



Underperformance Risk Management Senior Task Force

Education Materials

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- Assess performance of resources during Performance Assessment Hours (PAH) triggered by PJM declaration of Emergency Actions
- Compare a resource's Expected Performance against Actual Performance for each PAH for each resource located in area defined by Emergency Action
 - Actual Performance = metered output for generation resources; load reduction provided for DR dispatched by PJM
 - Expected Performance = UCAP MW Commitment * Balancing ratio for generation resources; ICAP MW Commitment for DR
- Calculate shortfall/excess for each resource for each PAH separately

- Shortfall MW (Expected Perf > Actual Perf) subject to Non-Performance Charge
 - Non-Performance Charge rate based on Net CONE of modeled LDA in which resource resides; rate = $(\text{Net CONE} * 365 \text{ days}) / 30 \text{ hours}$
- Excess MW (Expected Perf < Actual Perf) eligible for bonus performance credit
- Total collected Non-Performance Charges are allocated to resources (of any type, even if not Capacity Resources) that perform above expectations
 - Allocation based on over-performing resource's pro-rata share of total Bonus Performance MW
 - For 2016/17 and 2017/18 Delivery Years, only resources with CP commitment are subject to charge or eligible for credit

Balancing Ratio= .9

Charge Rate= \$3,000

Credit Rate = Total Charges / Bonus MW = \$3,000/MW (**\$1,290,000**/430 MW)

Resource Performance Assessment for a single PAH						
Company/ Resource	Capacity Commitment (UCAP MW)	Expected Performance	Actual Performance	Performance (Exp - Act) *	Charge	Credit
A-1	300	270	325	-55	\$0	\$165,000
A-2	250	225	0	225	\$675,000	\$0
A-3	0	0	150	-150	\$0	\$450,000
B-4	150	135	100	35	\$105,000	\$0
B-5	150	135	100	35	\$105,000	\$0
B-6	150	135	0	135	\$405,000	\$0
C-7	0	0	100	-100	\$0	\$300,000
D-8	0	0	125	-125	\$0	\$375,000
	1000		900		\$1,290,000	\$1,290,000


***Positive value indicates Underperformance**/Negative value indicates Overperformance

- Replacement Capacity Transactions allows a Capacity Market Seller (CMS) to reduce or remove the commitment on a committed Capacity Resource .
- The CMS may specify available capacity, Locational UCAP, or Cleared Buy Bid as the source of replacement as detailed in the next slide.
- When using available capacity as a replacement resource, the commitment and associated performance obligations are shifted to the specified replacement resource.

Replace 10 MW of Committed Capacity on Cap Resource 1 with Available Capacity on Cap Resource 2

Before:

Unit	Owned Capacity (UCAP MW)	Commitment Capacity (UCAP MW)	Available Capacity (UCAP MW)
Cap Resource 1	100	100	0
Cap Resource 2	150	100	50



After:

Unit	Owned Capacity (UCAP MW)	Commitment Capacity (UCAP MW)	Available Capacity (UCAP MW)
Cap Resource 1	100	90	10
Cap Resource 2	150	110	40

	Replacement Rules	Retroactive Replacement Rules
Eligible Sources of Replacement Capacity		
Available Capacity from another resource	X	X
Locational UCAP	X	
Cleared Buy Bid	X	
Requirements of Replacement Capacity		
Must be in the same sub-account as resource being replaced for the transaction's effective time period	X	X
Must have same or better temporal availability as resource being replaced	X	X
Must be located in same LDA (or child LDA) as resource being replaced	X	X
Must be included in the same Non-Performance Assessment as resource being replaced		X
Timing Restrictions		
Must be submitted prior to the effective start date of the transaction	X	
Must be submitted within 3 business days following the effective start date of the transaction		X

- Capacity Replacements can only be made using available capacity
 - Available capacity is shown in eRPM in the resource position tab
 - Available capacity = Daily ICAP Owned – Daily Unoffered ICAP - (Daily RPM Resource Commitments/(1-Effective EFORd)) – Daily FRR Capacity Plan Commitments.
- Bonus performance is energy production above the Expected Performance
 - May be eligible for bonus performance credits
 - Bonus performance can occur in the absence of available capacity
 - Bonus performance may not be used in replacement transactions

Example - Before Retroactive Replacement

eRPM Resource Position: July 1

Resource	Location	Owned Capacity (UCAP MW)	Commitment Capacity (UCAP MW)	Available Capacity (UCAP MW)
Cap Resource 1	AE	100	100	0
Cap Resource 2	JCPL	150	100	50
Cap Resource 3	PECO	200	200	0
Energy Resource 1	AE	0	0	0

Cap Resource 2 has Available Capacity on Delivery Day and may be used as a replacement resource for Delivery Day.

Performance Assessment Hour in EMAAC: July 1 HR Ending 16:00, Assume Balancing Ratio = 1.0

Resource	Location	Output	Expected Performance (MW)	Actual Performance (MW)	Performance Shortfall* (MW)	Performance Assessment Charge/Credit
Cap Resource 1	AE	90	100	90	10	Charge
Cap Resource 2	JCPL	130	100	130	-30	Credit
Cap Resource 3	PECO	205	200	205	-5	Credit
Energy Resource 1	AE	300	0	300	-300	Credit

Cap Resource 2 has Available ICAP on Delivery Day and may be used as a replacement resource for Delivery Day.

Cap Resource 3 and Energy Resource 1 have bonus MW on Delivery Day, but no Available Capacity and CANNOT be used as a replacement resource for Delivery Day.

*Negative Performance Shortfall represents over performance (Bonus Performance).

eRPM Resource Position: July 1

Resource	Location	Owned Capacity (UCAP MW)	Commitment Capacity (UCAP MW)	Available Capacity (UCAP MW)
Cap Resource 1	AE	100	90	10
Cap Resource 2	JCPL	150	110	40
Cap Resource 3	PECO	200	200	0
Energy Resource 1	AE	0	0	0

Retroactively replaced 10 MW of commitment on Cap Resource 1 with 10 MW of Available UCAP from Cap Resource 2

Performance Assessment Hour in EMAAC: July 1 HR Ending 16:00, Assume Balancing Ratio = 1.0

Resource	Location	Output	Expected Performance (MW)	Actual Performance (MW)	Performance Shortfall* (MW)	Performance Assessment Charge/Credit
Cap Resource 1	AE	90	90	90	0	No Charge
Cap Resource 2	JCPL	130	110	130	-20	Credit
Cap Resource 3	PECO	205	200	205	-5	Credit
Energy Resource 1	AE	300	0	300	-300	Credit

Due to reduced commitment, Cap Resource 1 no longer subject to Charge

Cap Resource 2's Credit has been reduced due to increased commitment

*Negative Performance Shortfall represents over performance (Bonus Performance).