

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Oversee the
Resource Adequacy Program, Consider
Program Refinements, and Establish Forward
Resource Adequacy Procurement Obligations.

Rulemaking 19-11-009
(Filed November 7, 2019)

**THE PROTECT OUR COMMUNITIES FOUNDATION COMMENTS ON THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
DRAFT LOCAL CAPACITY TECHNICAL ANALYSIS FOR 2021**

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The Protect Our Communities Foundation (“POC”) submits these comments in accordance with Administrative Law Judge Chiv’s April 2, 2020 E-Mail Ruling Modifying Track 2 Schedule For Local Capacity Requirement And Flexible Capacity Requirement Issues. CAISO provided its Draft Local Capacity Technical Analysis for 2021 (“Draft LCR Report”) on April 2, 2020 for parties’ comments.

I. INTRODUCTION

POC appreciates the work completed by the CAISO on the Draft LCR Report. While many elements of the draft provided reasonable and accurate analysis of the local capacity areas, POC focuses its comments on points of concern and inaccuracies found within the draft. Specifically, POC found inaccuracies with the San Diego – Imperial Valley LCR, which should be corrected before the release of the final draft.

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 the statements made by CAISO in the Draft LCR Report, POC 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. Once CAISO makes these corrections, the system will maintain reliability while reducing costs to ratepayers.

II. 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.

The Public Utilities Code requires the Commission to "minimize impacts on ratepayers' bills."¹ Thus the Commission must consider costs to ratepayers when evaluating whether to agree with CAISO analyses. Over the years, CAISO's analyses and reliability standards have led to excessively high transmission rates. To illustrate how large transmission costs have grown in California as a result of CAISO's reliability policies, in SDG&E service territory transmission costs have increased to 4.8 cents per kWh.² Meanwhile, for the average U.S. investor-owned utility, the average transmission, distribution, and administrative costs *combined* are less than 4-cents/kWh.³ CAISO's standards have resulted in a process of gold-plating the transmission system by, adhering to the most conservative criteria at every turn and by layering several reliability standards on top of each other.

The Draft LCR Report states that "grid reliability is reflected in the Reliability Standards of the North American Electric Reliability Council ("NERC") and the Western Electricity

¹ Public Utilities Code Section 454.52(a) (1) (D).

² SDG&E, Schedule DR Tariff – residential service (April 1, 2020) at p. 2. Available at http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_DR.pdf

³ The University Texas at Austin, Trends in Transmission, Distribution, and Administration Costs for U.S. Investor Owned Electric Utilities. (June 1, 2016) Figure 33, at p. 29. Available at https://energy.utexas.edu/sites/default/files/UTAustin_FCe_TDA_2016.pdf

Coordinating Council (“WECC”) Regional Criteria.”⁴ As noted in the Draft LCR Report, California law requires CAISO to follow the both sets of standards.⁵ CAISO refers to the WECC and NERC standards collectively as “Reliability Standards.”⁶

Two overlapping sets of reliability standards – NERC and WECC - should provide enough redundancy to ensure reliability. However, in addition to the Reliability Standards, CAISO goes further and lays out even more stringent standards in its “Applicable Reliability Criteria” defined as “the Reliability Standards as well as reliability criteria adopted by the CAISO.”⁷ The CAISO does not need a third set of standards. CAISO should immediately eliminate the additional reliability standards that it imposes, which exceed the two regional reliability standards.

Just as the Commission must minimize impacts on ratepayer bills, CAISO should also minimize costs to the ratepayer rather than continue with a set of standards which have resulted in some of the highest transmission costs in the country.

III. CAISO must make the demand projections for LCRs more transparent and less dependent on PTO input.

According to the Draft LCR Report, CAISO determines the system load forecast by taking the California Energy Commission forecast and distributing it “across the entire system, down to the local area, division and substation level. The PTOs use an econometric equation to forecast the system load.”⁸ Thus, the forecasts involve at least three different entities’ input.

⁴ Draft LCR Report, p. 10.

⁵ Public Utilities Code Section 345. (“The Independent System Operator shall ensure efficient use and reliable operation of the transmission grid consistent with achievement of planning and operating reserve criteria no less stringent than those established by the Western Electricity Coordinating Council and the North American Electric Reliability Council.”)

⁶ Draft LCR Report, p. 10.

⁷ Draft LCR Report, p. 10.

