

The ISO received comments on the topics discussed at the October 31, 2016 stakeholder call from the following:

- 1. California Public Utilities Commission (CPUC)
- 2. Pacific Gas & Electric (PG&E)

Copies of the comments submitted are located on the Local Capacity Requirements Process Page at: <a href="http://www.caiso.com/informed/Pages/StakeholderProcesses/LocalCapacityRequirementsProcess.aspx">http://www.caiso.com/informed/Pages/StakeholderProcesses/LocalCapacityRequirementsProcess.aspx</a>.

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

No	Comment Submitted	CAISO Response
1	California Public Utilities Commission	
	Submitted by: Michele Kito, Jaime Rose Gannon and Simone Brant	
1a	Energy Division Staff recommends that CAISO more clearly explain the assumptions that it will be using to determine the load in each of the local capacity areas and sub-areas. In its study Draft Manual, CAISO stated that it "will utilize the latest information available from the California Energy Commission for the Technical Study" (p. 6). CAISO did not, however, indicate whether it plans to use the CEC 2015 IEPR or the 2016 IEPR, which is expected to include a peak-shift scenario. CAISO should clarify in its Draft Manual whether it intends to use the revised 2016 IEPR forecast and should advise parties if this is or is not the case.	The ISO intends to use the 2016 IEPR CEDU 1-in-10 heat wave peak demand forecast with peak shift. Because the CEC-adopted 2016 CEDU forecast is not available until sometime in January 2017, the ISO will start having the PTOs develop the study cases using the 2015 IEPR CED forecast at this time. The study base cases are posted for stakeholder comments on January 15, 2017. Around that time (or sometime a little later) the 2016 IEPR CEDU load forecast is anticipated to be adopted by the CEC. Upon receiving the CEC-adopted 2016 IEPR CEDU forecast, the ISO plans to update the study cases with the new 1-in-10 heat wave peak load with peak shift. It is critical that the new adopted demand forecast be available in January 2017 in order for the ISO to meet the targeted completion for the 2018 LCR study by May 2017.
1b	Also, CAISO did not clearly explain its rationale or methodology for its additional scenarios regarding the "peak shift issue" discussed in its Draft Manual (pp. 6-7). On the stakeholder call, CAISO indicated that it does not intend to conduct a study with the CEC's mid-demand, low AAEE (adjusted for a 1-in-10 year), without the peak-shift analysis, which would allow for a clear comparison under these two different load scenarios. CAISO has indicated that it will conduct a study using the CEC base case analysis, but only assuming that the Aliso Canyon storage fields are not operating. This will not facilitate a clear comparison between the two load scenarios and the results in the latter case will be driven by moving the local generation requirement resources from LA Basin into the San Diego area.	At this time, the ISO plans to perform two studies, one with Aliso Canyon gas storage available, and the other assuming that the Aliso Canyon gas storage is unavailable. These two studies are to be performed using the CEC 2016 IEPR CEDU forecast with peak shift. The ISO has participated in the JASC (Joint Agency Steering Committee) and understood that for local capacity requirement assessment, the ISO is to use the CEC mid-demand, low AAEE with peak shift as the base load forecast.
1c	In addition, CAISO did not explain in any detail how it will develop the load for its peak-shift analysis. In the Draft Manual, the CAISO only states that it "will conduct additional scenarios on a case by case basis regarding the peak shift issue" (p. 7). This is not a complete discussion of assumptions. CAISO needs to indicate clearly how it intends to determine the MW needed to add back into the CEC's analysis, if at all. For the 2017 study, CAISO added back in 228 MW to SDG&E's load and 651 MW to SCE's load. Does CAISO intend to use the	Please see response to Comments 1a&b above.

