Demand Response Availability Window IMM Education

MIC

September 11, 2024

IMM

Monitoring Analytics

DR Availability Window

- **DR Resources committed as capacity are required to be available for an unlimited number of interruptions during the Delivery Year, and capable of maintaining each such interruption between the hours of**
  - **10:00AM to 10:00PM EPT for the months of June through October and the following May,**
  - **6:00AM through 9:00PM EPT for the months of November through April**

Capacity Compliance

- **Capacity DR generally commits to reduce consumption to a defined level (FSL) when dispatched.**
  - **FSL may be different for summer and winter periods**
- **Capacity compliance is measured as a registration's metered load being at or below its Firm Service Level (FSL) during a dispatch event.**
- **If the customer's metered load is already at or below its Firm Service Level, no incremental reduction is required for the resource to be deemed to have fully performed.**

Capacity Compliance vs Incremental Reduction

- **Actual, real-time load reductions can be markedly different from capacity load reduction compliance.**
- **If the customer is already at a reduced load level when DR is dispatched, there may be little or no actual load reduction when the resource is dispatched.**
- **This was the reason for the small load reductions actually observed during Winter Storm Elliott at the same time that DR met its FSL targets.**

Definition of Performance

- **Any discussion of demand resource performance must recognize the significant problems with the definition of performance for demand resources.**
- **As defined by PJM rules, performance does not mean actually reducing load in response to a PJM request for demand response.**

Issues with Performance Definition

- **The standard reporting of demand side response is misleading because it includes loads that were already lower for any reason as a response.**
- **Performance means only that, on a net portfolio basis, demand resources are operating at or below their firm service level.**
- **If a demand resource's metered load increases above its PLC or Winter PLC during a PAI, the current method applied by PJM simply ignores increases in load and thus artificially overstates compliance.**

Reporting of Expected Reduction Capability

- **CSPs are required to report accurate expected real time energy load reductions by pre-emergency/emergency status, lead time, product, and zone.**
- **Expected real time energy load reductions are the amount of load that the CSP expects will be reduced based on the difference between the Customer Baseline (CBL) and expected load.**
- **CBL uses recent load data from similar hours and day types to approximate what the load would have been absent a call to reduce.**

Reporting of Expected Reduction Capability

- **PJM uses the expected load reductions to determine the amount of DR to dispatch and to evaluate the expected response.**
- **CSPs are required to upload these estimates prior to the start of a month for all Load Management registrations.**
  - **Data should be reviewed daily and updated as needed by 1600 EPT on the day prior to each operating day.**
  - **The review and update frequency increases to hourly (from 1000 thru 1900 EPT) when PJM has issued Maximum Emergency Generation or Load Management Alerts or Actions.**

Reporting of Expected Reduction Capability

- **If a registered location's load is already at or below its FSL and will not be reduced further, the CSP should report the expected reduction as zero.**
- **Reported expected load reductions do not affect emergency energy settlements.**
- **PJM uses the expected load reductions to determine the amount of DR to dispatch and to evaluate the expected response.**

