

The CAISO received 1 sets of comments on the topics discussed at the April 7 stakeholder call and 2 sets of comments were submitted into the CPUC process. CAISO encourages all market participants to submit comments within the CAISO process.

1. [Vistra Energy](#)
2. [Protect Our Communities Foundation \(POC\)](#)
3. [Pacific Gas & Electric \(PG&E\)](#)

Copies of the comments submitted are located on the Local capacity requirements process webpage at:

<http://www.caiso.com/informed/Pages/StakeholderProcesses/LocalCapacityRequirementsProcess.aspx>

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

1. Vistra Energy Submitted by: Cathleen Colbert		
No	Comment Submitted	CAISO Response
1a	<p>CAISO Transmission Planning:            Vistra Corp. respectfully submits these comments on the CAISO's 2022 and 2026 Local Capacity Technical Study Draft Report and Study Results ("Draft Reports") posted on April 1, 2021 and discussed at a public stakeholder call on April 7, 2021. We appreciate the efforts of the CAISO transmission planning group to increase the transparency into its estimated storage characteristics analysis, shown in Table 3.1-3 of the respective Draft Reports.</p> <p>Vistra focus in this iteration of the Local Capacity Requirements recurring process has been to better understand the modelling approach used to identify the storage characteristics, share operational insights with the planning group, and to request additional transparency in a manner that can drive development. We appreciate the additional information and details provided by the CAISO in the Draft Reports on this analysis. Specifically, Vistra thanks the CAISO for responding directly to Vistra's request for greater clarity on this analysis by clarifying in the Draft Reports that the maximum 1 for 1 MW replacement 4-hr battery is not a physical limitation but rather a MWh limitation. We appreciate the CAISO considering our questions and providing this clarity.</p> <p>While we think there is additional refinement and metrics that could be teased out more finely to improve on this progress, we will look to engage with the CAISO in the next iteration to suggest these refinements. In these comments on the Draft Reports, we would like to confirm our understanding of the information shown in Tables 3.1-3, Battery Storage Characteristics Limited by Charging Capability:</p>	<p>Thank you for your comments.</p>
1b	<p><u>Seamless integration clarifications</u></p> <ul style="list-style-type: none"> <li>• Please confirm that when the CAISO refers to characteristics needed to "seamlessly integrate in each local area and sub-area" for the Pmax MWh, Energy MWh, and Maximum Number of Discharge Hours values that the CAISO is defining "seamlessly integrate" as battery operations that do not charge during periods that the transfer capability is constrained into the local area/sub-area. If not, please clarify how the CAISO defines "seamlessly integrate" for these parameters.</li> <li>• Please confirm that when the CAISO refers to characteristics needed to "seamlessly integrate in each local area and sub-area" for the 1 for 1</li> </ul>	<p>Seamless integrations means that the batteries are able to charge under contingency condition from the transmission grid, during hours when it is not constrained, and furthermore they are also able to charge, during hours when the transmission is constrained, from other local resources required to meet the same</p> <p>Section 2.4 of the 2022 LCT report lists the assumptions for seamless integration. The 1 for 1 replacement with 4-hour battery assures that</p>