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	corresponding figures for 2018 (i.e., 254 MW for SDG&E and 733 MW for SCE)? If so, CAISO needs to provide a justification for this methodology, given that early results from the CEC indicate that this may substantially overstate the load. CAISO has also not explained how it will attribute the 733 MW for SCE to the local areas – will it all be applied to the LA Basin or is there some ratio that is applied. Finally, in the interest of transparency, CAISO should provide parties with the load that will be used in each of the sub-areas, so that parties may verify the load assumptions that CAISO will be using in its analysis (both with and without the peak-shift) and given that load is a critical assumption, this should be provided to parties before the CAISO LCR analysis begins.	
1d	In its peak-shift analysis for 2017 LCR study, CAISO indicated that it made another adjustment to the peak-shift analysis: "the ISO considered a sensitivity analysis with less contribution from rooftop solar PV during the hour of 6:00 PM when customer demand remains high, and with a more conservative assumption that key static shunt capacitor switching does not occur in a timely manner for the shorter post-transient condition" (p. 109, emphasis added). CAISO should explain, before conducting its study, whether this assumption, which was not used before the 2017 study or discussed in the 2017 Draft Study Manual, will be used for the 2018 studies and, if so, provide a detailed explanation regarding why this assumption is appropriate for the 2018 study year.	<ul> <li>For the voltage stability assessment study, the ISO will apply the following for the switching of reactive supports for the LA Basin and San Diego study areas:</li> <li>After the occurrence of the first contingency and prior to occurrence of the second contingency, coordinated grid capacitor control to switch on shunt capacitors in the LA Basin area (and local control of the shunt capacitors in San Diego area) is included as part of the system adjustment. Slower switching response of shunt capacitors is allowed as part of system adjustment as WECC allows up to 30 minutes for system adjustment before the occurrence of the next contingency. Up to 3,000 to 4,000 Mvar of shunt capacitors could be switched on as part of system adjustment after the first contingency depending on the contingency and pre-existing system conditions. An orderly switching as part of a coordinated grid capacitor control is required to avoid capacitor hunting issues (i.e., repetitive switching of shunt capacitors) when discreet and large blocks of reactive supports are switched online (i.e., 79 MVAR per block). The shunt capacitors that are switched on after the first contingency stay online to prepare for the next contingency.</li> </ul>
		Immediately after the second contingency, we are not relying on the CGCC for switching of any remaining banks not already switched on in response to first contingency as those banks have been found to be outside of the focus study area (i.e., LA Basin and San Diego)



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		and to be slower to respond than the more critically located synchronous condensers and static var compensator that we are relying on. Given the rapid response requirements following the second contingency to arrest post-transient voltage collapse for the loss of the Sunrise 500 kV transmission line then SWPL 500 kV transmission line (or the reverse), and the potential for hunting of the switched bank switching, relying on the CGCC for further support following the second contingency is not reasonable.
1e	With respect to the Aliso Canyon storage facility, CAISO indicates that "Limited use or availability of Aliso Canyon would directly affect delivery of gas to generating facilities located in the western area of the LA Basin during summer peak load conditions Studies may be performed similar to the Joint Agency Task Force technical assessment for summer 2018." CAISO should clarify whether it will be relying on the existing study or a new study. If it is relying on the existing study, CAISO should clarify how it "balanced the gas generation resource needs in LA Basin and the San Diego sub-area to lessen the impact that the absence of Aliso Canyon has on the reliability of the electric transmission system in the LA Basin and San Diego area." Specifically, in its 2017 study, CAISO indicated that "The capacity reduction in the LA Basin is about 716 MW, or 7 million cubic feet (MMcf) per hour or approximately 167 MMcf per day." CAISO should clearly explain how it developed this 716 MW and provide citations to the technical study and where this need/scenario is discussed.	The ISO will rely on the latest information from the Joint Agency Task Force technical studies to assess the unavailability of Aliso Canyon in the 2018 LCR studies. In addition, with the critical generation facilities in the western LA Basin are assumed to be unavailable due to Aliso Canyon gas storage outage scenario, the ISO will dispatch units outside of the Aliso Canyon impacted area to try to mitigate identified reliability concerns. Additionally, path 26 will be maximized to 4000 MW, as feasible if there are available resources north of this path, as the maximum limit established by the WECC path rating study process.  In the 2017 Local Capacity Technical Analysis report, dated April 29, 2016, the ISO reported that "the capacity reduction in the LA Basin is about 716 MW, or 7 million cubic feet (MMcf) per hour or approximately 167 MMcf per day". In arriving at this capacity reduction for gas-fired generation in the western LA Basin that is most directly impacted by the Aliso Canyon gas storage outage scenario, the ISO balanced the generation need by dispatching all available effective resources in San Diego that would help alleviate identified reliability concerns in the western LA Basin. In the Joint Agency Task Force's April 5, 2016 Aliso Canyon Risk Assessment Technical Report, page 33 referenced a potential gas curtailment of 180 MMcfd for Scenario 1 that is the Aliso Canyon gas storage outage scenario with no other gas facility outages. This translates to about 773 MW (=180MMcfd*103/24h) of potential gas generation capacity reduction in the western LA Basin. The 716 MW is about 60 MW short of the potential 773 MW gas generation reduction impact in the western LA Basin for Scenario 1, which could not be reduced further because there was no further available effective

