Comments on Draft Flexible Capacity Needs Assessment for 2020

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CPUC Staff appreciate the opportunity to provide comments on the CAISO's Draft Flexible Capacity Needs Assessment for 2020. Staff have spent significant time reviewing the study methodology and calculations and have several suggestions for areas of further investigation.

Calculation Error

Staff have identified an error in the calculation of solar and wind growth. It appears that the entire amount of dynamic solar and wind imports expected for 2020, rather than the incremental growth in these resources between 2018 and 2020, is counted as new installation. While this error comprises only a small part of the increase in flexible need seen for 2020, it should nonetheless be corrected in the final study.

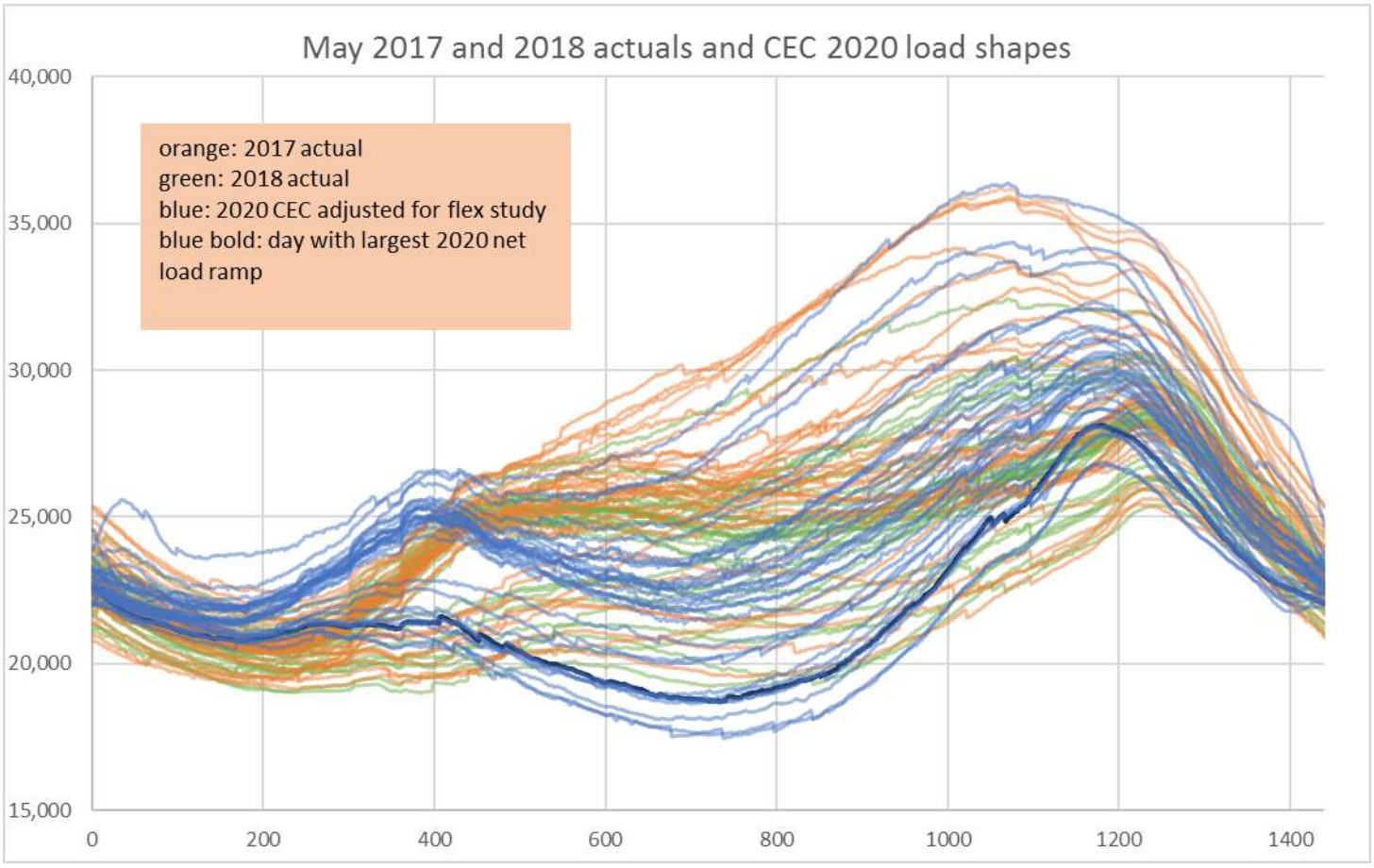
Future Considerations

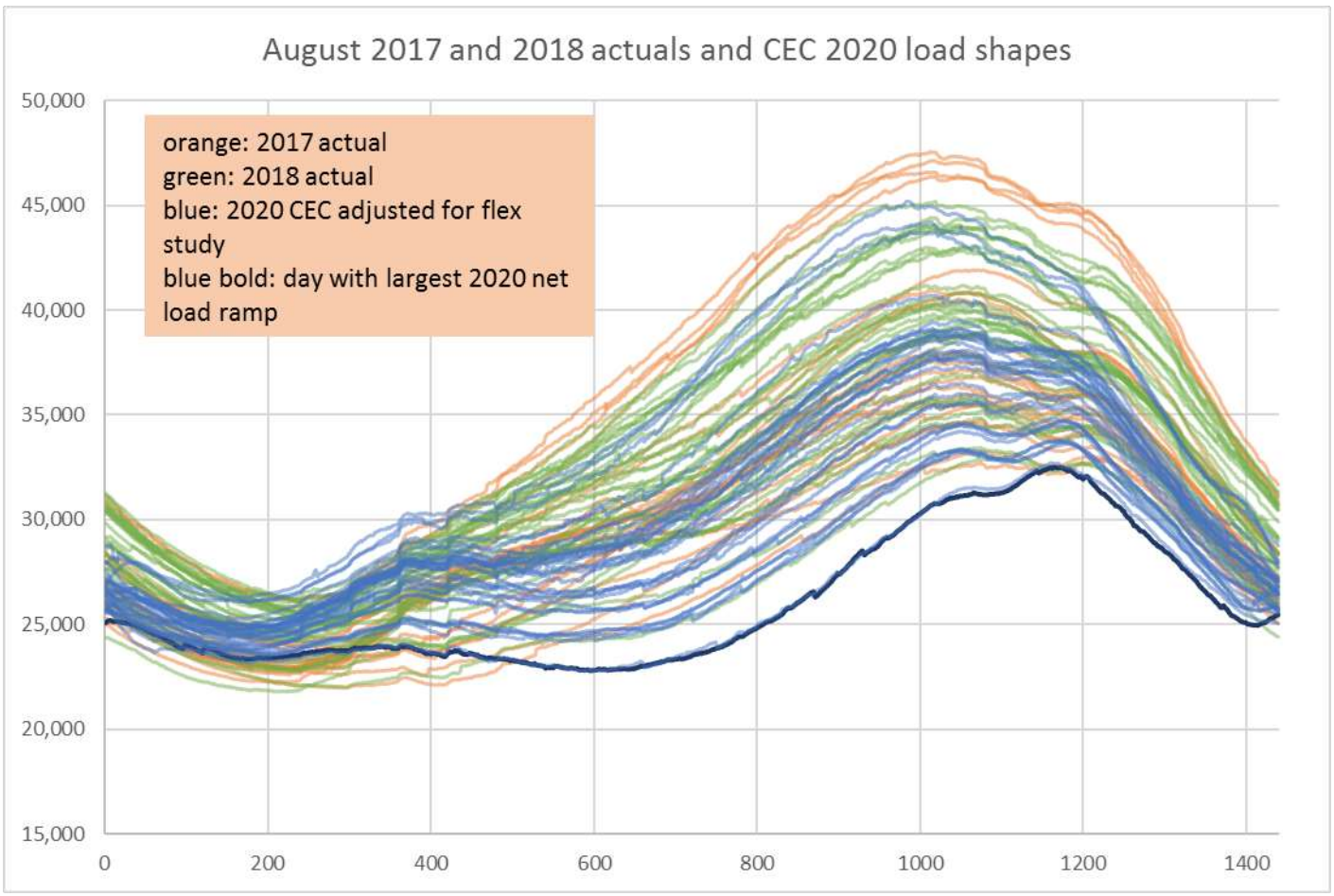
A new methodology for developing load shapes using the IEPR hourly load shapes, rather than actual historical shapes, was used for the first time in the Draft 2020 Study. Since the results showed large increases in need for flexible capacity for 2020, Staff compared 2020 Draft results to an estimate of what they would have been using the old FCR methodology. The table below, compares maximum net load ramps for 2020 using the old and new methodologies and shows that net load ramps are as much as 14% greater using the new methodology. These results do not reflect correction of the error discussed above.