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	<p>replacement with 4-hour battery value that the CAISO defines “seamlessly integrate” as stated in the Draft Reports, “for batteries that displace other local resource adequacy resources, the transmission capability under the most limiting contingency and the other local capacity resources must be sufficient to recharge the batteries in anticipation of the outage continuing through the night and into the next day’s peak load period.” Please clarify if there are additional factors that CAISO considers necessary to seamlessly integrate for 1 for 1 replacement with 4-hour battery value.</p>	<p>these energy (MWh) limited resources plus other types of resources required to meet the criteria can do so across all hours of the day.</p>
<p><b>1c</b></p>	<p><u>1 for 1 replacement with 4-hr battery clarifications</u></p> <ul style="list-style-type: none"> <li>• Please confirm that 1 for 1 replacement with 4-hour battery value is a limit to the MW amount of 4-hr batteries that existing facilities in the local area/sub-area can request to repower or pursue a material modification adjustment to convert the existing technology at the site into a 4-hr battery. If not, please clarify how the CAISO defines “1 for 1 replacement”.</li> <li>• Please confirm that if a 4-hr battery is being built on a site that is either new (“greenfield”) or on a site with deliverability where generating facilities have been retired (“brownfield”) that the 1 for 1 replacement with 4-hr battery applicable to the local area/sub-area does not apply. Our understanding is that since the 4-hr battery is a new resource that is not being built through repowering or modification that the 1 for 1 replacement limit would not apply.</li> <li>• Please clarify how the CAISO intends to use the 1 for 1 replacement with 4-hr battery MW value in its operations.</li> <li>• Please confirm that the CAISO does not intend to use the 1 for 1 replacement with 4-hr battery to trigger capacity backstop through its Capacity Procurement Mechanisms for the applicable local area/sub-area, assuming FERC approves its expanded authority to do so filed under Resource Adequacy Enhancements Phase 1 in FERC Docket No. ER21-1551.</li> </ul>	<p>No, the 1 for 1 MW replacement with 4 hour battery is the amount of local resources that can be displaced with 4 hour batteries. Beyond that point replacement can still be done (up to the maximum limit) however that will not be on a 1 for 1 MW replacement. Additional batteries need to be 5, 6, 7, 8 etc. hour batteries (constraint specific).</p> <p>The 1 for 1 MW replacement with 4 hour battery is not enforced during new resource interconnection or during the repower process. These numbers are only for stakeholder guidance. Local Regulatory Agencies (LRAs) may want to maximize ratepayer benefit from new contracts and as such they may use this information in approving their portfolio.</p> <p>The 1 for 1 MW replacement with 4 hour battery is not used in operations.</p> <p>The CAISO does not intend to directly use the 1 for 1 MW replacement with 4 hour battery to trigger backstop. However the CAISO may be forced to use CPM backstop if there are too many 4 hour batteries installed in a local area and they are shown as RA, because during contingency conditions CAISO will need to retain other type of resources to make sure the CAISO can charge those batteries, and meet both system and local needs.</p>
<p><b>1d</b></p>	<p><u>Pmax MW and Energy MWh clarifications</u></p> <ul style="list-style-type: none"> <li>• Please confirm that the Pmax MW and Energy MWh limits for the applicable local area/sub-area should be considered limits on the charging operations of battery energy storage, not the discharge capability of the collective assets since those are limited by its interconnection.</li> </ul>	<p>The CAISO assumes Pmin to be equal with Pmax in magnitude and have a reverse sign. The Energy MWh is the energy required in relation to the displacement of existing generation by Pmax amount. These limits are not enforced in interconnection or repower requests.</p>

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	<ul style="list-style-type: none"> <li>• Please confirm that the Pmax MW is the maximum withdrawal MW at any given point in time within the applicable local capacity area/sub-area across all battery energy storage.</li> <li>• Please confirm that the Energy MWh is the maximum MWh that can be withdrawn across the day within the applicable local capacity area/sub-area across all battery energy storage.</li> <li>• Please confirm that the CAISO intent with the Pmax MW and Energy MWh limits is to inform the market that battery energy storage in certain local areas/sub-areas are expected to need to trickle charge within the maximum Energy MWh rather than charge at full charge capability in MW to remain within the Pmax MW limit across a span of charge hours to seamlessly integrate.</li> <li>• During lower load periods battery energy storage should be able to withdraw greater MW from the grid within the applicable local areas/sub-areas than in higher load periods driving the transfer capability to constrain. In constrained periods, battery energy storage may be economically restricted by the market or out-of-market dispatch in the amounts, if any, of charging energy it can withdraw within the applicable local area/sub-areas. Given this, please confirm that ideally the Pmax MW limit would not be a static value applied across the day but a range to reflect the different Pmax MW across hours as function of the risk of local loads constraining the transfer capability into the applicable local areas/sub-areas. Further, we ask the CAISO to explain why it is currently using a static value and clarify the logic used to select the Pmax MW value that it is recommending be applied across the day.</li> <li>• Please clarify how the CAISO intends to use the Pmax MW and Energy MWh in its operations.</li> </ul>	<p>Pmax is maximum installed capacity (see response above for details) across all battery energy storage in the constrained area.</p> <p>The Energy MWh is the energy required in relation to the displacement of existing generation by Pmax amount for all battery energy storage in the constrained area.</p> <p>ISO assumes perfect dispatch with some margin and a block dispatch of larger of 10 MW or 5% of Pmax (see section 2.4 in the 2022 LCT report), trickle charge during some hours of the day and max charge during other hours based upon the available system capability, plus trickle discharge some hours of the day and full discharge some hours of the day.</p> <p>ISO estimates a static installed Pmax based on a few factors. The LCR need in that area and these resources integration into it from a MW and MWh perspective. The CAISO acknowledges that output from these resources will vary across the day (both charging and discharging) however the Pmax (installed capacity) it is not a variable number.</p> <p>Nothing beyond current market dispatch plus new item discussed in the RA enhancements stakeholder initiative.</p>
1e	<p><u>Maximum number of discharge hours clarifications</u></p> <ul style="list-style-type: none"> <li>• Please confirm that the maximum number of discharge hours refers to continuous hours.</li> <li>• Please confirm that the maximum number of discharge hours is the same maximum number of continuous discharge hours applied individually to each resource. Our understanding is that this limitation would apply individually to each resource within local areas/sub-areas. Such that for example NGR A can operate for the maximum number of continuous discharge hours and NGR B within the same local area/sub-area can operate up to the maximum number of continuous discharge hours.</li> </ul>	<p>Yes.</p> <p>No, It is the total between all available resources. The CAISO is only modeling a single resource when doing this calculation. Again these numbers are for guidance only and are not limits imposed in any interconnection or repower request.</p>