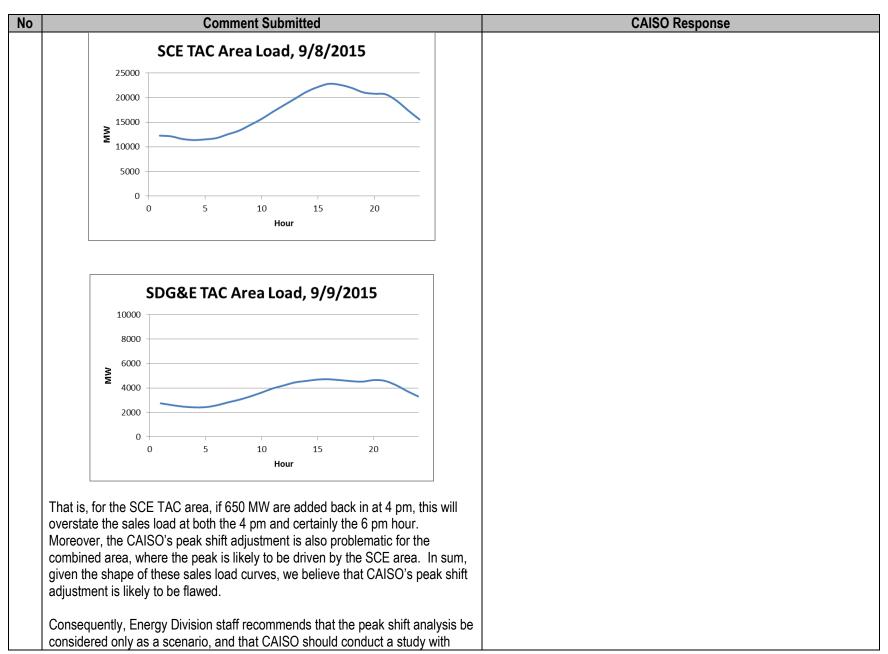


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		resource outside of the area to mitigate. For the 2018 LCR study, the ISO will model the recently approved and targeted battery energy storage system for Aliso Canyon and preferred resources from the long-term procurement plan with an in-service date of June 1, 2018 or earlier, in the western LA Basin to help offset the gas generation need for the Aliso Canyon gas storage outage scenario analysis.
1f	Finally, CAISO did not discuss any of the assumptions for the 2022 study. For example, which IEPR study will be used, how will the peak-shift issue be handled, if at all, and what assumptions will CAISO make regarding the Aliso Canyon storage fields. Energy Division staff believes that these assumptions need to be shared and discussed with parties before CAISO conducts its 2022 analysis.	The ISO is using the latest LCR manual, criteria, methodology and assumptions when running long-term LCR studies. Therefore the 2018 Final LCR Manual will be used for all LCR studies done in 2017 including the 2022 long-term LCR analysis.
1g	CAISO Should Clearly Explain how it Intends to Set Requirements when Conducting Multiple Scenarios  In its Draft Manual, CAISO did not discuss how it intends to set local requirements if it is conducting multiple scenarios. In the 2017 study process, CAISO chose the higher requirement for the San Diego local area associated with the assumption that the Aliso Canyon storage facility was not operational. CAISO does not discuss this issue in its Draft Manual, but Energy Division staff request that CAISO indicate how it will determine the LCR with multiple scenarios – will it be the higher requirement and for whom (LA Basin or San Diego sub-area) or will it be based on the most realistic scenario at the time?. We raise this issue because more information regarding the operation of Aliso Canyon storage facility will be available later this year, early next year, and certainly by April 2017, which should be taken into account when setting the LCR needs.	ISO needs to plan and operate the transmission system under any and all credible scenarios, therefore the most stringent (higher) requirement will be used among the credible studied scenarios based on circumstances the end of April when final LCR report is released. While rare errata and changes may be permitted before the LCR allocations are released to LSEs in mid-July.
1h	CAISO Should Include At Least One Study in Which the Aliso Canyon Storage Facility is Operational	
	Energy Division staff recommends that CAISO should conduct at least one study (and preferably two, one without the peak-shift analysis, which is discussed further below) in which Aliso Canyon Storage Facility is operational.	Please see response to Comment 1b above.