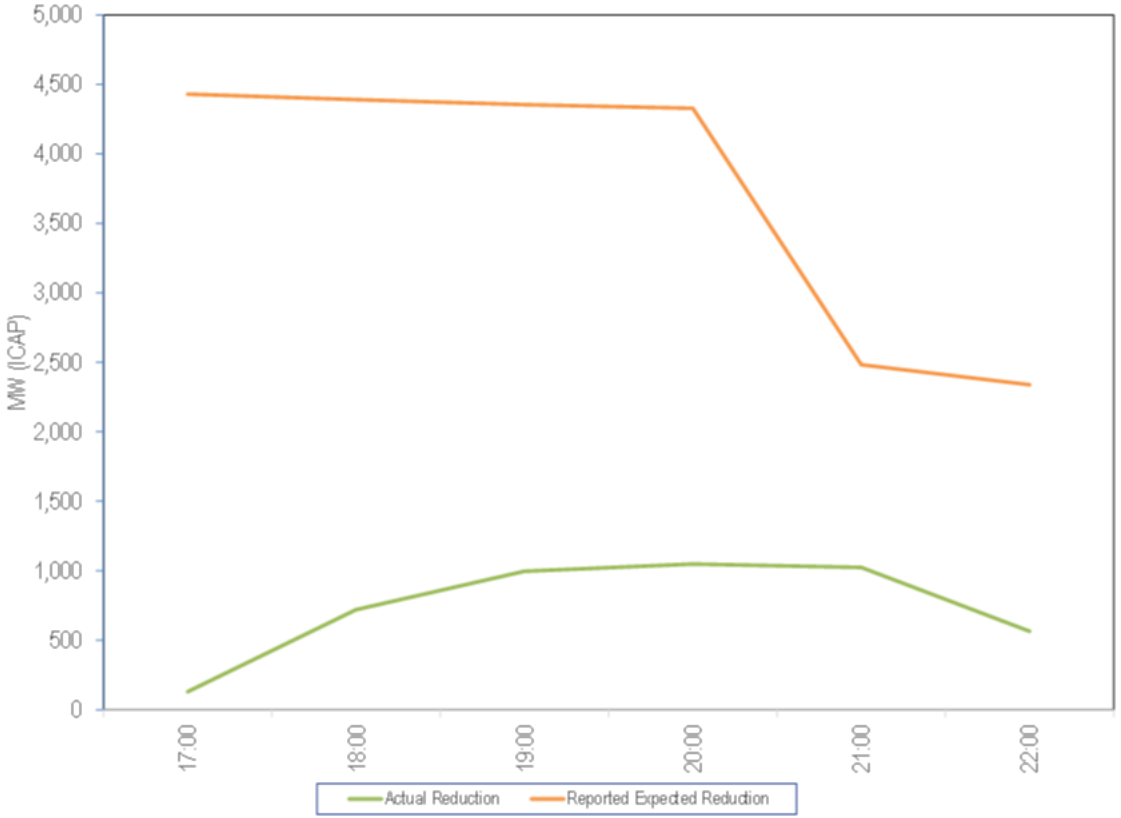
Reported vs Actual Performance during Elliott

- **There was a significant disparity between the reported expected reduction capability provided by the CSPs and the actual observed energy reduction during Winter Storm Elliott.**
- **This further highlighted the difference between the assigned capacity value of DR versus the actual energy reduction when dispatched.**

Performance During Elliott

- **Immediately preceding the call for Load Management resources on December 23, 83 percent of registrations were already at load levels equal to or below, their Winter Peak Loads.**
- **Immediately preceding the call for Load Management resources on December 24, 90 percent of registrations were already at load levels equal to or below, their Winter Peak Loads.**

Reported expected vs actual reduction: 12.23.2022



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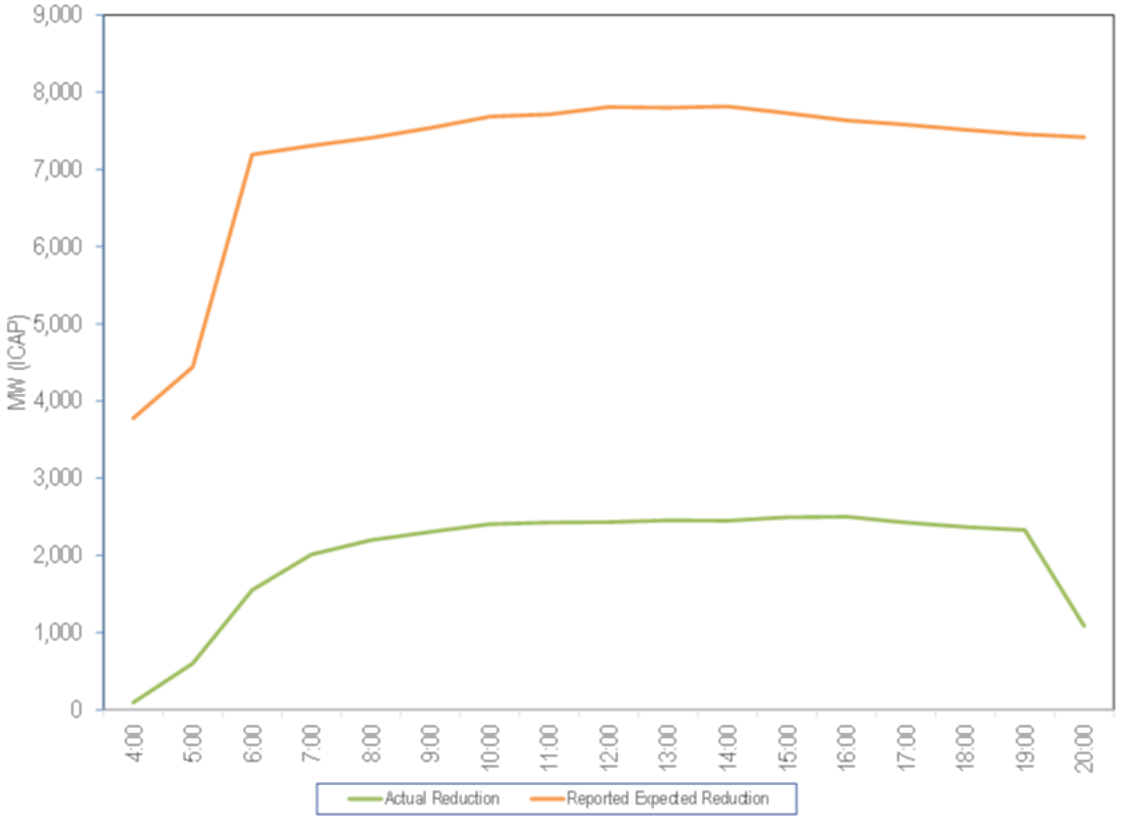
Reported expected vs actual reduction: 12.24.2022