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	<ul style="list-style-type: none"> <li>• Please confirm that the maximum number of discharge hours is the maximum number of continuous discharge hours at full discharge MW capability. Please clarify that if the battery energy storage is discharging at levels below its full Pmax MW how the maximum number of continuous discharge hours should be adjusted to capture the lower discharge MW amounts.</li> <li>• Please clarify how the CAISO intends to use the maximum number of discharge hours in its operations.</li> </ul>	<p>No, it represents the maximum number of hours it needs to discharge, however the discharge may not be at the full discharge MW capability. However more importantly no battery, within this constraint, will be allowed to charge during those hours.</p> <p>This number is guidance only and not used in operations.</p>
1f	<p>Vistra is committed to collaborating with the CAISO to refine this analysis and the information being communicated so that it is digestible and actionable in the development community. The better we understand the intent and results of these values, the better that the market place can advocate for any policy changes needed to better support procurement and development to support grid reliability while furthering state renewable portfolio and environmental standards.</p>	<p>Thank you for your comments. All battery numbers in the LCT report are for procurement guidance and are not enforced in the interconnection applications or repower requests.</p>

2. Protect Our Communities Foundation (POC) Submitted by: Tyson Siegele		
No	Comment Submitted	CAISO Response
2a	<p>The Protect Our Communities Foundation (“PCF”) submits these comments in accordance with ALJ Chiv’s E-Mail Ruling Modifying Track 4 Schedule On Flexible Capacity Requirements (“Ruling”) issued on April 5, 2021. CAISO submitted its Draft Local Capacity Technical Analysis for 2022 (“Draft LCR”) on April 2, 2021 in the Commission’s Resource Adequacy proceeding, R.19-11-009.</p> <p><b>I. INTRODUCTION</b></p> <p>PCF appreciates the work completed by the CAISO on the Draft LCR Report. While elements of the draft provided accurate analysis of the local capacity areas, PCF focuses its comments on points of concern and inaccuracies found within the draft. Specifically, PCF found inaccuracies with the San Diego – Imperial Valley LCR, which should be corrected before the release of the final draft.</p> <p>Additionally, the CAISO LCR report lacks transparency, making determinations regarding the CAISO’s assertions of transmission need and projections of demand difficult to evaluate. Based on PCF’s analysis, PCF recommends: 1) decreasing the multi-layered web of reliability metrics applied to the CAISO service territory; 2) simplifying the LCR demand projections and removing participating transmission operators’ (“PTO”) involvement in demand projections; and 3) correcting the San Diego – Imperial Valley Area demand projections to align with historical peak demand and historical peak time of day. Making these corrections will help this Commission assist the CAISO in maintaining reliability while reducing costs to ratepayers.</p>	<p>See comments responding to each detailed point below.</p>
2b	<p><b>THE RELIABILITY STANDARDS USED BY THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR (“CAISO”) IN DETERMINING LCR FAIL TO ADHERE TO THE STATUTORY STANDARDS THAT THE COMMISSION MUST FOLLOW.</b></p> <p>The Public Utilities Code requires the Commission to “minimize impacts on ratepayers’ bills.” The Commission must also ensure, in all actions it takes, that all costs that it imposes on ratepayers remain “just and reasonable.” Thus the Commission must consider costs that the CAISO’s assessments will impose on ratepayers when evaluating CAISO’s analyses. Over the years, CAISO’s analyses and reliability standards have led to excessively high transmission</p>	<p>The transmission costs in POCs comments are not consistent with the transmission costs posted on the CAISO web site.  <a href="http://www.aiso.com/Documents/HighVoltageAccessChargeRatesEffectiveJan01_2021Revised04202021.pdf">http://www.aiso.com/Documents/HighVoltageAccessChargeRatesEffectiveJan01_2021Revised04202021.pdf</a>            The HV TAC Rate in SDG&amp;E is approximately 1.4 cents per kWh and the LV TRR in SDG&amp;E is approximately 2.4 cents/kWh. Combining</p>