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	While we agree that the status of the Aliso Canyon storage facility is uncertain, we expect that there will be more information available in the April/May/June 2017 timeframe and that the Commission should adopt LCR needs based on the facts and circumstances known at that time. If Aliso Canyon will be operational for 2018, that should be taken into consideration in the 2018 LCR study for determining local needs for 2018.	
1i	CAISO Should Conduct At Least One Study Using CEC's Adopted Forecast (and Assuming Aliso Canyon is Operational) to Address Flaws in CAISO's Peak Shift Analysis	
	Energy Division staff recommends that CAISO conduct at least one study using the CEC's adopted forecast (i.e., without the peak-shift analysis) while assuming Aliso Canyon is operational, in order to establish a base case to which CAISO's peak-shift and Aliso Canyon scenarios could be compared.	Please see response to Comments 1a&b above.
	In its Draft Manual, CAISO states that "The ISO will continue to perform additional assessments of the reliability impacts when loads continue to remain high as forecasted by the CEC, but without the contribution of solar photovoltaic distributed generation at an early evening hour (i.e., 6:00 p.m.)."	
	Energy Division staff finds the CAISO's methodology, of adding back in all of the behind-the-meter generation (i.e. 254 MW for SDG&E and 733 MW for SCE for 2018) to the CEC's base case forecast to be flawed as it overstates the loads in these areas. CAISO's methodology is flawed because it does not take into consideration that consumption loads decline by 6 pm and, therefore, adding back in behind the meter generation to the 4 pm peak will result in a higher load than will be seen at the 6 pm hour. This is illustrated in the figures below.	



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	only the CEC <b>adopted</b> forecast and with the assumption that Aliso Canyon is operational (to ensure comparability and to ensure that the CPUC is able to adopt LCR needs if Aliso Canyon is operational, without the peak-shift <b>scenario</b> , if appropriate).			
1j	CAISO Should Use a Coincidence Adjustment for its Combined LA Basin/San Diego Area  On the stakeholder call, CAISO appeared to indicate that it was using a coincidence adjustment for the combined LA Basin and San Diego sub-area	Based on the ISO's review of peak load data, the LA Basin and San Diego areas tend to peak at approximately the same time. The following are a few examples where peak loads are either peaking at the same (with one or days apart) or same day with less than half hour difference.		
	analysis. We agree that the load should be adjusted for coincidence, but are not	PTO	Peak Load (MW)	Hour Ending
	sure that the adjustment was made, given our understanding of the CEC forecasting process. CAISO should clarify whether it is making a coincidence	SDG&E	4720.8	9/9/15 16:00
	adjustment. CAISO should ensure that the load is adjusted for coincidence	SCE	22863.0	9/8/15 16:00
	because San Diego typically peaks at a different time than SCE and this should	SDG&E	4683.7	9/27/10 15:25:21
	be taken into consideration in the CAISO analysis for the combined areas.	SCE	24061.2	9/27/10 14:52:03
		SCE	23365.9	7/24/06 16:17:00
		SDG&E	4591.4	7/22/06 16:23:00
1k	CAISO Should Work with the CPUC, CEC and the IOUs to Ensure Load Forecasts are Adjusted for Local Capacity Procurement  Energy Division staff recommends that CAISO work with the CPUC, CEC and the IOUs to ensure that the load forecast is adjusted to take into consideration incremental demand side resources that have been procured to meet local capacity requirements for 2018 and 2022. The CPUC authorized SCE and SDG&E to procure supply and demand-side resources to meet its local capacity requirements. If the load forecast is not adjusted to take the incremental demand-side resources into account, we believe that the local capacity requirements will be overstated and the demand-side resources will not reduce the LCR need as anticipated by the CPUC. Accordingly, CAISO should work with the CPUC, CEC and IOUs to ensure that this issue is addressed appropriately.	CEC with the of the study y preferred result. A Basin as well-basin to the twise and at each bus. Demand-side	e applicable LSEs for beinger will be modeled in the ources procured under leading by the CEC staffet does not need adjustry demand side resource	nent to consider incremental or es, they are to be modeled discrete ce the LCR need. They are a part
11	CAISO Should Provide More Detail Regarding its Assumptions and Hold Another Stakeholder Call to Discuss these Assumptions			



