and have identified potential mitigation	The CAISO studies show that removal of CDWR's participation in the PG&E RAS would reduce the amounts of power that could be delivered over the COI. However, this reduction is expected only under certain system conditions that have rather low probability of occurring. Non-participation of CDWR in the COI RAS will not result in the reduction of COI rating. In the Transmission Plan, CAISO has developed nomograms that show limits on COI flow depending on generation output of the hydro plants in Northern California and output of the Colusa and Hatchet Ridge generation projects. These studies showed that overloads on transmission facilities may occur only under Category C contingency conditions when import from COI is high with hydro generation output in Northern California and output from the Colusa and Hatchet Ridge generation plants also high at the same time. Economic studies performed by the CAISO did not show any congestion that may be solved with CDWR RAS. Currently, the system is operated within the seasonal nomograms for COI that are developed by the CAISO Operational Engineering for each upcoming season. Therefore, the CAISO concluded that the system will continue to operate within the COI seasonal nomograms that will be developed in consideration of CDWR non-participation in COI RAS. Since no congestion was identified in the economic studies, the system upgrades or modification of RAS are not considered at this time. The issues with COI outages and RAS will be continued to be monitored and other solutions will be proposed if the need arises. Regarding the CAISO studies of the CDWR RAS, the COI and Path 15 contingencies were studied both with and without CDWR RAS, including both tripping of CDWR generation and CDWR pump load.

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	solutions for each. The solutions suggested in the information posted in mid-August for mitigating the noted overloads included upgrading the impacted line, limiting COI transfers, limiting generation in northern California, or modifying other existing RAS to drop generation at other locations. However, the only form of mitigation discussed in any detail during the stakeholder's meetings was limiting COI transfers and no detailed information was presented on the other potential mitigation options. TANC is concerned that "under playing" these other options might lead stakeholders to believe that the only option is to limit COI imports. TANC also is of the opinion that all of the impacts of limiting COI imports have not been adequately studied and is concerned about CAISO statements that limiting COI import capability (by reducing the existing nomograms) does not have impacts on the reliability of the system. TANC is also unclear as to whether the CDWR pump-drop remedial action was or was not modeled in the TPP studies without the CDWR gen-drop remedial action. In its September 24, 2013 email, CAISO staff informed TANC that the pump-drop RAS was not modeled in the studies; however, in a response to a question from TANC at the September 25, 2013 stakeholder meeting CAISO staff indicated that the pump-drop remedial action was modeled. TANC would appreciate clarification on this modeling question. In addition, and due to "findings" during recent operational studies, TANC is concerned that the data sets used by the CAISO in the TPP studies may not accurately reflect the ratings of critical lines in northern California (particularly those impacted by the Table Mountain-South outage as discussed above). If such is the case, the potential impacts on COI transfer capability or the need for reinforcements to the transmission grid could well be greater than those identified during the TPP studies. TANC looks forward to discussing this matter (and other areas where the results of the operational and planning studies could be better coordinated) with the CAISO and other pertinent parties over the coming weeks.	The ratings of the transmission facilities are modeled in the base cases according to the CAISO Transmission Registry and the information of the transmission projects approved by the CAISO. The ISO will explore with TANC any ratings of concern.