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	<p>According to the Draft LCR Report, CAISO determines the system load forecast by taking the California Energy Commission (“CEC”) forecast and distributing it “across the entire system, down to the local area, division and substation level. The PTOs [participating transmission operators] use an econometric equation to forecast the system load.” Thus, the forecasts involve at least three different entities’ input – CAISO, CEC, and PTOs. With so many parties involved and so many steps, the parties forecasting load levels have too many opportunities for mistakes. Once a mistake enters the forecast process it can replicate and possibly amplify through the various steps, leading to inaccurate results at the end of the process. Mistakes will lead to projections which do not reflect reality.</p> <p>Additionally, the inclusion of PTOs in the process fails from a neutrality perspective. PTOs have a vested interest in maximizing the value of their transmission assets and thus increasing the demand forecast. The more restrictive the reliability standards and the higher the demand forecast, the more easily the PTOs can justify the need for new transmission. Every new transmission project leads to higher returns for the shareholders of PTOs. Thus, PTOs should be removed from the LCR demand projection process to remove the inherent conflict of interest.</p> <p>The 2021 Commission report Utility Costs And Affordability Of The Grid Of The Future detailed the high costs of the utilities’ self-approved transmission projects. The report states that “[i]n data reported by the IOUs to the CPUC in July 2020, capital additions between 2016 and 2019 for all three IOUs totaled over \$7.5 billion. Approximately \$4.5 billion (60 percent) of these capital additions were utility self-approved...” CAISO should not include the utilities or other PTOs as participants in the load forecasting because the forecasts will directly affect the PTOs’ ability to justify spending on new infrastructure. The Commission should independently test the assumptions and projections offered by parties with a self-interest in the outcome of the forecasting. The process should allow full transparency, opportunities to test PTO’s assumptions and data, and a public determination of the correct facts to be used in the forecasts before the proffered data is incorporated into forecasts that will be used as a factor to decide whether and where to build new transmission infrastructure.</p> <p>The CAISO should streamline demand projections and eliminate parties that have a conflict of interest from directly influencing the process. By adopting PCF’s recommended changes to the CAISO’s peak demand forecasting</p>	<p>The CEC only forecasts the load at a macro level, primarily at the system and Participating Transmission Owner service territory level. The current process requires an entity to translate that down to individual buses (hundreds across the system). The Participating Transmission Owner is the entity that has access to this detailed data and can do the distribution to each individual bus. At this time the CEC forecast does not have enough detailed information to be able to distribute to each individual bus bar modeled across the system. This is the process agreed upon by all agencies (CEC, CPUC and CAISO) to allocate load forecast to individual buses and perform all technical planning studies. When aggregated to the planning area, the total loads modeled should match with the CEC’s demand forecast for the area. For example, the total load for the San Diego-Imperial Valley LCR area should match with the CEC’s demand forecast for the total of the SDG&amp;E TAC area.</p> <p>The CAISO checks to make sure the load forecast is consistent with the CEC’s demand forecast for the applicable planning area before commencing the studies.</p>



