

The ISO received comments on the topics discussed at the November 3, 2020 stakeholder call from the following:

1. Pacific Gas & Electric Company (PG&E)
2. Southern California Edison (SCE)
3. Vistra Corporation

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

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



No	Comment Submitted	CAISO Response
1	<p>Pacific Gas and Electric Company (PG&E) Submitted by: Mike Pezone</p>	
1a	<p>PG&E acknowledges the tremendous efforts by the CAISO staff to develop the Draft Study Manual of the 2022 Local Capacity Technical (LCT) Study. PG&E offers the following comments to better understand the procurement needed to meet the minimum capacity requirements.</p> <p>The CAISO has already committed to providing additional improvements to the load and battery charging capability graphs during the upcoming November 17 stakeholder meeting which are important aspects to understanding the procurement needs.</p> <p>In addition, PG&E provides the comments below.</p> <p>PG&E requests the CAISO to include details of the battery storage charging constraints assessment in the study manual.</p> <p>PG&E requests the CAISO include details of study assumptions and methodologies that are used to assess the battery storage charging constraints. In the previous cycle, high-level assumptions were provided in the LCT reports. In the upcoming cycle, PG&E suggests that the details for battery storage charging constraints assessments are provided in similar detail as in the existing section of Studies by Performance Level. As storage charging assessment is a relatively new practice, it would be very helpful for stakeholders to better understand the details of the assessment in order to interpret the results and contribute with further comments.</p>	<p>Improvements to the battery charging capability graphs have been implemented in the 10-year LCR study. The CAISO will carry those improvements into the 2022 LCR study.</p> <p>At this time, the battery charging constraints assessment is being revised and improved on a regular bases and therefore it is more appropriate to maintain its description in the LCT reports, in order for the CAISO to be fully transparent about any updates. After the battery charging constraints assessment has reached a final version and has been fully vetted with stakeholders, the CAISO intends to include it in future study manuals.</p>
1b	<p>PG&E requests that the CAISO conduct analysis to confirm that the interconnection process that identifies energy storage charging constraints and the appropriate mitigations is consistent with the LCR methodology that will be used to assure that reliability standards are met.</p> <p>In the previous year's results the CAISO indicated that if "uplift is not provided the CAISO may use its back-stop authority to assure that reliability standards are met throughout the day" in consideration of storage charging requirements.</p>	



No	Comment Submitted	CAISO Response
	<p>The CAISO’s interconnection process for energy storage performed under GIDAP will only consider discharge mode consistent with CPUC counting rules for deliverability studies. The reliability studies performed under GIDAP consider charging mode, but does not require upgrades for transmission congestion constraints that can be mitigated with congestion management.</p> <p>If an energy storage project wants uninterrupted charging similar to firm load service, it must apply to the transmission owner requesting firm load service. The charging constraints that are assumed mitigated by congestion management in interconnection studies appear to be at odds with the LCR methodology that the CAISO is proposing to use as its back-stop procurement authority for. It is unclear if the transmission constraints identified in the LCR methodology that maximize imports into a local area will be consistent with the charging constraint in the same interconnection studies for storage resources seeking to interconnect to that same local area under a different set of study conditions. As such, PG&E requests that the CAISO conduct analysis to confirm the consistency between interconnection studies and the LCR studies.</p> <p>In addition, PG&E also request guidance on the following questions:</p> <ol style="list-style-type: none"> 1) When considering the storage resources that contribute to the charging constraints, how will the hybrid and co-located resource storage components in a local area that are planning to access the ITC count towards the charging constraints? And what are the assumptions for those resources in the LCR study? 2) For charging constrained LCR areas, what is the specific CAISO process that will be used to mitigate a charging constraint? 3) How will the CAISO assess charging constraints for resources shown for system requirements and have local attributes that could contribute towards a local charging constraint? 	<p>The CAISO acknowledges that the two analysis are different, but their specific objectives are different. The generation interconnection study relates to overall system interconnection capability to the grid – it can be energy only or full capacity (deliverable to the system wide aggregate of load – for limited contingency conditions). The LCR study refers to how much of the battery interconnected capacity can be useful in mitigating local area constraints during all contingency conditions in the mandatory standards.</p> <p>In addition, given the limited time available to perform interconnection studies and the large volumes of storage in the queue, it is not practical to perform local capacity related charging studies in the interconnection process. Perhaps this topic can be further explored as part of the CPUC portfolio development process in the IRP and the CAISO TPP study process.</p> <p>The rules are the same for all batteries regardless of their tax situation.</p> <p>The charging constraint is basically load driven congestion and will be monitored and enforced by the market software.</p> <p>All resource behind a charging constraint (congestion) are treated the same by the CAISO market software.</p>
1c	<p>The CAISO LCT Study Manual should be updated to reflect how the forecasted hourly load profiles and peak day forecasts profiles are developed.</p>	



