

Demand Response Counting For Slice-of-Day Framework

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Who is CLECA

- ❖ An organization of large high load factor customers located in CA who all participate in the Base Interruptible Program (BIP)
- ❖ BIP was used to maintain grid reliability seven times in 2020 and once in 2021
- ❖ In 2020, BIP was 845 MW (Sep) which represented 75% of event-based demand response
- ❖ CLECA members represent a significant portion of the statewide BIP participation and have responded when necessary to reduce load by shutting down their manufacturing processes
- ❖ CLECA supports accurate measurement of load reduction and removal of non-performing customers from BIP to maintain a gold standard reputation

CPUC Resource Adequacy (RA) Reform

- In June 2022, adopted the 24-hourly slice of day proposal whereby load serving entities must show resource sufficiency in every hour for each month's worst day load forecast, plus a planning reserve margin
- CPUC still approves a monthly qualifying capacity value for CAISO deficiency determination
 - Per Appendix A of D.22-06-050:

“All resources will still have a single monthly NQC value representing the deliverability-adjusted peak-hour contribution. Most resource types will continue to utilize this NQC for their showing (and for CAISO deficiency determinations) **while solar and wind will utilize hourly profiles and NQC in their Commission RA showings. NQC for wind and solar will be based on peak hour deliverable capacity based on their profile for that hour.**”

CPUC will need two resource counting methods for demand response

1. An expected profile for DR based upon the monthly worst day load forecast for the CPUC's slice-of-day framework
 - The current hourly load impacts produces the necessary load response profile
2. A monthly qualifying capacity (QC) value for CAISO's capacity determination
 - Per CPUC guidance for wind and solar, the QC would be DR deliverability at the peak hour
 - Using alternate calculation (average across 4-9 pm, etc.) could create conflicting results whereby under CPUC's RA rules the resource showing is sufficient for the peak hour but the CAISO's need determination shows a deficiency

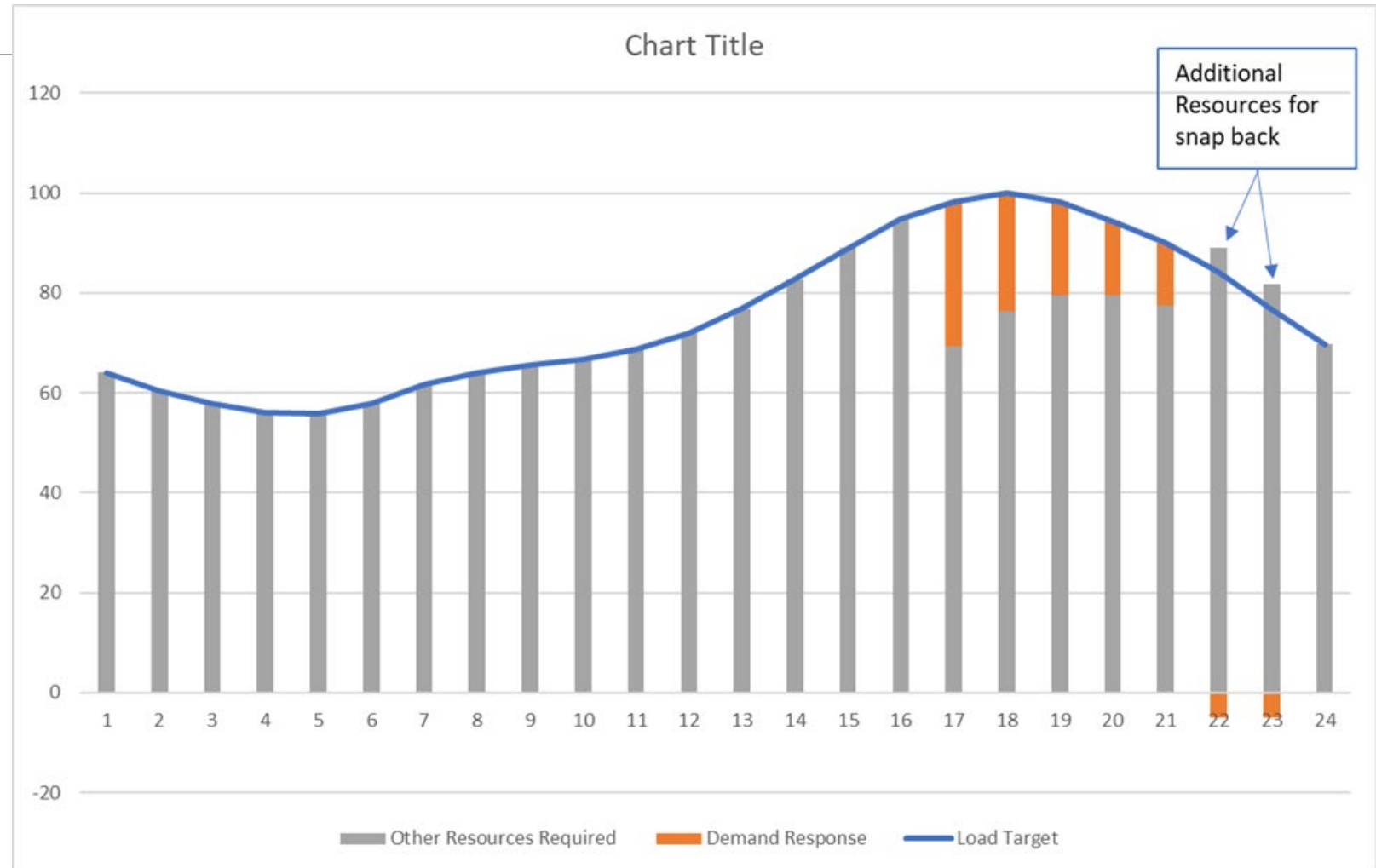
Regressions from the load impact protocols produce hourly profiles

