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CEERT Written Comments on Midterm Reliability Analysis

Additional submitted attachment is included below.

September 3, 2021

California Energy Commission
Docket No. 21-ESR-01

Written Comments of The Center for Energy Efficiency and Renewable Technologies (CEERT) regarding the Lead Commissioner Workshop on Midterm Reliability Analysis and Incremental Efficiency Improvements to Natural Gas Power Plants

CEERT supports the preliminary findings of the California Energy Commission's (CEC's) Midterm Reliability Analysis and asks for its integration into the California Public Utilities Commission (CPUC) resource planning process. CEERT agrees with the sentiment that a technical workshop should be held soon to allow a more fulsome discussion of the detailed assumptions and findings. CEERT also looks forward to improvements in the modeling in future reliability studies to more fully utilize the power of hybrids to provide grid services and to broaden the scope of reliability metrics beyond simple Loss of Load Expectation (LOLE). LOLE only records the frequency of loss of load events and says nothing about either the severity of the event or the shape of the unserved energy that defines what resources need to be procured to mitigate the potetnial shortfall. CEERT also recommends that, as part of "next steps," the production cost modeling results on rate impacts, energy prices, and greenhouse gas (GHG) emissions be presented in addition to the reliability metrics. All of the model outputs necessary to calculate these metrics are contained in the PLEXOS output files. There is no need to rerun the model.

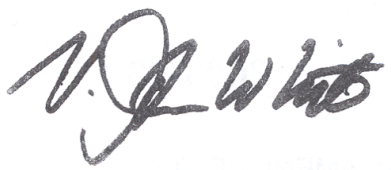
The principal finding of the analysis—once the already authorized procurement of preferred resources begins to come on line in 2023, the system has acceptable reliability and is able to withstand the retirement of Diablo Canyon and the last tranche of once-through-cooling (OTC) gas plants without violating the LOLE standard —appears to be robust. However, that does not mean that the State can or should relax and dial back on procurement of new zero carbon resources. The CEC should also calculate the Planning Reserve Margin, a relatively crude measure of reliability, but one that is familiar and allows at least a measure of quantification and comparison with other studies of whether the procurement target is correct. Even more importantly, procurement of zero carbon resources will put downward pressure on consumer rates, drive down GHG emissions, reduce dependence on fossil generation in disadvantaged communities, ease pressure on the fragile fuel supply system in Southern California, and accelerate the achievement of the State's ambitious energy goals. CEERT believes that it is critical to go into the latter part of this decade with at least some "extra" reliability margin to prepare for load growth due to success in implementation of ambitious targets for electrification of transportation and decarbonization of the State's buildings.

The panel discussion on battery deployment that followed the presentation highlighted the execution risk associated with the rapid acceleration of procurement targets from the very low procurement pace of the past few years during a time of exploding worldwide demand for the same resources and supply chain disruptions due to the COVID-19 pandemic and trade frictions. If a similar panel discussion had been held on solar pv procurement, CEERT believes a similar story would be told. Much urgent work remains to be done to streamline the project approval and interconnection process, as well as expedite the construction of transmission upgrades required to deliver the new generation resources. At the same time, the logjam preventing distributed and behind the meter customer driven resources from contributing to overall grid reliability and resilience simply must be broken. Modeling and planning does not make it so. Steel in the ground and crisp execution of plans is more important than ever in these difficult times of transition.

Finally, the modeling conclusively shows that the current CPUC Resource Adequacy counting rules significantly understate the capacity value of preferred resources and significantly overstate the capacity value of conventional fossil resources. The reason for the latter was given during the discussion period following the presentation – failure of the net qualifying capacity (NQC) rules to account for forced outage rates of the gas fleet. CEERT believes that problem is even larger than the modeling showed because the CEC used annual average forced outage rates for the gas fleet. In the real world, gas fleet forced outage rates are positively correlated with the temperature extremes that cause the bulk of system stress hours compounding the impact on real time availability of these resources.

The reason why the counting rules understate the capacity value of preferred resources was not discussed but is equally obvious. E3 calls the phenomena the "diversity benefit" where the capacity value of solar + storage is greater than the sum of the capacity values of the individual resource elements calculated independently. Every reliability study with a high solar + storage penetration that is done on a portfolio basis shows this impact. This CEC study simply repeats that obvious conclusion. It can be understood with the simple observation that, while it is true that high penetration of pv solar has pushed the net peak load to later in the day when the sun is setting and therefore, marginal additions of solar alone do not contribute much to system reliability, the presence of storage on the system changes the calculus. While it is true that the capacity value of marginal new short duration storage declines as penetration increases because remaining periods of energy insufficiency tend to have longer and longer durations as short duration storage saturates, the presence of new solar pv changes the calculus. The new solar pv continues to depress the "gross peak" load and allows saving the energy stored in the battery until later in the afternoon to bridge the energy shortfall. CEERT understands that this simple observation is not the total answer, but the CEC should quantify the "diversity benefit" embedded in its modeling and this information should be fed into the refresh on NQC counting rules that is about to be undertaken in the CPUC Resource Adequacy proceeding.

Sincerely,



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