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	As discussed above, CAISO has not clearly explained its assumptions. Therefore, Energy Division requests that CAISO revise its Draft Manual to provide additional details regarding its actual assumptions (e.g., actual load, shunt capacity assumptions, Aliso Canyon assumptions, 2022 assumptions) and hold another conference call to explain the assumptions that will be used in their 2018 and 2022 study.	ISO has added a lot of detailed explanations and clarifications herein and will reflect a number of pertinent items in the Final LCR manual. In order to keep the process schedule on time the base case development needs to start as soon as possible. At this time the ISO see no need for a second stakeholder call.
1m	CAISO Should Revise its Schedule for the Local Capacity Technical Study	
	In its October 31, 2016, presentation, CAISO presented its schedule (see p. 38) indicating that its final report would be completed on May 1, 2017. In its Decision (D.) 16-06-045, the CPUC found that "[i]n order to promote due process to all parties," that among other provisions, "[t]he final studies should be filed and served in the then-current RA proceeding by April 15 of each year, unless otherwise scheduled by the ALJ or scoping memo" (p. 60.). In its comments on the CPUC's proposed decision, CAISO stated that "[t]o the extent that these practices have not already been adopted, the CAISO will seek to incorporate these recommendations into its study process as appropriate on a going forward basis." (CAISO's Comments on the Proposed Decision, June 9. 2016). Accordingly, Energy Division staff requests that CAISO revise its study process and schedule to incorporate the filing and serving of the Local Capacity Technical Studies, which means that the timeline presented at the stakeholder call should be revised.	The ISO will seek to expedite its process as much as possible. Timing is bounded in part by availability of CEC load forecast, actual running the studies and allowing two rounds of stakeholder meetings/calls to present the results and comment periods. The ISO Reliability Requirements BPM (page 185) is very specific about the LCR study timeline. The publication of the Final Study Report is to be done targeting the first week in May and no later than end of June.