No	Comment Submitted	CAISO Response
	<p>process, the CAISO may eliminate avoidable errors in the future. PCF details its specific concerns with the CAISO LCR analysis – as applied to San Diego – in the following section. The Commission should evaluate more thoroughly the CAISO’s projections for all regions in California, to perform its statutory duty to ensure that only reasonable costs are imposed on ratepayers.</p>	
2d	<p><b>CAISO SHOULD CORRECT THE SAN DIEGO – IMPERIAL VALLEY AREA LOAD PROJECTIONS WHICH ARE TOO HIGH AND ARE WRONGLY ASSUMED TO OCCUR LATER IN THE DAY.</b></p> <p>The CAISO demand forecast for the San Diego – Imperial Valley Area incorrectly shifts peak demand two hours later in the day than has historically occurred and assumes higher MWs of peak demand than historical trends support. Both of CAISO’s alleged future demand shifts –higher demand and later in the day peak demand – lack supporting data and will lead to higher ratepayer costs due to resulting over-procurement of resources for hours during which those resources will not be needed.</p> <p><b>A. The CAISO projections must be revised to demonstrate an alignment with historical trends.</b></p> <p>The increasing load forecast for the San Diego – Imperial Valley Area does not align with the historical trend of a flat-to-decreasing historical energy demand in the LCR. Figure 1 below shows the trend in peak electricity demand for the San Diego Gas and Electric (“SDG&amp;E”) service territory.</p> <p>The demonstrated historical reduction in peak demand corresponds to the growth of behind-the-meter (“BTM”) solar installations in SDG&amp;E service territory. From the end of 2015 to the end of 2020, 942 MW of BTM solar was installed in SDG&amp;E service territory. From 2015 to 2020, the peak demand in SDG&amp;E territory fell 343 MW. Further, the pace of BTM solar installations in the region continue growing. 2020 came within 12 MW of the highest BTM solar installation year thus far registering at 200 MW of installed capacity despite dealing with the headwind posed by the COVID-19 pandemic. Because solar contributes electricity to either serve supply at peak times (utility scale) or decrease net load at peak times (BTM), the San Diego – Imperial Valley Area will continue to see peak demand fall. CAISO’s draft report fails to include, the effects of the BTM solar installations that have occurred and that continue to occur in SDG&amp;E service territory. This failure to include or analyze relevant facts about BTM solar should be corrected in the final report.</p>	<p>The demand forecast for San Diego-Imperial Valley area comes directly from the approved CEC IEPR forecast, including the magnitude, hourly profile and hour of peak. The CAISO uses the CEC’s demand forecast for the Total SDG&amp;E TAC area to model the demand for the overall San Diego-Imperial Valley area for the study.</p> <p>Comments on load forecast for San Diego-Imperial Valley should be made through the CEC IEPR process. The CEC IEPR process used for these studies has concluded with the resulting load forecast used in the LCR studies as agreed upon by the agencies (CEC, CPUC and the CAISO) as well as stakeholders.</p> <p>The installation of BTM solar resources moves the peak each year to a later and later hour. The CEC has projected that based on expected total BTM solar installation by year 2022 the net peak load has moved to 8:00 PM PDT and therefore any additional solar BTM will not influence the actual net peak demand as solar energy production is unavailable at the evening hours.</p>

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	<p><b>B. CAISO’s draft report incorrectly sets the time of the peak load to late in the day, and in so doing, removed BTM solar’s contribution to the reduction of peak load.</b></p> <p>Without explanation, CAISO set the San Diego – Imperial Valley Area (SD-IV) peak for 2021 at 8:00 p.m. - much later than the peaks it set for the other LCRs in Southern California and statewide as shown in Figure 2 below.</p> <p>As a point of comparison, the LA Basin LCR sits adjacent to SD-IV, CAISO set the peak for LA Basin LCR at 5:00 p.m. “based on the CEC [California Energy Commission] hourly forecast for the 2020-2030 California Energy Demand Forecast Update.” CAISO did not specify how it set the San Diego – Imperial Valley Area peak time designation. The San DiegoImperial Valley Area section of the Draft LCR does not include the same “based on the CEC” note that CAISO included in the LA Basin LCR section.</p> <p>The lack of any cited factual basis or supporting data for the conclusions reached for the San Diego-Imperial Valley area raises the concern that CAISO failed to use the California Energy Commission (“CEC”) 2020-2030 California Energy Demand Revised Forecast for the SD-IV Area. Nor does CAISO provide any basis for shifting the peak demand away from the historically-recorded peak time of day. According to Figure 1, on the day each year with the peak demand hour for 2015-2020, the San Diego TAC demand fell an average of 6% from the peak hour to 8 p.m. Additionally, the latest released CEC demand data for SDG&amp;E service territory in the Integrated Energy Policy Report forecast shows that the 10 highest demand hours for 2022 in SDG&amp;E service territory all occurring before 8 p.m.</p> <p>PCF requests that CAISO either revise its forecasted peak demand hour to align with the historical average or otherwise justify why the 8 p.m. forecast should be used. The 8 p.m. forecast is more than 2 hours past the time of the latest peak demand for the San Diego TAC area. The final version of the LCR Report should detail the basis for each projected load forecast and it should use historically accurate data to develop its peak load conclusions for all LCRs.</p> <p>Time of day projections have a big impact on the peak demand. First, the later in the day the peak occurs, the lower the demand will be. CAISO projected the peak net load for 2022 at 4486 MW. While 4486 is 2.5% higher than 2020’s peak load, CAISO’s projection is 10% higher than 2020’s 8:00 p.m. demand on the same day. The magnitude of the difference between CAISO’s projected</p>	<p>Same comments as above.</p>