⁸ California Independent System Operator, California Independent System Operator Corporation Draft Local Capacity Technical Analysis For 2021 (“LCR Report”) (April 8, 2020), at p. 22.

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 it can replicate and possibly amplify through the various steps, leading to excessively skewed results at the end of the process. Mistakes will lead to projections which do not reflect reality. 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. PTOs should be removed from the LCR demand projection process to remove the inherent conflict of interest.

The CAISO should streamline demand projections and eliminate parties that have a conflict of interest from directly influencing the process. By adopting POC's recommended changes to the CAISO's peak demand forecasting process, the CAISO may eliminate avoidable errors in the future. POC details its specific concerns with the CAISO LCR analysis in the following section.

IV. CAISO must correct the San Diego – Imperial Valley Area load projections which are too high and are wrongly assumed to be later in the day.

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, later in the day - lack supporting data and will lead to higher ratepayer costs due to the resulting over-procurement.

A. The CAISO projections must be revised to demonstrate an alignment with historical trends.

The load forecast for the San Diego – Imperial Valley Area does not adhere to the declining historical trend of energy demand in the LCR. Figure 1 below shows the decreasing

trend in peak electricity demand for the San Diego Gas and Electric (“SDG&E”) service territory.⁹

Figure 1: Historical SDG&E Peak Annual Demand (Average Demand for Peak Hour)¹⁰

Year	Peak Demand (MW)	Date	Hour	Source
2015	4,718	2015-09-09	3-4 p.m.	OASIS
2016	4,200	2016-09-26	5-6 p.m.	OASIS
2017	4,481	2017-09-01	4-5 p.m.	OASIS
2018	4,352	2018-08-09	5-6 p.m.	OASIS
2019	4,063	2019-09-03	5-6 p.m.	OASIS
2021	4,415		8 p.m.	CAISO LCR Report p. 140

Figure 1 shows that the peak load trends down in each year except in the 2016 outlier year, which exhibited an even lower demand. The demonstrated historical reduction in peak demand mirrors the BTM solar installations in SDG&E service territory. From the end of 2015 to the end of 2019, 752 MW of BTM solar was installed in SDG&E service territory.¹¹ From 2015 to 2019, the peak demand in SDG&E territory fell 655 MW.¹² Further, the pace of BTM solar installations in the region continue growing. 2019 saw the highest BTM solar installations to date at 215 MW.¹³ 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, much less to analyze the effects of, the BTM solar installations that have occurred and that continue to occur in SDG&E

⁹ POC will use SDG&E service territory as a proxy for the San Diego – Imperial Valley Area.

¹⁰ CAISO, Open Access Same-time Information System website (“OASIS”). Available at <http://oasis.caiso.com/mrioasis/logon.do>

¹¹ California Distributed Generation Statistics website, SDG&E service territory BTM solar. Available at <https://www.californiadgstats.ca.gov/charts/>

¹² CAISO, OASIS

¹³ California Distributed Generation Statistics website, SDG&E service territory BTM solar.

service territory. This failure to include or analyze relevant facts should be corrected in the final report.