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2	Pacific Gas & Electric (PG&E)	
	Submitted by: Matt Lecar	
2a	1. PG&E asks that the CAISO provide the month when each local area peak	
	occurs.	
	Table 5 in the 2017 Local Capacity Technical Analysis presents the 1-in-10 Peak Load forecast for each local capacity area. A footnote below Table 6	From a local area LCR need perspective the month when each local area peaks is not relevant. The LCR criteria must be met in each local
	indicates that the sum of the local area peaks is not the system coincidental	area when it peaks regardless of coincidence with other local areas.
	peak, as local areas can peak at a time different from the system coincident	Some local areas do not always peak in the same month from year to
	peak load. The CAISO should provide the peak month for each local area, either	year therefore for consistency reasons the ISO is currently using
	in a table similar to Table 5, or in the section of each local area when the "total busload within the defined area" is documented. The CAISO should also	August NQC for all summer peaking local areas and the January NQC
	recognize that Regional Expansion will create more non-coincident local areas.1	for all winter peaking local areas.
	As a result, this will lead to the need for more documentation on how non-	
	coincidental local peaks are addressed, including which peak load is used and	
	which monthly NQC values are used.	
2b	PG&E asks the CAISO to correct any potential inconsistencies between the	
25	time period when local peak load is expected and the level of dependable	
	capacity that is expected from resources.	
	There is a potential inconsistency between when the non-coincidental local peak load occurs, how local capacity resources are studied, and how the same	Correct. The ISO is using each local area individual peak when it studies the LCR needs and this is non-coincident with the system peak.
	resources are assessed in monthly RA showings. The 2017 Local Capacity	The use of different NQC values between summer months let's say
	Technical Analysis shows that resources are studied by using the August NQC	June vs. August has little to no effect on the overall LCR needs. It may
	value. In monthly RA showings, the CAISO assesses resources based on their	result in a different resource with a slightly different effectiveness factor
	monthly NQC value in each month. Since the Local Capacity Requirements are	potentially be the marginal resource needed for LCR compliance. This
	based on non-coincidental peaks, it is possible that the August NQC values are not appropriate. In lieu of creating 12 different local requirements by month,	is rather a rounding error that is overshadowed by the fact that most of resources will have a new NQC (higher or lower) for the next
	PG&E recommends that the CAISO assess Local Capacity Areas based on the	compliance year. LCR studies are done is February-March with NQC
	non-coincidental local peak and use the NQC associated with the month in	from previous year. New NQC is available only in August for the next
	which the non-coincidental peak occurs in the Local Capacity Technical Study.	compliance year.
	PG&E is not proposing to change the RA showing validation process at this	
	time.	



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2c	3. PG&E asks that the CAISO provide all sub-area boundaries in the 2018 Local Capacity Technical Analysis  In the 2017 Local Capacity Technical Analysis, the transmission and substations that create the boundaries of each sub-area are only presented in Stockton and Kern local capacity areas. Even in these local areas, the boundaries are not provided for all sub-areas. For consistency, PG&E recommends the CAISO publish all boundaries for each sub-area. This will allow stakeholders to understand when/if the boundaries of sub-areas change between annual local studies.	The ISO does not have transmission element-defined boundaries for each sub-area (currently driven by resource effectiveness factors to the most limiting constraint), furthermore the sub-areas boundaries are subject to change every year due to change in effectiveness factors. The ISO does not believe this overall approach (publication of sub-area boundary) to be helpful during the procurement process since resources eligible to meet sub-area constraints are already catalogue by local areas and sub-areas. See: <a href="http://www.caiso.com/Documents/PhysicalResourceList_2017LocalCapacityTechnicalStudies-2016NetQualifyingCapacity.xls">http://www.caiso.com/Documents/PhysicalResourceList_2017LocalCapacityTechnicalStudies-2016NetQualifyingCapacity.xls</a> . Please use this list during procurement and check it often against all the LCR needs; later please make a showing covering as many area and sub-area LCR needs as possible.
2d 2e	4. PG&E would appreciate more information on what the CAISO classifies as "Self-generation loads".  According to the 2017 Local Capacity Technical Analysis, these loads are assumed to not vary with temperature. PG&E would like to understand whether load served by behind the meter PV is considered a self-generation load.  5. PG&E would appreciate if the CAISO could clarify in the 2018 Technical Analysis the difference between the Kern PP Sub-area and South Kern PP sub-area.  The area definition in the 2017 Local Capacity Technical Analysis refers to a Kern PP sub-area, but this sub-area does not appear in the Local Analysis.	The self-generation loads are those for which the generator is explicitly modeled in the base cases, for the most part these are refineries and old QF facilities with little to no output to the grid. These are not the same as loads served by behind the meter PV.  The ISO will correct these typos in the next LCR study report. The top of page 72 in the 2017 LCR Report states Kern area not Kern PP subarea (twice) and the top of page 75 should read Kern Area Overall not South Kern Overall. <a href="http://www.caiso.com/Documents/Final2017LocalCapacityTechnicalReportApril292016.pdf">http://www.caiso.com/Documents/Final2017LocalCapacityTechnicalReportApril292016.pdf</a>