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23	**Western Area Power**	
23a	During the CAISO Transmission Planning stakeholder meeting held at the CAISO on Sept. 25th and 26th, I asked some questions and raised some concerns related to the potential that by the end of 2014 the contractual obligation between CDWR and PG&E that in part supports a portion of the Remedial Action Scheme for imported power across the WECC Path 66 (California/Oregon Intertie - COI) will no longer be in effect. Having a lower magnitude of remedial action, such as the dropping of certain generation after certain transmission outages, can directly impact the amount of power that can be imported across Path 66 coincident with the level of Northern California Hydro generation. My concern voiced during the stakeholder meeting is that progress towards a resolution to the situation outlined above is going too slowly. Although the CAISO has taken the lead in defining operation impacts, the associated transmission planning impacts included with Irina Green's presentation were not specifically defined and explained such that it was clear what the problem is, what are the potential solutions and what is the path being followed to reach an equitable solution in a timely manner. The information presented by Irina did not seem to correspond with the analysis being conducted by CAISO Operations Engineering nor include the amount and detail of analysis as CAISO Operations. Granted that planning and operations look at different points in time, but planning does feed directly into operations and what is seen in operations does need to be addressed in planning. When will coordination between the two take place? What is the schedule for resolution of the Path 66 related remedial actions? It needs to be concluded sufficiently prior to the end of 2014 such that it can be implemented by that time. It needs to be pursued quicker such that all potentially affected parties are involved correctly in reaching an equitable solution agreeable to all. The technical analysis done to date tends to show that not only will the ability to utilize Path 66 be limited without the existing amount of remedial actions, but also the Path 66 rating that was established through WECC. To	The CAISO studies showed that removal of CDWR's participation in the PG&E RAS would reduce the amounts of power that could be delivered over the COI. However, this reduction is expected only under certain system conditions that have rather low probability of occurring. Non-participation of CDWR in the COI RAS will not result in the reduction of COI rating. In the Transmission Plan, CAISO has developed nomograms that show limits on COI flow depending on generation output of the hydro plants in Northern California and output of the Colusa and Hatchet Ridge generation projects. These studies showed that overloads on transmission facilities may occur only under Category C contingency conditions when import from COI is high with hydro generation output in Northern California and output from the Colusa and Hatchet Ridge generation plants also high at the same time. Economic studies performed by the CAISO did not show any congestion that may be solved with CDWR RAS. Currently, the system is operated within the seasonal nomograms for COI that are developed by the CAISO Operational Engineering for each upcoming season. Therefore, the CAISO concluded that the system will continue to operate within the COI seasonal nomograms that will be developed in consideration of CDWR non-participation in COI RAS. Since no congestion was identified in the economic studies, the system upgrades or modification of RAS are not considered at this time. The issues with COI outages and RAS will be continued to be monitored and other solutions will be proposed if the need arises.

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	my knowledge, the Path 66 rating is based on a certain amount of remedial actions and that this was established as the rating was increased from 2400 to 2800 to 3200 and with the COTP 500 kV line, to its present rating of 4800 MW. When will this be addressed and if so will it be a WECC wide assessment as required for impacts to a WECC established Path Rating? Another point made concerned the nomograms Irina presented that included various nomogram lines corresponding to COI flow and Northern Calif. Hydro generation. The nomograms included mention of the Colusa and Hatchet Ridge generating plants. Is it correct that the operation of these plants will not result in a reduction of COI availability to those entities not directly associated with the CAISO such as the Western Area Power Admin? The nomograms should be revised so that this is not implied. On another note, Irina also presented a couple of potential reliability problems that should be restated as only verification of existing limits. One concerned the Olinda 500/230 kV transformer bank overloading. This potential overload is directly caused by the Colusa Power Plant and there is a Special Protection System (SPS) in place and in operation that will prevent the bank from overloading. If still included in the CAISO transmission assessment report, it should include that this is only a sensitivity to verify that the SPS is still needed. Another point of concern was showing that the Captain Jack-Olinda 500 kV line could load to 100% of its emergency rating upon an outage of both Malin-Round Mt. 500 kV lines when in fact this demonstration was with Path 66 (COI) at 4800 MW and Northern California hydro generation higher than limited in current operation nomograms used by the CAISO. This should be removed and not included in the CAISO transmission assessment report as it is too limited in technical scope to infer a verification of the Path 66 rating and associated transmission limitation.	This is correct that the studies showed overload of the Olinda 500/230 kV transformer bank. This overload can be mitigated by the existing Colusa SPS that trips Colusa generation. This SPS was not modeled in the studies because the SPS trips generation only in case of overload, so the studies were needed to determine if there would be overload without generation tripping. Thus, the studies verified that the Colusa SPS is still needed. Captain Jack-Olinda 500 kV line loading issue will not be included in the Transmission Plan report since it doesn't require any mitigation. Its 100% loading was shown for information only to illustrate that the Captain Jack-Olinda 500 kV line is the limiting facility in the COI rating.