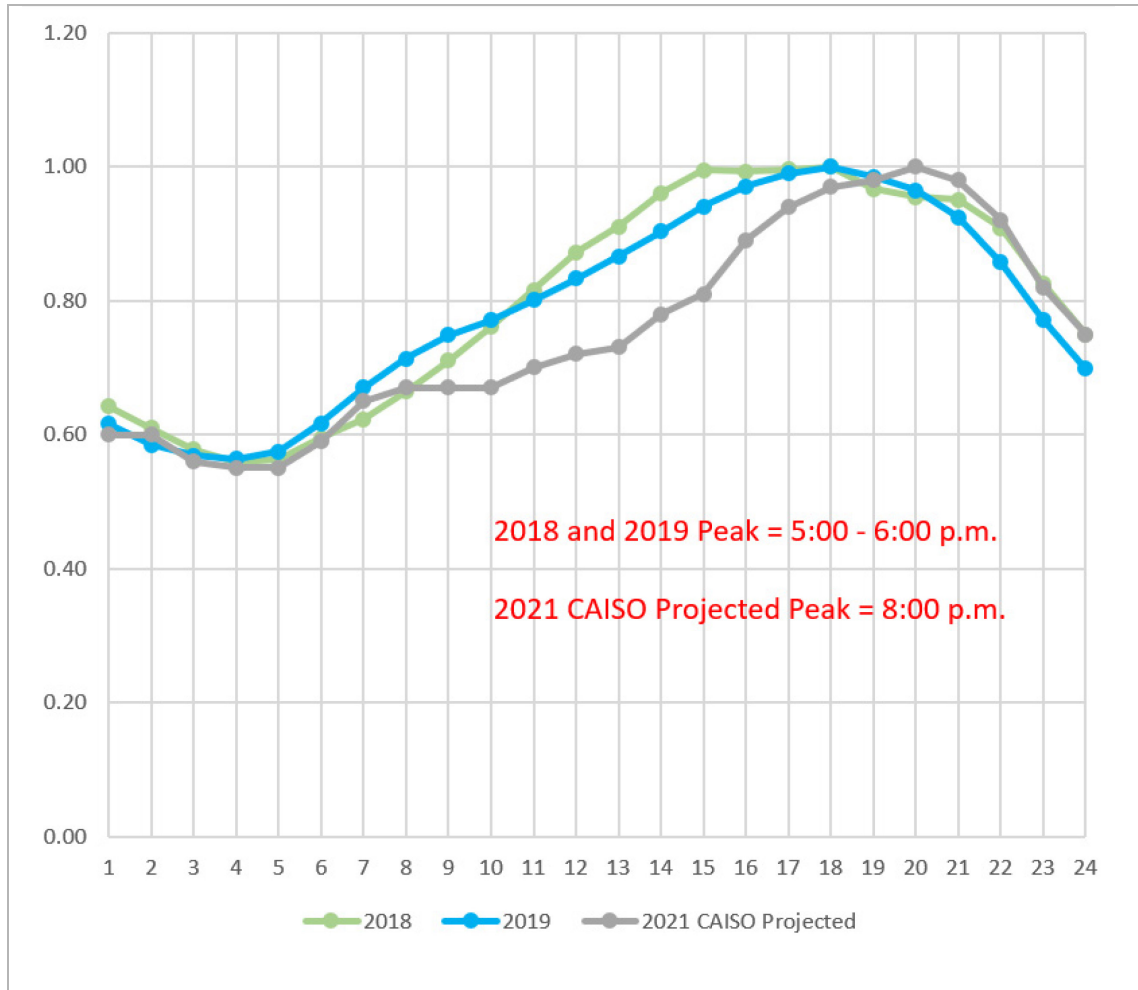
B. CAISO incorrectly adjusted the time of the peak load to later in the day, and in so doing, removed BTM solar's contribution to the reduction of peak load.

CAISO set the San Diego – Imperial Valley Area peak for 2021 at 8:00 p.m. - much later than other LCRs in Southern California. As a point of comparison, for the adjacent LCR, CAISO set the peak for the LA Basin LCR Area at 5:00 p.m. “based on the CEC [California Energy Commission] hourly forecast for the 2020-2030 California Energy Demand Revised Forecast.”¹⁴ Conspicuously missing in the San Diego – Imperial Valley Area peak time designation is the “based on” note. The lack of any 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 San Diego – Imperial Valley Area. Nor does CAISO provide any basis for shifting the peak demand away from the historically-recorded peak time of day. 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

The following figure compares the net demand curve for 2018 and 2019 to the CAISO's projected net demand curve for 2021.

¹⁴ Draft LCR Report at p. 130.

Figure 2: SDG&E Historical Demand Curve for the Peak Day vs. CAISO 2021 Projection¹⁵



As noted in Figure 1, the hourly average peak demand in SDG&E service territory has never occurred later than the 5-6 p.m. hour during the last 5 years. Figure 2 shows that CAISO's projection shifts the peak demand hour a full two hours later than the latest historical peak demand. CAISO must provide a strong basis for such an unprecedented and dramatic shift in the peak demand window to justify its assertion that the peak energy use in the San Diego – Imperial Valley Area will occur at 8:00 PM.

¹⁵ Historical data obtained from CAISO OASIS for the dates listed in Figure 1 for the 2018-2019 demand curves; The CAISO 2021 projected load reproduced from the Draft LCR Report, Figure 1.6-97, p. 147.

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 2021 at 4415 MW.¹⁶ While 4415 is 8.5% higher than 2019's peak load, CAISO's projection is 15% higher than 2019's 8:00 p.m. demand on the same day.¹⁷ The magnitude of the difference between CAISO's projected peak and the 2019 historical load equates to the entire Planning Reserve Margin used to determine system RA need. CAISO's projected load is simply too high to be believable for an 8:00 p.m. peak. If the Final LCR Report has not corrected the overestimation of peak load, then SDG&E customers will pay for more peak load capacity than needed and they will also pay for more RA capacity than needed. CAISO must revise the Final LCR report to eliminate over-procurement and protect ratepayers from unnecessary costs.

