



# Demand Response Capacity Performance Measurement proposed change: Update

SCRSTF

8/1/2016

## Current Capacity compliance – measurement of load reductions

- Summer (June – September)
  - FSL (firm service level)
    - PLC – (Load \* Line Loss Factor)
  - GLD (guaranteed load drop)
    - Lessor of FSL or (CBL – load) \* line loss factor
- Non-summer (October through May)
  - (CBL – load) \* line loss factor
- CBL – customer baseline, which represents what load would have been if customer did not reduce load (measure real time load reduction).

Load Reduction used to determine penalties or bonus payment

- CBL used in non-summer to ensure loads with lower winter load still need to reduce because lower load already incorporated in IRM study.
- Customer may have winter load but load may already be down when dispatched by PJM.
- Summer measurement focused on ensuring load is below a certain value while non-summer measurement focused on real time load reduction.

- CSP determines Annual nominated capacity MWs with summer vs non-summer FSL
  - Annual nominated capacity = PLC – [FSL(summer) \* line loss factor)  
Same as today
  - Winter FSL \* line loss factor = (Winter Peak Load \* line loss factor \* Winter Weather Adjustment Factor) – Annual Nominated Capacity

This is more consistent with summer FSL approach and will address issues/interest identified

- Customer Winter Peak Load
  - PJM publishes winter 5 CP days (Dec/Jan/Feb)
  - CSP (or EDC) calculates Customer Winter Peak Load = customer's peak demand on PJM Winter 5 CP days from 6am through 9pm (CP availability window) and calculate average the 5 values.
  - Customer Winter Peak Load based on Delivery Year – 2
    - Can be calculated at same time PLC is determined.
- Winter Weather Adjustment Factor (zonal)
  - PJM Weather Normalized Winter Peak / PJM Average of 5 CP Loads in Winter
  - PJM calculates and applies during capacity nomination on the registration

- Apr 2016
  - PJM publishes Winter 2015/2016 (Dec 2015, Jan/Feb 2016) 5 CP days
  - PJM publishes Zonal Winter Weather Adjustment Factor
- Oct 2016
  - PJM publishes Summer 2016 5 CP days/hours
- Jan 2017
  - EDC distributes PLC for 2017/2018 based on summer load in 2016
  - CSP calculates Customer Winter Peak Load based on Winter 2015/2016 (Dec 2015 and Jan/Feb 2016)
- Jan – May 2017
  - CSP registers DR for 2017/2018 DY



# Example (nomination)

**DR Resource with Customer Registrations shown below**

		1	2	(3) = (1) - (2)	(4)	(5)	(6) = (4) *(5)	7 = (6) - (3)
Customer #	Customer Load Profile	Summer PLC (MW)	Summer FSL (MW)	Nominated DR Value (MW)	Winter Peak Load (MW)	Winter Weather Adjustment Factor	Weather Adjusted Winter Peak Load (MW)	Winter FSL (MW)
1	Winter load lower than summer load	10	5	5	8	1.05	8.4	3.4
2	Winter load higher than summer load	10	5	5	12	1.05	12.6	7.6
3	Winter load equal to summer load	10	5	5	10	1.05	10.5	5.5
4	Summer only DR (A/C Cycling)	10	4	6	6	1.05	6.3	0.3
5	Winter only DR (Ski Load)	1	0	1	12	1.05	12.6	11.6
<b>Resource</b>		<b>41</b>	<b>19</b>	<b>22</b>			<b>50.4</b>	<b>28.4</b>

Column	
1	Summer PLC based on the current process
2	Summer FSL selected by customer considering Winter Peak Load to result in the same Nominated DR Value in summer and winter
4	Winter Peak Load = customer peak on 5 winter CP days from HE7 through HE21 (Capacity Performance DR availability requirement) for Dec/Jan/Feb
5	Winter Weather Adjustment Factor published and applied by PJM = Weather Normalized Winter Peak/Actual Winter Peak
<b>Additional Notes</b>	
Capacity Reduction will be used for Add Back in Summer and Non-summer periods	
Winter Peak Load is adjusted up for transmission and distribution line loss factor	
Winter load reductions may not exceed Winter Peak Load.	
Load has already been grossed up for losses	



# Example (event measurement)

DR Resource with Customer Registrations shown below							Summer Event		Winter Event	
		1	2	(3) = (1) - (2)	(6) = (4) * (5)	7 = (6) - (3)	(8)	(9) = (1) - (8)	(10)	(11) = (6) - (10)
Customer #	Customer Load Profile	Summer PLC (MW)	Summer FSL (MW)	Nominated DR Value (MW)	Weather Adjusted Winter Peak Load (MW)	Winter FSL (MW)	Load (MW)	Load Reduction (MW)	Load (MW)	Load Reduction (MW)
1	Winter load lower than summer load	10	5	5	8.4	3.4	5	5	5.5	2.9
2	Winter load higher than summer load	10	5	5	12.6	7.6	5	5	6	6.6
3	Winter load equal to summer load	10	5	5	10.5	5.5	5	5	5	5.5
4	Summer only DR (A/C Cycling)	10	4	6	6.3	0.3	3	7	6.3	0
5	Winter only DR (Ski Load)	1	0	1	12.6	11.6	1	0	5.6	7
<b>Resource</b>		<b>41</b>	<b>19</b>	<b>22</b>	<b>50.4</b>	<b>28.4</b>		<b>22</b>		<b>22</b>



- Q&A
- DR Registration example for summer capability only customer and winter capability only customer

- Q: Is there a limit on load reductions?
  - A: Summer load reductions are limited to PLC and non-summer load reductions are limited to Weather Adjusted Winter Peak Load
- Q: Will this proposed measurement method replace the CBL method for non-summer capacity compliance assessment?
  - A: Yes
- Q: Will EDCs calculate and distribute Winter Peak Load as part of PLC calculation & distribution process?
  - A: Need to discuss
- Q: How do I calculate the Customer Winter Peak Load?
  - Take the customer's peak load from 6am through 9pm for each of the 5 PJM Winter Peak days and average the 5 values.

- CSP must ensure that sum of nominated MWs on all registrations reflects resource capability for entire year for required hours.

eRPM resource	Registration	EDC Acct #	Summer Capability (MW)	Winter Capability (MW)	Capacity Nomination
PECO resource	Registration A	1029384710	10	0	
		999128347	0	10	
					10

10 MW is annual capability

PJM will allow locations to be aggregated on same registration if they have “season only” capability