



Comments of Pacific Gas & Electric Company on CAISO's Draft Flexible Capacity Needs Assessment for 2018

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) offers these comments on the California Independent System Operator's (CAISO) Draft Flexible Capacity Needs Assessment for 2018 dated April 3, 2017 (draft assessment) and the associated April 6, 2017 web conference.

PG&E thanks the CAISO for its consideration and continued work to refine this process.

1. CAISO should include the shaped AAEE profile, if possible, in its final study.

The April 13, 2017 CAISO draft assessment indicates that CAISO did not receive an AAEE profile from the CEC and as such did not include this profile in the 2018 study. This profile was included in last year's 2017 flexible capacity needs assessment, however. Inclusion of the profile would better help to understand the impact of EE on flexible capacity needs as well as make the 2018 needs assessment more comparable to the 2017 assessment.

2. CAISO should reconcile and provide an explanation for data discrepancies in the net load data worksheet.

The 2018 net load data spreadsheet provided on CAISO's website does not contain 2018 data for minute-by-minute solar thermal generation; however, last year's spreadsheet contained this data – approximately 11,173 GWh. Furthermore, the 2018 data contains wind generation estimates that are approximately 14,098 GWh higher (~ 10 times) than the estimate from the previous year. Based on this, it seems the 2018 solar thermal data has been included under the 2018 wind data. CAISO should provide an explanation for this and indicate if there has been an error in the data. In addition, there is missing data for solar PV

beginning on August 5 at 9:29 and continuing through August 6 at 3:41; this missing data should be explained.

3. The methodology to calculate flexible capacity needs should take into account the bidding behavior of those resources. Solar and wind resources that offer economic bids should not be modeled as must-take resources.

Not considering the ability to curtail wind and solar resources may inflate the flexible ramping requirements. Given that more renewable resources are providing economic bids in the real-time market and that the amount of economically bidding wind and solar resources appears to be trending upward, it is of increased importance to reflect these bidding trends to avoid inflating flexible capacity procurement costs.

4. PG&E suggests CAISO use other data sources at its disposal (such as the Master File and/or data reported on its own website) to check for accuracy and coverage of data reported by LSEs.

PG&E requests the CAISO reconcile data provided in other venues with the data reported in the FCR study. For instance, in a recent presentation at a CPUC workshop, the CAISO stated that, as of 11/2/16, it had 73,306 MW of installed capacity, of which 27% were renewables, and of the renewables, 30.7% was wind capacity and 46% solar capacity¹. This works out to there being 15,181 MW of installed wind and solar capacity in the CAISO. This is in contrast to the 14,220 MW of installed wind and solar capacity as of 12/31/16 used in the values in the FCR study as reported in Table 1 of the report. While there may be good reasons for these numbers to vary, such as the former includes renewables that are firmed outside the CAISO's balancing area, the CAISO needs to reconcile the total capacities in the report with values it uses for other purposes. The omission of this capacity under-forecasts the total flexible requirements, and allows the omitted capacity to free-ride completely on the reporting LSEs for providing the flexible capacity to integrate their output into the system.

5. Suggestions for future metrics.

a. CAISO could create a new metric, (e.g. $[\Delta \text{ PV MW flex capacity need}]/[\text{PV installed capacity MW}]$) by combining, for example, the type of data from Tables 1 and 4. This would give estimation, in % terms, for the amount of flexible capacity need created by a resource for each MW of that resource that is installed. This would provide a simple metric that correlates installed capacity of a resource with its contribution to the flexible capacity requirement.

b. CAISO clearly indicates the forecasted flexible capacity need; another useful data point to include would be the existing flexible supply for comparison purposes.

¹ p. 2 "California's Transforming Grid: Developing the Pathway to Newer Models of Demand Response" Presentation to CPUC workshop, New Models of DR, April 4, 2017.

6. Shift Must Offer Obligation hours in March and April an hour later to better match the pattern of net load ramps.

According to Table 5 in the draft assessment, the maximum three hour ramps in March and April all start between the hours of 15:00 and 17:00. CAISO should either change the MOO hours in March and April to 3:00 p.m. to 8:00 p.m. (i.e., one hour later than their draft proposal), or explain why an earlier MOO period is better justified.

7. Additional clarifications are also requested.

a. Clarify whether the resource capacity in Table 1 is dependable capacity or installed capacity. The data seems to represent installed capacity.

b. CAISO says it used minute-by-minute actual 2016 generation data to develop wind and solar profiles. CAISO should clarify if this data included any curtailment due to market signals or if the data was 2016 non-curtailed generation.