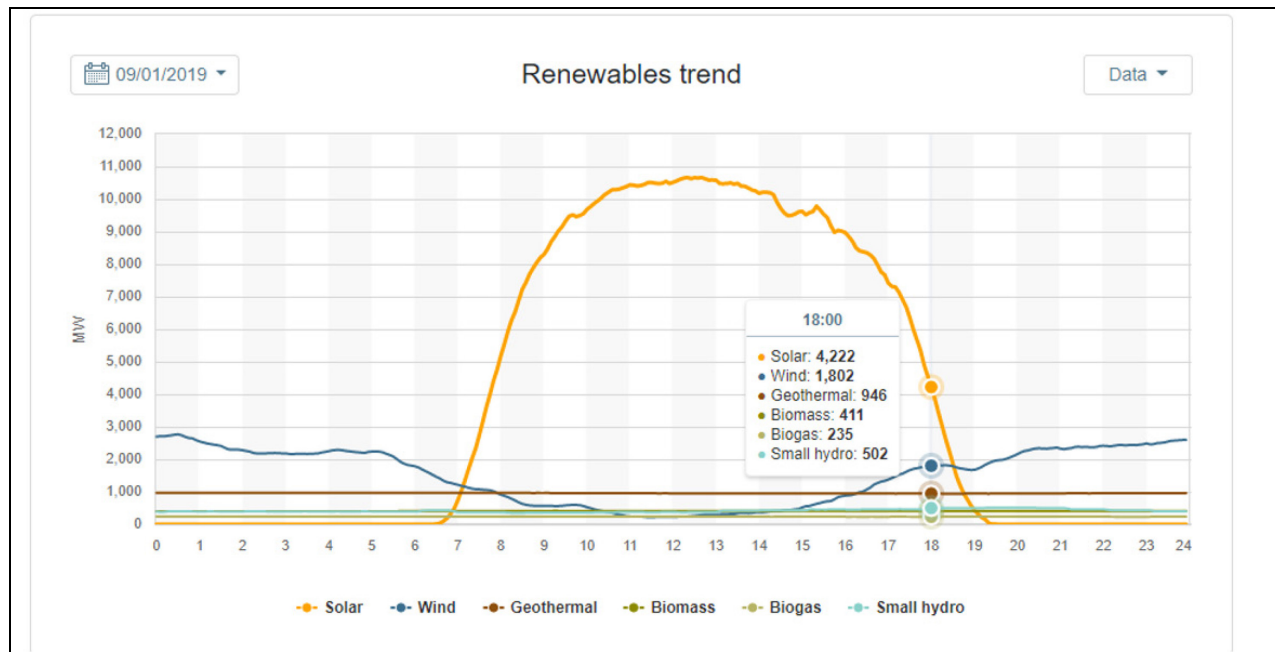
Second, if CAISO revises the peak from 8:00 p.m. to the historical peak between 5:00 p.m. and 6:00 p.m., then, all solar generators' contributions to serving peak load increase dramatically. The CAISO Draft LCR Report assumes the BTM contribution at 8:00 p.m. at 0 MW.¹⁸ However, even at the end of the 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.

¹⁶

¹⁷ OASIS data. SDG&E territory. (The 8:00 p.m. demand equals the average of the demand for the hour ending 20 and the hour ending 21. Thus, $(3,920 \text{ MW} \times 3755 \text{ MW}) / 2 = 3837 \text{ MW}$) The percentage calculation is $((4415 / 3837) - 1) = 0.150 = 15\%$

¹⁸ Draft LCR Report, Table 1.6-83, at p. 140.

Figure 3: CAISO system renewable energy production September 1, 2019¹⁹



SDG&E produces 20% of its energy from in front of the meter solar.²⁰ An additional 1,260 MW of BTM solar contributes to a reduction in net load prior to sunset in SDG&E service territory.²¹ 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.

