LSE Showing and Validation

RA Reform Workshop

8/31/2022

Agenda

Demand Response Resource Characteristics

Nameplate, Pmax, QC, NQC, Contracted MW, and ELCC

LSE Showing

LSE Showing Validation Example (Excel)

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Demand Response Resource Characteristics

- DR programs with no "snap back" can be treated like other use limited resources
  - Hourly ELCC profile, starting hour, ending hour, and daily hour limits
  - LSEs should choose which hours to show within resource capabilities
    - Much like a use-limited peaker

- DR programs with "snap back" should have fixed shapes reflecting the snapback effects
  - AC cycling, EV charging, etc,
  - Without fixed shapes we'd need multiple candidate use profiles based on call time and duration
  - Still need to determine hourly ELCC as a starting point

	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
Non-Snapback DR	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	0.00	0.00
Snapback DR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	3.00	3.00	4.00	4.00	4.00	-5.00	-3.25	-1.69	-0.52

Nameplate, Pmax, QC, Deliverability, NQC, Contracted MW, and Hourly ELCC

- CAISO expresses deliverability in one of two different ways for each resource
  - Percent of QC
  - "Not to exceed" MW

- Generic resource shapes need to be relative to some known value
  - Typically, a ratio between 0.0-1.0 * some number related to the RA resource
  - 0.4*Pmax = Expected capacity contribution in HE9
    - Equivalent to hourly capacity factor

- Mathematically convert RA contracts to "% of Resource"
  - Either:
    - Pmax*hourly ELCC shape*Deliverable%*% under contract = max showing amount
    - Min(Pmax*hourly ELCC shape*% under contract, deliverable MW) = max showing amount

Key Elements of LSE RA Showings

- Shown capacity under contract enough to cover System RA requirement in each slice

- Resources shown within capabilities listed in RA Resource Master Database

- Flex and Local single-monthly requirements satisfied with System showing resources

- Excess capacity to cover stand-alone storage

- Portfolio passes all CPUC validation tests

Excel Example

Backup – Decision Language

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RA Resource Master Database (D.22-06-050 Appendix A)

- Contains a list of all resources (within the CAISO) eligible to sell RA, their resource ID, their maximum RA capacity, and hours of availability within a 24-hour window

- For solar and wind, identifies the profile associated with the resource.

- For storage, includes the charging efficiency and maximum continuous energy

- For hybrid and co-located resources, includes configurations to describe capabilities

- Contains data for each month

- Information is public and available to inform trading and resource portfolio development

LSE Requirement Database (from Appendix A)

- This will populate the LSE allocation tab used in the LSE compliance showing

- Contains the official requirements of each LSE (hourly load + PRM), by month, for all 24 hours

- Is used by each LSE to determine its monthly 24-hour showing requirement

- Is used by the Commission to ensure each LSE meets its monthly 24-hour showing requirement

- Is developed by the Commission in communication with the CEC after the CEC finalizes the monthly, 24-hour load shape for each LSE

- Database is non-public. Each LSE has access to only its requirements; the Commission has access to all data

LSE Showing Tool (from Appendix A)

- Spreadsheet tool used by each LSE to submit their monthly, 24-hour showing to the Commission

- Contains a standard format for listing the resources in an LSE's portfolio including the resource ID found in the Master Database, their MW quantity associated with the must-offer requirement, and the capacity used in each of the 24 hours of the showing

- The tool should include pass/fail logic identical to the Commission Verification Tool, so LSEs know in advance if they will pass Commission verification

- This showing may also be used to provide CAISO the information it will need to determine the must-offer requirements of all resources, and the correct RA capacity values to use when performing their single-hour deficiency test

Commission Verification Tool (from Appendix A)

- The tool is designed to use the data submitted through the LSE Showing Tool
- The Commission uses the data submitted by the LSE in its showing, in conjunction with the RA Resource Master Database, which will include solar and wind profiles to determine if an LSE passes the 24-hour RA requirement in each month
- The tool contains basic logic to ensure the showing is consistent with the capabilities of the resources submitted, that sufficient capacity has been brought to meet the LSE's requirement in all 24 hours, and that sufficient excess capacity has been shown to meet the capacity requirements for storage
- LSEs must pass all 24 hours, all logic tests, and the excess capacity requirement to pass the showing
- The tool notes any hour(s) of failure along with the maximum capacity shortfall within the 24 hours