No	Comment Submitted	CAISO Response
	<p>The Study Manual indicates that the latest information from the CEC Technical Study is used for the local area assessments, yet there is no additional detail describing the purpose of the two different load forecasts that are included in the results. Additional detail on how this is derived for local areas will be helpful to understanding this important assumption used in the analysis.</p>	<p>At this time, the CAISO will not include a specific section in the LCR study manual about load forecast because it is the same as the load forecast used in the Transmission Planning Process (TPP). The load forecast process is explained in detail, in section 2.6 of the latest Transmission Planning Process Unified Planning Assumptions and Study Plan.</p>



No	Comment Submitted	CAISO Response
2	Southern California Edison (SCE) Submitted by: Wei Zhou	
2a	<p>SCE appreciates the opportunity to provide the comments on the CAISO's 2022 Local Capacity Requirements (LCR) study criteria, methodology and assumptions dated October 23, 2020.</p> <p>SCE requests the CAISO provide additional information on how hydro resources are treated in the CAISO LCR study.</p> <p>As SCE understands it, the CAISO LCR study is key to identify local area needs, spanning from the next year to the next five years, to ensure grid reliability. The end results of the LCR study not only provide requirements for resource adequacy (RA) compliance, but also may serve as a guidance regarding potential future needs, such as whether new resources should be developed in a local area. To this end, the LCR study assumptions should be consistent with RA compliance evaluation criteria and reflect potential future local needs.</p> <p>SCE is under the impression that the CAISO LCR study assumes the full capacity of hydro resources, i.e., Pmax of the resource (or another value that's potentially higher than the monthly RA value). If this understanding is correct, then there can be consequences. When the LCR study derives the requirements based on a capacity value for a resource that's higher than either what the resource can realistically provide or its RA value during annual or monthly showings, the LCR study may incorrectly and implicitly lead to a conclusion that all existing resources are able to meet the local requirements and new resources are not needed. However, once RA resources are shown, there can be a deficiency, in either capacity or expected energy. Additionally, such result may mask a true need for new resources in a local area.</p>	<p>The second sentence in the first paragraph, under "Generation Model", describes that "Generation resources shall be dispatched up to the latest available net qualifying capacity not to exceed historical (projected for new resources) output values at the time of the managed peak load in the local area for purposes of the 2022 Technical Study."</p> <p>Hydro is treated the same as all other resources and is dispatched up to the latest NQC value not Pmax.</p>
2b	<p>Deliverability protection for imports</p> <p>More broadly, it appears that the local area requirements can be affected under the study objective of maintaining maximum import capability (MIC). In other words, in order to maintain MIC, local generation is assumed to be at a high level (e.g., at full capacity or maximum generation level), which would then</p>	<p>It is imperative that deliverability continue to be protected for all internal resources as well as imports since these resources are required to meet system wide RA needs. Deliverability is protected in relation to the</p>



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	<p>increase the requirement for the local area. This approach of assuming a high generation level for local resources in order to maintain MIC should be further evaluated and explained. The CAISO should clarify why the objective here is to maintain MIC and whether there are negative impacts to MIC holders if this objective is removed. There should be further clarity on the interaction between MIC and the LCR study, because it appears that MIC may be driving the assumption of high local generation.</p>	<p>contingencies used in the deliverability studies only, beyond that any resource may be reduced as described in the LCR manual.</p>
2c	<p>Conclusion</p> <p>In summary, for the reasons described above, the CAISO should provide additional information on how hydro resources are treated, in particular, the CAISO should address:</p> <ul style="list-style-type: none"> • What value for hydro resources is used in the LCR study? If RA value is used in the study, please clarify if the RA value is based on the existing methodology (such as using NQC value at or close to the Pmax) or the RA value that is based on the new alternative methodology, which provides an option for a hydro resource to receive a lower RA value and exempted from RAAIM for fuel-related availability issues. • If the RA value is based on the existing methodology, the issues described in the comments above would apply and should be addressed by the CAISO. 	<p>All resources are being dispatched up to their NQC as available in the latest NQC list (2021).</p> <p>Not applicable.</p>