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	<p>peak and the 2020 historical load equates to two-thirds of the Planning Reserve Margin used to determine system RA need.</p> <p>If CAISO fails to correct the overestimation of peak load in the Final Report, then SDG&amp;E customers will pay for more peak load capacity than needed and they will also pay for more RA capacity than needed. The Commission should require the CAISO to estimate the costs resulting from its peak-load forecasts and estimates. And CAISO must revise the Final LCR report to eliminate over-procurement and to “reduc[e], to the extent possible, overall economic cost to the state’s consumers.”</p> <p>Second, if CAISO revises the peak from 8:00 p.m. to the historical peak between 5:00 p.m. and 6:00 p.m., solar generators’ contributions to serving peak load increase significantly. The CAISO Draft LCR Report assumes the BTM contribution at 8:00 p.m. at 0 MW. However, even at the end of the 5:00 p.m. to 6:00 p.m. hour on September 1, 2019, solar was still producing at 39% of its peak capacity for the day. Figure 3 below details the change in contribution from solar resources depending on the time of day.</p> <p>SDG&amp;E produces 16% of its energy from in front of the meter solar. An additional 1,415 MW of BTM solar contributes to a reduction in net load prior to sunset in SDG&amp;E service territory. Thus, CAISO must either lower its peak demand projection for the 8:00 p.m. time due to dramatically lower historical use at that time of day, or the CAISO must lower its peak demand projection by revising the time of peak demand to earlier in the day when solar can - and does - serve peak load.</p> <p><b>C. CAISO incorrectly assumes that peak demand will grow in the San Diego –Imperial Valley Area, and CAISO lacks factual support for its assumption.</b></p> <p>The CAISO Draft LCR Report asserts that the San Diego-Imperial Valley Area’s “net peak load growth from 2022 to 2026 is estimated at 31.75 MW/year.” The Draft LCR Report lacks any factual basis for its assumption of load growth. The facts on the ground tell a different story than the one assumed by CAISO. A multitude of factors will continue to push down the peak demand in SDG&amp;E service territory instead of the annual 31.75 MW/year increase that CAISO forecasts. The peak demand will see downward pressure from highest-in-the-state electricity prices, high BTM solar installation rates, customers’ growing understanding of time-of-use (TOU) rates, and quickly increasing storage deployment.</p>	<p>As established above, the CAISO uses the California Energy Commission-approved load forecast for the study.</p>

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	<p>Electricity prices in SDG&amp;E territory are already the highest in the state and have increased at a higher rate than the other California utilities' rates. High electricity prices incentivize customers' switching to alternative energy supplies, including BTM solar. BTM solar in SDG&amp;E territory has already achieve the second highest per capita capacity in the nation and second highest total capacity in the nation. Since 2015, BTM solar installations in SDG&amp;E territory have averaged 185 MW per year, and the pace is accelerating. More BTM solar was installed in SDG&amp;E territory in 2019 and 2020 than during any prior years. As SDG&amp;E electricity prices continue to increase, the payback time for a BTM system will continue to drop. The payback time in SDG&amp;E service territory including a battery was less than 7 years as of 2018. Energy storage will eliminate many customers' total demand during the 4:00 p.m. to 9:00 p.m. window.</p> <p>Time-of-use rates will continue to push down demand as well especially in SDG&amp;E territory with high solar adoption because solar customers cannot opt-out of TOU. The on-peak rate under SDG&amp;E TOU tariff equals \$0.60384 in the summer. The average electricity price in the United States according the EIA is 10.54 cents per kWh making the SDG&amp;E's summer peak rate 5.69 times higher than the national average during the peak TOU window. TOU will encourage load shifting through behavioral change and by way of storage-based demand reduction during peak hours. Battery installations showed rapid growth in 2019, and Bloomberg New Energy Finance had projected that residential battery installations would increase by a factor of 5 in California in 2020 from approximately 10,000 units in 2019 to 50,000 units in 2020. As batteries drop in price, Wood Mackenzie Power and Renewables forecasts that grid scale storage will increase thirteen fold over the next six years. New batteries installed over the coming decade could eliminate much of customers' electricity demand from 4-9 p.m.</p> <p>High electricity prices, low BTM solar prices, TOU, and battery storage will all contribute to a lower peak demand each year in SDG&amp;E service territory. CAISO should revise its forecast to reflect these facts.</p>	
2e	<p><b>CONCLUSION</b></p> <p>For the reasons noted above, the CAISO should limit reliability standards to the NERC and WECC standards, streamline and simplify the LCR demand projections, and correct the San Diego – Imperial Valley Area demand</p>	<p>The CAISO disagrees with the conclusions reached by POC as indicated in the CAISO responses to the comments above.</p>