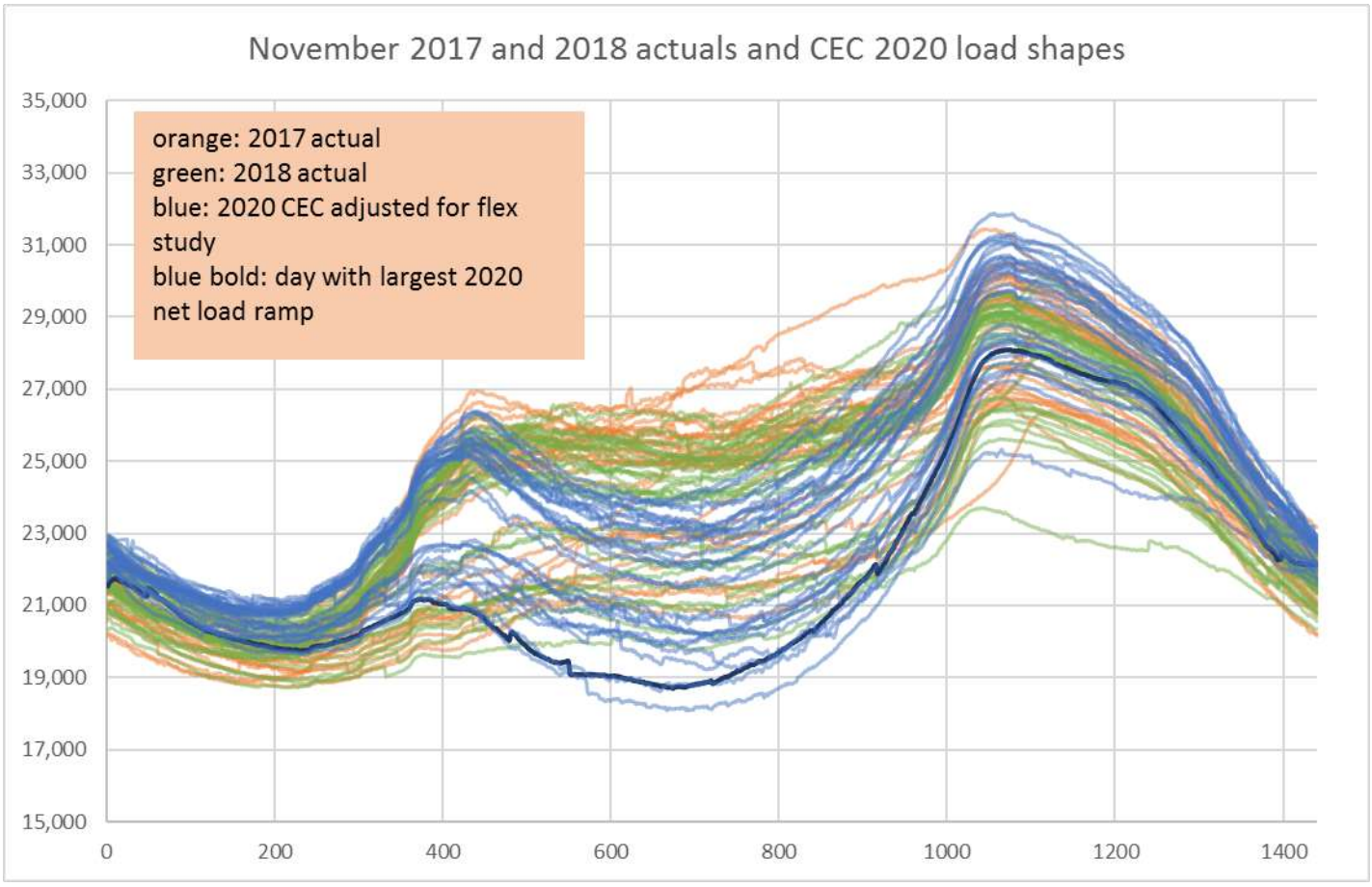
Month	old methodology maximum net load ramp	new methodology maximum net load ramp	difference	% change
1	15486	17,638	2,152	14%
2	16593	17,653	1,060	6%
3	17020	16,943	-77	0%
4	14818	16,518	1,700	11%
5	13767	15,398	1,630	12%
6	13273	14,053	780	6%
7	10562	10,792	230	2%
8	13062	13,304	242	2%
9	13430	14,672	1,242	9%
10	15353	16,285	931	6%
11	15896	17,481	1,586	10%
12	16472	16,905	433	3%

Staff have been investigating the cause of the significant increase in flexible requirements between 2019 and 2020. It appears that much of the increase is driven by a shift in load shapes. As seen in the graphs below, the actual historical load shapes for 2017 and 2018 appear similar. However, a major change is seen in the 2020 load shapes, likely due to expected growth in behind-the-meter solar. While this cannot be further examined for 2020, it is worth considering as historical data for 2019 become available and load shapes for 2021 are created in the upcoming IEPR process.

Additionally, CPUC Staff continue to have questions about whether it is appropriate to use renewables profiles that do not match the load shapes of the days when they occurred since all three are correlated with weather. It appears possible that pairing solar output from hot, sunny days with the very low load days that drive the maximum net load ramps could exaggerate the maximum net load ramps seen in CAISO's study. Staff will continue to investigate this, as well as alternate methods for deriving load shapes, and look forward to collaborating with CAISO on improvements to the flexible capacity study methodology in order to achieve our mutual goals of saving ratepayer monies and supporting the reliability of the grid.


May 2017 and 2018 actuals and CEC 2020 load shapes
orange: 2017 actual
green: 2018 actual
blue: 2020 CEC adjusted for flex study
blue bold: day with largest 2020 net load ramp
40,000
35,000
30,000
25,000
20,000
15,000
0
200
400
600
800
1000
1200
1400


August 2017 and 2018 actuals and CEC 2020 load shapes
orange: 2017 actual
green: 2018 actual
blue: 2020 CEC adjusted for flex study
blue bold: day with largest 2020 net load ramp
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
0
200
400
600
800
1000
1200
1400


November 2017 and 2018 actuals and CEC 2020 load shapes
orange: 2017 actual
green: 2018 actual
blue: 2020 CEC adjusted for flex study
blue bold: day with largest 2020 net load ramp
35,000
33,000
31,000
29,000
27,000
25,000
23,000
21,000
19,000
17,000
15,000
0
200
400
600
800
1000
1200
1400