No	Comment Submitted	CAISO Response
3	Vistra Corporation Submitted by: Cathleen Colbert	
3a	<p>Energy storage.</p> <p>Vistra Corp. respectfully submits these comments in response to the CAISO's 2022 Local Capacity Requirements Draft Study Manual posted on October 27, 2020 and discussed at a public stakeholder call on November 3, 2020. We appreciate the CAISO detailing its methodology for the 2022 Local Capacity Requirement ("LCR") studies. However, Vistra reiterates its concerns in these comments that the methodology adopted for energy storage resources is overly conservative. Vistra believes greater development of energy storage can be a highly effective tool to allow the system to meet the reliability needs shown in the upcoming 2022 LCR study. However, the draft study methodology proposed for energy storage may be overly conservative since as we understand it: (1) when charging exacerbates congestion on certain constraints, the CAISO's mitigation approach is to restrict charging, and (2) the CAISO's new maximum 4-hour storage limit is overly conservative.</p> <p>In its report, the CAISO describes its methodology for consideration of storage charging requirements as follows:</p> <p>"For all requirements and contingencies other than extreme event considerations, the ISO expects that for batteries that qualify as local capacity resource adequacy resources, the transmission and the other local capacity resources must be sufficient to recharge the batteries in anticipation of the outage continuing into the next day's peak load period."</p> <p>We recognize that energy storage resources that provide local Resource Adequacy ("local RA") services need to be able to hold sufficient charge to provide its local RA MW during the Resource Adequacy Availability Incentive Mechanism hours ("RAAIM hours"). Further, Vistra recognizes that an energy storage resource that provides local RA is obligated to recharge between the RAAIM hours so that it is available for the next day's RAAIM hours. We believe the CAISO is imposing an overly restrictive assumption when it assumes energy storage resource will not be able to recharge its battery between the days if</p>	<p>Your concerns have been noted.</p>



No	Comment Submitted	CAISO Response
	<p>there is an extended outage on the system. The capability of a specific energy storage resource to recharge is highly dependent on its specific situation. For example, during times of grid disturbances where charging energy is not available, an energy storage resource that is located near another resource type with which it holds a commercial agreement may recharge its battery with the out-of-market energy from for example a co-located or geographically proximate resource based on that agreement. We respectfully request the CAISO consider the unique energy storage resources ability to recharge rather than assuming the energy storage resource would always be charging based on grid energy.</p> <p>In previous comments Vistra has raised concerns with the new maximum 4-hour storage limit in the CAISO's modeling and continues to urge the CAISO to defer the use of these maximum storage values until the next iteration of the local capacity area study. We believe there is a lack of clarity on the methodology for determining the maximum 4-hour storage as well as how it would impact local resource adequacy sufficiency assessments. Based on some of the value released by the CAISO, Vistra believes these values could significantly limit storage development in a manner that may work in opposition to goals to leverage storage to (1) serve as replacement for retiring thermal generation or (2) support increased renewable integration through consuming excess generation and reducing curtailments. Consequently, we respectfully ask to defer this item until it can be further vetted.</p>	<p>The CAISO methodology already assumes that batteries required to meet local needs will charge from either the remaining transmission into the area or all other resources within the area that are also required to meet the LCR needs, regardless of commercial agreements.</p> <p>If additional, beyond minimum LCR need, resources are needed in order to charge local batteries then the minimum LCR need needs to be increased, therefore not a real solution in decreasing the LCR need.</p> <p>As explained before, the maximum 4-hour storage limit is, for the most part, not a physical limit. It represents the break point beyond which additional 4 hour battery will not reduce the need for other local resources on a 1 for 1 MW bases. While batteries may still be able to replace some local generation it will require installation of 6, 8 or 10 hour batteries (depending on each local area specific need).</p> <p>From a local need perspective batteries have a limited use, because normally local areas do not have excess renewables to integrate, however they do have charging (load) constraints. From a renewable integration perspective, batteries are most useful if built next to renewable rich areas.</p>