

Determination of CBL used for DR CP non-summer capacity compliance

Pete Langbein

Manager, Demand Response Operations

Market Implementation Committee

November 4, 2015

- Summer capacity compliance calculation – no change, do same as today
 - Load Reduction = PLC – (load * losses)
- **NEW: Non-summer capacity compliance calculation**
 - Load Reduction = (CBL – load) * losses
- New CP DR rules leverage Economic CBL rules

Change made to ensure load reductions occur during non-summer month

- Tariff refers to Economic CBLs rules instead of use of Economic CBL with economic alternative CBL rules (this was the intention)
- All CP registrations (or potential substitutes) required to perform Relative Root Mean Square Error (“RRMSE”) test
 - 60 days of load data (primarily provided to CSP by EDC with customer consent)
 - <20% RRMSE, otherwise alternative CBL process
 - Ultimately PJM determined CBL if no accurate CBL available
 - RRMSE must be done before start of Delivery Year

Significant administrative effort for limited potential value

- Current requirement will require ~7X increase in RRMSE tests and associated load data (EDC & CSP) activity
 - 18,000 location on Load Management registration
 - 2,500 locations on Economic registrations
- Prior CBL analysis indicated 3 day type with SAA performs well for most customers
 - ~75% of all customers with RRMSE <20%
 - RRMSE non bias (just as likely to under forecast as over forecast the load)
 - 10 to 90 percentile (3% to 37% RRMSE) in winter.
- Summer events more prevalent than winter events

- Load Management default CBL for all registrations used for non-summer capacity compliance calculation will be default economic CBL
 - 3 day type with symmetric additive adjustment
- RRMSE test is not required for Load Management registrations
- If customer has both Economic and Load Management registration then use CBL on Economic registration (unless it is MBL type) for capacity compliance calculation
- CSP or PJM may still utilize alternative CBL process defined in tariff
 - RRMSE Test is required
 - Alternative to be finalized by 10/1 or as approved by PJM

Emergency energy CBL rules will stay the same
("wait and see" approach for EPSA outcome)

| Who | What | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 |
|------|--|--------|--------|--------|--------|--------|--------|--------|--------|
| DRS | Problem statement and proposed solution review | █ | | | | | | | |
| MIC | Problem statement approval, first read proposed solution | █ | | | | | | | |
| MIC | First read proposed solution | | █ | | | | | | |
| MIC | Proposed solution endorsement | | | █ | | | | | |
| MRC | First read | | | █ | | | | | |
| MRC | Endorsement | | | | █ | | | | |
| MC | Endorsement | | | | | █ | | | |
| FERC | File at FERC | | | | | | █ | | |
| FERC | FERC Decision | | | | | | | | █ |

Try to resolve before start of 16/17 DY (CP registrations due).

- RRMSE Test values by customer size

| season | daytype | size | statistic | count | p10 | median | mean | p90 |
|--------|----------|------------------|------------------|-------|-----|--------|------|-----|
| Winter | Weekdays | Up to 500kW | Accuracy (RRMSE) | 1,223 | 3% | 14% | 23% | 38% |
| Winter | Weekdays | 500kW to 2MW | Accuracy (RRMSE) | 1,810 | 3% | 10% | 18% | 37% |
| Winter | Weekdays | Greater than 2MW | Accuracy (RRMSE) | 936 | 3% | 9% | 17% | 36% |
| Winter | Weekdays | Size Overall | Accuracy (RRMSE) | 3,969 | 3% | 11% | 19% | 37% |

- No significance difference in accuracy between small and large customers