¹⁹ CAISO “Today’s Outlook” webpage, Renewables Trend. Available at <http://www.caiso.com/TodaysOutlook/Pages/supply.aspx>

²⁰ SDG&E, 2018 Power Content Label, Available at https://www.energy.ca.gov/sites/default/files/2020-01/2018_PCL_San_Diego_Gas_and_Electric.pdf

²¹ California Distributed Generation Statistics website, SDG&E service territory BTM solar. Available at <https://www.californiadgstats.ca.gov/charts/>

C. CAISO incorrectly assumes that peak demand will grow in the San Diego – Imperial Valley Area.

The CAISO Draft LRC Report assumes peak load growth each year between now and 2025.²² 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&E service territory instead of the annual 38 MW/year increase that CAISO forecasts.²³ The peak demand will see downward pressure from high electricity prices, high BTM solar installations, increases in time-of-use (TOU) roll-out, and quickly increasing storage deployment.

Electricity prices in SDG&E territory are already the highest in the state.²⁴ SDG&E's rates will increase by another 17.27% from 2019 to 2021 because of the costs allowed in SDG&E's most recent General Rate Case decision.²⁵ High electricity prices incentivize customers' switching to alternative energy supplies, including BTM solar. BTM solar in SDG&E territory has already achieve the second highest per capita capacity as well as the second highest total capacity in the nation.²⁶ Since 2015, BTM solar installations in SDG&E territory have averaged 188 MW per year,²⁷ and the pace is accelerating. 2019 saw record BTM solar installations at 215 MW.²⁸ As SDG&E electricity prices continue to increase, the payback time for a BTM system will continue to drop. The payback time in SDG&E service territory *including*

²² LCR report at p. 157.

²³ *Ibid.*

²⁴ CPUC, *2018 California Electric and Gas Utility Cost Report*, (May 1, 2019) Figure 1.2, at p. 6. Available at https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/Office_of_Governmental_Affairs/Legislation/2019/2018%20AB%2067%20Report.pdf

²⁵ D.19-09-051 at pp. 2-3 (After compounding, the rate increase exceeds 18% - more than three times the rate of inflation).

²⁶ Environment America, *Shining Cities 2019*, (April 1, 2019) Table ES-1 p. 6. Available at https://environmentamerica.org/sites/environment/files/reports/WEB_AME_Shining-Cities_2019_040919-v1.pdf

²⁷ California Distributed Generation Statistics website, SDG&E service territory BTM solar.

²⁸ *Ibid.*

a battery was less than 7 years as of 2018.²⁹ Energy storage will eliminate many customers' total demand during the 4:00 p.m. to 9:00 p.m. window.

Time-of-use rates will continue to push down demand as well especially in SDG&E territory with high solar adoption because solar customers cannot opt-out of TOU. TOU will encourage load shifting through behavioral change and by way of storage-based demand control. Battery installations showed rapid growth in 2019, and Bloomberg New Energy Finance projects that residential battery installations will increase by a factor of 5 in California in 2020³⁰ from approximately 10,000 units in 2019 to 50,000 units in 2020.³¹ As batteries drop in price, Wood Mackenzie Power and Renewables projects grid scale storage to increase thirteen fold over the next six years.³² New batteries in 2020-2024 could wipe out much of customer's electricity demand from 4-9 p.m.

High electricity prices, low BTM solar prices, TOU, and battery storage will all contribute to a lower peak demand each year in SDG&E service territory. CAISO should revise its forecast to reflect these facts.

V. CONCLUSION

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 projections. For the final version of the LCR report, the

²⁹ Greentech Media, The Next 5 Years in Energy Storage, According to 500 Energy Professionals (Jan 11, 2018). ("According to GTM Research's latest analysis, coming out this quarter, a residential solar-plus-storage system installed today in SDG&E, PG&E or SCE's service territory in California can break even within seven years, even without the Self-Generation Incentive Program.") Available at <https://www.greentechmedia.com/articles/read/the-next-five-years-in-energy-storage-according-to-500-energy-professionals#gs.u38yvh>

³⁰ Bloomberg New Energy Finance, California Household Battery Sales to Quadruple in 2020 (Feb 10, 2020). Available at https://about.bnef.com/blog/california-household-battery-sales-to-quadruple-in-2020/?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top

³¹ *Ibid.*

³² Greentech Media, Global Energy Storage to Hit 158 Gigawatt-Hours by 2024, Led by US and China (April 10, 2019). Available at <https://www.greentechmedia.com/articles/read/global-energy-storage-to-hit-158-gigawatt-hours-by-2024-with-u-s-and-china>

CAISO must 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 dollars.

Respectfully submitted,

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