No	Comment Submitted	CAISO Response
	projections. For the final version of the LCR report, the CAISO should correct its inaccurate and unsubstantiated San Diego – Imperial Valley Area demand projections. Otherwise, the Final LCR Report’s findings will result in excessive energy and capacity procurement resulting in wasted ratepayer funds.	

3. Pacific Gas and Electric (PG&E) Submitted by: Noelle Formosa		
No	Comment Submitted	CAISO Response
3a	<p><b>I. INTRODUCTION</b></p> <p>Pursuant to the schedule set forth in the Assigned Commissioner’s Amended Track 3B and Track 4 Scoping Memo and Ruling, dated December 11, 2020 (“Amended Scoping Memo”), as amended by the E-Mail Ruling Modifying Track 4 Schedule on Flexible Capacity Requirements, dated April 5, 2021, and in accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), Pacific Gas and Electric Company (“PG&amp;E”) hereby submits these comments on the California Independent System Operator Corporation’s (“CAISO”) 2022 Local Capacity Technical Study Draft Report and Study Results (“Draft LCR Report”), attached as attachment A to its filing dated April 2, 2021.</p>	<p>Thank you for your comments.</p>
3b	<p><b>II. COMMENTS ON THE DRAFT LCR REPORT</b></p> <p><b>A. CAISO Methodology Changes Need Additional Transparency and Should Be Addressed in Future Local Capacity Requirements (“LCR”) Working Group Discussions</b></p> <p>In a March 11, 2021 stakeholder meeting, the CAISO presented a large overall increase in the Greater Bay Area requirement (~1,200 megawatts (“MWs”)) from 2021 to 2022, mostly due to a 140 MW increase in the San Jose sub-area load forecast. In comments to the CAISO filed March 25, 2021, PG&amp;E asked for details on the methodology used to evaluate deficiencies. The CAISO responded that the increase had to do with the need to utilize less-effective resources in Pittsburg and Contra Costa sub-areas, as the more effective San Jose resources were fully utilized.</p> <p>While PG&amp;E appreciates CAISO’s response and understands how less-effective resources could change local requirements, PG&amp;E is concerned that these changes were not documented in the Draft LCR Report. Furthermore, the Draft LCR Report includes additional revisions that lowered the increase to ~900 MWs, but it is still unclear whether the increased overall requirement will meet the reliability requirements resulting from the deficient area. These changes are also not explained in the Draft LCR Report.</p> <p>In response to a question in a stakeholder call on April 7, 2021, the CAISO explained that additional methodology changes were made. PG&amp;E is concerned that LCR methodology changes are not receiving adequate review</p>	<p>Changes compared to last year Bay Area results are documented at the bottom of page 79 in the draft 2022 LCT report and they have been presented to stakeholder in two different stakeholder calls. The Bay Area is not overall deficient in year 2022. The “deficiency” in the San Jose sub-area has no influence on the overall Bay Area requirement. By definition a “deficiency” in any area or sub-area is the result of not having enough resources available to mitigate the current standards. LSEs are not obligated to purchase a “deficiency” since there are no units available to meet that part of the need.</p>