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Reported expected vs actual reduction: 12.23.2022

Interval	Reported Expected Reduction (MW)	Actual Reduction (MW)	Percent Difference
12/23/2022 17:00	4,429.7	129.14	97.1%
12/23/2022 18:00	3,005.0	720.09	76.0%
12/23/2022 19:00	3,409.0	996.36	70.8%
12/23/2022 20:00	5,803.0	1,049.02	81.9%
12/23/2022 21:00	6,029.0	1,023.36	83.0%
12/23/2022 22:00	5,749.0	564.82	90.2%

Reported expected vs actual reduction: 12.24.2022

Interval	Reported Expected Reduction (MW)	Actual Reduction (MW)	Percent Difference
12/24/2022 4:00	3,775.41	91.22	97.6%
12/24/2022 5:00	4,441.18	600.96	86.5%
12/24/2022 6:00	7,191.18	1,549.23	78.5%
12/24/2022 7:00	7,305.68	2,011.82	72.5%
12/24/2022 8:00	7,408.39	2,197.01	70.3%
12/24/2022 9:00	7,536.11	2,305.10	69.4%
12/24/2022 10:00	7,682.60	2,402.23	68.7%
12/24/2022 11:00	7,712.66	2,425.28	68.6%
12/24/2022 12:00	7,808.03	2,430.87	68.9%
12/24/2022 13:00	7,799.30	2,453.55	68.5%
12/24/2022 14:00	7,814.81	2,447.03	68.7%
12/24/2022 15:00	7,728.04	2,493.47	67.7%
12/24/2022 16:00	7,634.45	2,499.73	67.3%
12/24/2022 17:00	7,579.27	2,424.96	68.0%
12/24/2022 18:00	7,514.44	2,367.86	68.5%
12/24/2022 19:00	7,452.09	2,328.46	68.8%
12/24/2022 20:00	7,416.50	1,083.98	85.4%

Issues

- **Nothing currently prevents DR from voluntarily complying with a dispatch request outside of its mandatory compliance hours.**
  - **That actual response is compensated for energy reductions and is not subject to PAI penalties.**
- **Observed performance during Winter Storm Elliott showed that DR Resources during the proposed expanded hours were already operating at reduced load levels.**

Issues

- DR ELCC value is currently significantly overstated.
- DR ELCC value is currently based on the assumption that the full amount of capacity sold will respond when called.
  - Capacity = PLC – FSL
  - Capacity = Amount of capacity paid for minus the level the resource agrees to reduce to when called
- If the DR ELCC values were based on data about actual reductions during high expected loss of load hours, like other capacity resources, DR ELCC values would be much lower.
  - DR performance during Elliott illustrates the point.

Issues

- If DR ELCC value is unilaterally increased, it would result in a corresponding decrease in ELCC value of other resource types.
- The expansion of the DR availability window would increase ELCC based solely on the assumption that DR will provide its full response in those hours.
- That assumption is not correct.
- The proposed change to the availability window would simply pay DR more for capacity without any increase in performance.
- Negative impact on system reliability: reduce the ELCC of actual supply resources.

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