- The regressions can support the 24-hourly framework because they provide hourly expected values
- Other approaches can be used, provided they produce an expected load reduction for a demand response event, i.e., can incorporate performance history or the temperature if weather sensitive

Hour ending	Reference load (MW)	Estimated load w/ DR (MW)	Load reduction (MW)
1	153.88	153.88	0.00
2	149.31	149.31	0.00
3	145.98	145.98	0.00
4	145.58	145.58	0.00
5	151.47	151.47	0.00
6	173.93	173.93	0.00
7	215.62	215.62	0.00
8	263.47	263.47	0.00
9	301.50	301.50	0.00
10	326.05	326.05	0.00
11	350.55	350.55	0.00
12	372.28	372.28	0.00
13	384.52	384.52	0.00
14	402.37	402.37	0.00
15	395.00	395.00	0.00
16	344.40	344.40	0.00
17	287.54	258.59	28.95
18	256.18	232.46	23.72
19	236.98	218.20	18.78
20	226.97	212.07	14.90
21	210.95	198.34	12.61
22	193.30	196.11	-2.81
23	177.80	179.02	-1.21
24	165.97	167.01	-1.04

Example of demand response under 24-hourly slices

❖ Spillover impacts (snap back, precooling, etc) that increase load outside of the DR event if it has significant impact on load should be included



Availability Requirements for Demand Response (MCC buckets)

- ❖ To count for Resource Adequacy, D. 22-06-050 requires a DR program to be available Mon – Sat, 4 consecutive hours between 4-9 pm, and at least 24 hours per month from May – Sep
- ❖ Those requirements should be retained to ensure DR has sufficient availability
 - ❖ The requirement of 4-9 pm for DR is still under discussion in the RA Reform workstream

Adders-Transmission and Distribution (T&D)

- ❖ Capacity must be built to overcome T&D losses so 1 MW can be delivered to the customer's site
 - ❖ Reducing 1 MW of load results in a greater than 1 MW reduction at the generator because the T&D losses no longer occur
- ❖ The CPUC addressed this issue in D.21-06-029, ordering paragraph 13, and the following should be retained:
 - ❖ The load forecast is at the transmission level, so the load impact at the meter should be grossed up for distribution losses to calculate qualifying capacity
 - ❖ Transmission losses should be a credit for the planning process to reduce capacity need but is not included in DR's QC determination

Adders-Planning Reserve Margin

- ❖ Capacity = Peak load * (1 + PRM), therefore reducing load also reduces the capacity associated with reserves
- ❖ For planning, DR is treated as a load modifier because it is non-firm load, so same benefit should occur if DR is treated as a supply side resource in planning process
 - ❖ Otherwise, customers do not receive maximum benefit of DR to reduce expensive capacity
- ❖ The CPUC should retain the entire PRM adder, including the 6% for operating reserves
 - ❖ Operating reserves is a function of load, so if load is reduced due to DR, the reserved capacity need is also reduced
 - ❖ If CAISO cannot distinguish non-firm load, then DR should be a load modifying resource, so customers can receive maximum benefits of DR