No	Comment Submitted	CAISO Response
	<p>by stakeholders, as the changes described above have not been documented. PG&amp;E appreciates that the CAISO has provided responses to individual stakeholder inquiries, but these responses do not include methodology details and are not made available to a wider group of stakeholders. PG&amp;E recommends the Commission address the issue of LCR study transparency as part of the LCR Working Group process established in this proceeding and currently in scope of Track 4.</p>	<p>Despite PG&amp;Es claim, no new methodological changes were made this year. This rare and unique circumstance was encountered numerous times before in the Fresno area and the methodology used was the same – try to minimize the overall requirement, rather than each individual sub-area when not possible to do both.</p> <p>The CAISO will include the methodology for this rare instance into the 2022 LCR manual going forward. PG&amp;E should bring this item up in the first stakeholder call regarding criteria, methodology and assumptions for the 2022 LCR study.</p>
3c	<p><b>B. Energy Insufficiency</b></p> <p>PG&amp;E appreciates the inclusion of Table 3.1-3 “2022 Battery Storage Characteristics Limited by Charging Capability” in the Draft LCR Report, as it clarifies how much battery capacity could be utilized in local areas and sub-areas, reducing risks that load serving entities (“LSEs”) could develop storage assets that would not be able to be utilized. It would also be useful, however, to know how the CAISO will handle energy insufficiency in local areas, particularly since the CAISO has recently requested that the Federal Energy Regulatory Commission expand the backstop procurement authority to include deficient energy resources in local areas as a collective deficiency. PG&amp;E urges the Commission to work with CAISO to provide an example of what the deficiency report would look like in cases where there is sufficient capacity, but insufficient energy, and explain how that circumstance should lead to a collective local deficiency procurement under the capacity procurement mechanism when a single LSE may be responsible for showing an inadequate storage resource.</p>	<p>Thank you for your support.</p> <p>Currently the CAISO does not have a sample, since we have not yet evaluated any aggregate of RA showings for local energy deficiency. The first evaluation will be done after the 2022 year ahead RA showings are in. If any deficiencies are found the CAISO will present the information to stakeholder in the RA evaluation report. The report format is up to CAISO staff and approved by management and legal review. Changes to the format of CAISO reports can be requested, that the CAISO will consider; however the CAISO is under no obligation to accept.</p> <p>The local energy deficiencies are considered similar to the effectiveness factor deficiencies, where no individual LSE is responsible alone in meeting the requirement, however the portfolio of all LSEs together needs to meet the energy sufficiency. Therefore the cost allocation has not been changed.</p>
3d	<p><b>C. Zonal Issues</b></p> <p>PG&amp;E is becoming increasingly concerned with north/south zonal constraints. Significant levels of procurement have either already been approved or are in discussion in the Integrated Resource Plan (“IRP”) proceeding. Insufficient planning and/or Commission direction could result in an imbalance of resources in either the north or the south. The zonal analysis in the Draft LCR Report assumes that the zonal non-coincident peak is met using zonal resources and maximum import capability. To better understand zonal constraints, PG&amp;E</p>	<p>The CAISO has similar concerns regarding future north/south zonal constraints. Currently the CAISO has no CPM back-stop authority regarding zonal constraints and the CPUC has eliminated its zonal RA requirement at the request of Southern California Edison. If PG&amp;E wants it reinstated it should ask CPUC to do so.</p> <p>Regarding the table format the CAISO reminds PG&amp;E that while the CEC coincident and non-coincident load forecast for 2022 is known, the remaining items are estimates. The CPUC has jurisdiction over PRM</p>



No	Comment Submitted	CAISO Response
	<p>recommends revising Table 3.2-1 "Total Zonal Resource Needs" or providing additional tables that include the following data:</p> <ol style="list-style-type: none"> <li>1. Table 1: Coincident load               <ol style="list-style-type: none"> <li>a. Column 1: PRM requirement * coincident zonal peak</li> <li>b. Column 2: Sum of NQC/ELCC values of resources in each zone</li> <li>c. Column 3: Estimate of maximum import (from outside CAISO), which should be aligned with assumptions used in the IRP</li> <li>d. Column 4: Estimate of how much path 26 capacity could be used based on surplus capacity (in north or south).</li> </ol> </li> <li>2. Table 2: Same as Table 1, but for non-coincident load</li> </ol>	<p>and may be changed from current 115%. The 2021 MIC import values and path 26 capability are assumed not to change between years and if past experience is an indicator they do change however in small magnitudes. The NQC values have more significant changes from one year to the next due to change in CPUC QC counting rules as well as unit retirement and especially due to new resource additions and they will not be known until about August-September of this year when the 2022 NQC list is posted.</p> <p>While the CAISO cannot incorporate these changes during this cycle, it takes your request under advisement as potential future improvements.</p>
3e	<p><b>CONCLUSION</b>            PG&amp;E appreciates the opportunity to provide these comments on the Draft LCR Report.</p>	<p>Thank you for your comments.</p>