



Demand Resource Modeling and Performance Assessments for CP and Base Capacity in the 2018/2019 Delivery Year

DRS Meeting
February 12, 2018

- For the upcoming 2018/2019 Delivery Year, PJM will be separating the CP and Base commitments onto two separate RPM resources, such that each Demand Resource will either have a CP **or** Base commitment, but not both
 - Helps match product-specific registrations in DR Hub to the RPM committed product; also helps track the RPM Demand Resource capacity positions by product type
 - Consistent with the resource model used for the current Delivery Year (17/18)
- Similar to the CP Transition IAs, PJM will separate the commitment types by “adjusting” the auction results, such that the MW cleared on Annual Demand Resources as Base Capacity will be shifted to a separately modeled Base Demand Resource
 - Adjustments will be made by PJM at the end of the 18/19 Third Incremental Auction



Single CP/Base RPM Resource Model PAH Example (Old Model)

RPM Resource	CP Expected Perf.	BC Expected Perf.	Actual Perf.	CP Initial Shortfall	BC Initial Shortfall	Over-Perf. MW	CP Allocated Shortfall	BC Allocated Shortfall	CP Penalty Rate	BC Penalty Rate	CP Penalty	BC Penalty
JCPL DR	10	-	5	5	-	-	4.375	-	\$3,200	-	\$14,000	-
PSEG DR	10	10	9	1	10	-	0.875	8.75	\$3,400	\$3,000	\$2,975	\$26,250
PECO DR	-	10	12	-	-	2	-	-	-	-	-	-
	20	20	26	6	10	2	5.25	8.75			\$16,975	\$26,250

1. DR Performance calculated by Resource for CP and Base
 - Actual Performance used to meet resource's CP Expected Performance first
2. Resource level performance aggregated to calculate the net Performance Shortfall for the Emergency Action Area (EAA)
 - Net Shortfall = 14 MW [(6) + (10) – (2)]
3. Net Performance Shortfall in EAA allocated back to resources pro rata based on resource's CP and Base Shortfall or Over-Performance MW



Split CP/Base RPM Resource Model PAH Example (New Model)

RPM Resource	CP Expected Perf.	BC Expected Perf.	Actual Perf.	CP Initial Shortfall	BC Initial Shortfall	Over-Perf. MW	CP Allocated Shortfall	BC Allocated Shortfall	CP Penalty Rate	BC Penalty Rate	CP Penalty	BC Penalty
JCPL CP	10	-	5	5	-	-	4.375	-	\$3,200	-	\$14,000	-
PSEG CP	10	-	4	1	-	-	0.875	-	\$3,400	-	\$2,975	-
PSEG BC	-	10	5	-	10	-	-	8.75	-	\$3,000	-	\$26,250
PECO BC	-	10	12	-	-	2	-	-	-	-	-	-
	20	20	26	6	10	2	5.25	8.75			\$16,975	\$26,250

1. DR Performance calculated by Resource for CP and Base

- Actual Performance from split resources in zone used to meet the CP Resource's Expected Performance first; remaining Actual Performance stays with BC Resource

2. Resource level performance aggregated to calculate the net Performance Shortfall for the Emergency Action Area (EAA)

- Net Shortfall = 14 MW [(6) + (10) – (2)]

3. Net Performance Shortfall in EAA allocated back to resources pro rata based on resource's CP and Base Shortfall or Over-Performance MW



Prior CP/Base Performance Examples (DRS Sep. 29, 2015)

Scenario
Total Resource Committed MW (ICAP)
BC Committed MW (ICAP)
CP Committed MW (ICAP)
BC Dispatched?
CP Dispatched?
BC Delivered MW (ICAP)
CP Delivered MW (ICAP)
Underperformance MW (ICAP)
Bonus Performance MW (ICAP)
BC Price (\$/MW-day)
CP Price (\$/MW-day)
Net CONE (\$/MW-day)
CP Penalty Rate (\$/MW-h)
BC Penalty Rate (\$/MW-h)
Penalty (\$)
Assumed Bonus Rate (\$/MW-h)
Bonus Payment (\$)

	1	2	3	4	5	6	7
Total Resource Committed MW (ICAP)	100	100	100	100	100	100	100
BC Committed MW (ICAP)	-	20	20	50	50	50	80
CP Committed MW (ICAP)	100	80	80	50	50	50	20
BC Dispatched?	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE
CP Dispatched?	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BC Delivered MW (ICAP)	10	10	10	40	70	-	10
CP Delivered MW (ICAP)	90	70	60	70	40	40	25
Underperformance MW (ICAP)	-	20	30	-	-	10	-
Bonus Performance MW (ICAP)	-	-	-	10	10	-	5
BC Price (\$/MW-day)	\$ 150.00	\$ 150.00	\$ 150.00	\$ 150.00	\$ 150.00	\$ 150.00	\$ 150.00
CP Price (\$/MW-day)	\$ 165.00	\$ 165.00	\$ 165.00	\$ 165.00	\$ 165.00	\$ 165.00	\$ 165.00
Net CONE (\$/MW-day)	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00
CP Penalty Rate (\$/MW-h)	\$ 3,650.00	\$ 3,650.00	\$ 3,650.00	\$ 3,650.00	\$ 3,650.00	\$ 3,650.00	\$ 3,650.00
BC Penalty Rate (\$/MW-h)	\$ 1,825.00	\$ 1,825.00	\$ 1,825.00	\$ 1,825.00	\$ 1,825.00	\$ 1,825.00	\$ 1,825.00
Penalty (\$)	\$ -	\$ 36,500.00	\$ 73,000.00	\$ -	\$ -	\$ 36,500.00	\$ -
Assumed Bonus Rate (\$/MW-h)	\$ 3,102.50	\$ 3,102.50	\$ 3,102.50	\$ 3,102.50	\$ 3,102.50	\$ 3,102.50	\$ 3,102.50
Bonus Payment (\$)	\$ -	\$ -	\$ -	\$ 31,025.00	\$ 31,025.00	\$ -	\$ 15,512.50

- 1 No BC commitment, but BC registrations performed so counts towards CP commitment -- no penalty
- 2 Total underperformance = BC commitment, so penalty calculated @ BC rate
- 3 First 20 MW of underperformance @ BC rate (i.e. up to BC commitment), remaining 10 MW @ CP rate
- 4 Bonus performance from overperforming CP registrations
- 5 Bonus performance from overperforming BC registrations
- 6 May be able to avoid through product substitution if BC available
- 7 Only CP overperformance can earn bonus payments because BC not dispatched

- After the 2018/2019 Third Incremental Auction, CSPs should link their registrations to the appropriate RPM Demand Resource based off the registration's product type and zone/sub-zone
 - Registrations should be linked and marked complete prior to the start of the DY
 - Please note that registrations designated as CP and linked to an RPM Demand Resource will only be able to take on CP commitments (cannot directly replace a Base DR commitment)
- If an appropriate RPM Demand Resource is not modeled for your registration, please send an email to the rpm_hotline@pjm.com with the request to have the new resource modeled

