Peak-Hour Period Availability Charge Example

RPM Training - Appendix G

February 2012

Peak-Hour Period Availability Screen in eRPM

eSUITE

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Peak Hour Period Availability | Deficiency Summary | LM Event Compliance | LM Test Compliance

Peak Hour Period Availability

Company: **TEST** Planning Period: 2010/2011 Resource: ALL LDA: ALL Refresh

	Status
BASE :	CLEARED
FIRST :	CANCELLED
SECOND :	CANCELLED
THIRD :	CLEARED

Company Specific Peak Hour Availability Data

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LDA	Net Pk-Hr Period Capacity Shortfall	Net Eligible Available PHPA Shortfall	Adjusted Net Pk-Hr Period Capacity Shortfall	Net Pk-Hr Period Capacity Shortfall for RPM	Net Pk-Hr Period Capacity Shortfall for FRR
MAAC	5.0	-10.0	0.0	0.0	0.0

- Data is not final until after the conclusion of the delivery year.
- An estimate of EFORp will be available in December of the Delivery Year.

Pages: *1*

Records: 1 - 2 of 2 matches.

Resource Specific Peak Hour Availability Data

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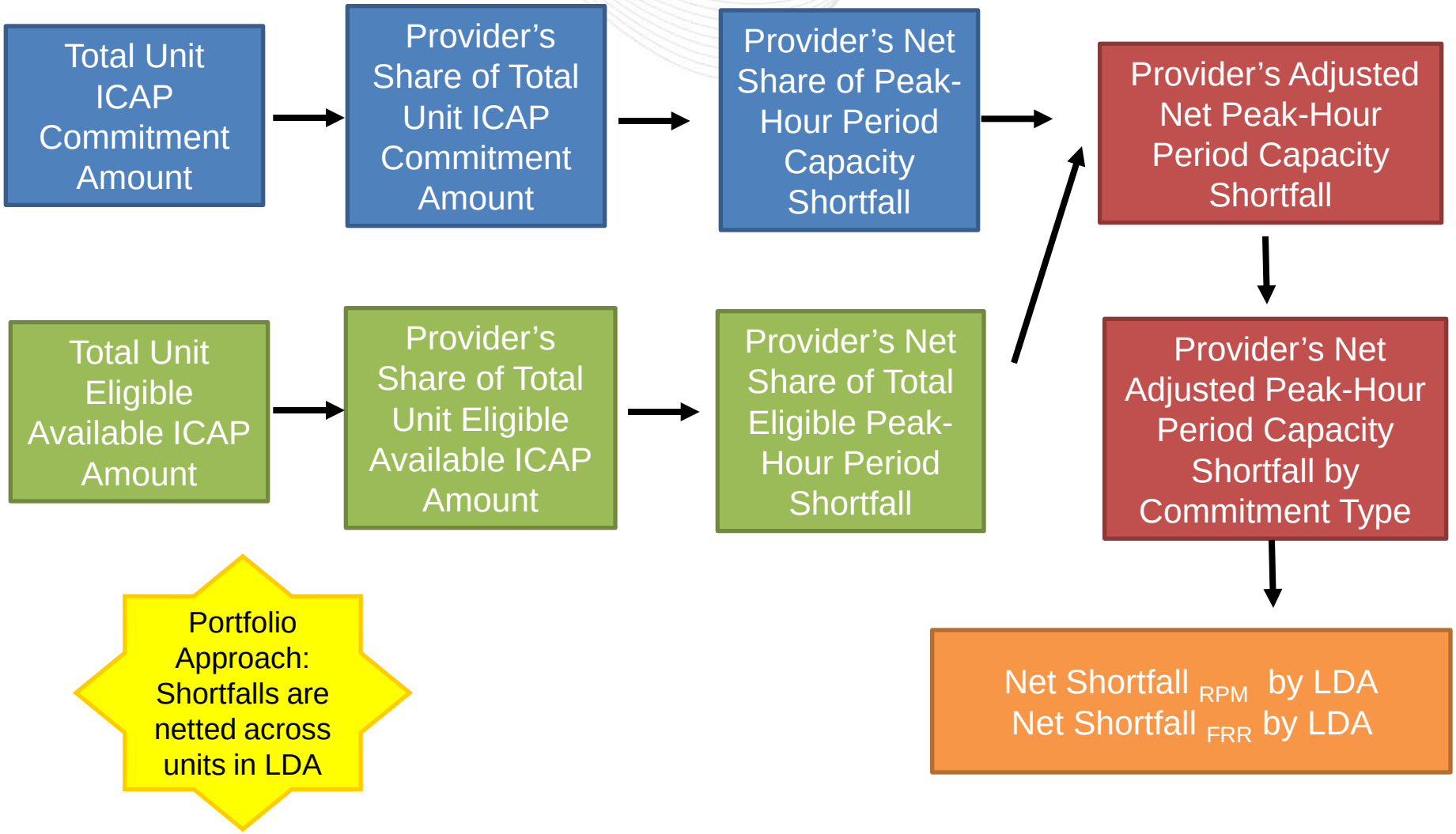
Lda	Resource Name	EFORd-5	EFORp	Avg Daily RPM ICAP Commitment Amount	Avg Daily FRR ICAP Commitment Amount	Share of Total ICAP Commitment Amount	Share of TCAP	Share of PCAP	Share of Pk-Hr Period Capacity Shortfall	Pk-Hr Period Capacity Shortfall for RPM	Pk-Hr Period Capacity Shortfall for FRR	Share of Avg Daily Eligible Available ICAP Amt	Share of Eligible Available TCAP	Share of Eligible Available PCAP	Share of Eligible Available Pk-Hr Period Shortfall
MAAC	TEST 1	0.50000	1.00000	10.0	0.0	10.0	5.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0
MAAC	TEST 2	0.50000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	10.0	-10.0
								Totals	5.0	5.0	0.0				-10.0

Peak-Hour Period Capacity Shortfall Process Key Steps



Total Unit ICAP Commitment Amount

- Unit 1 with Summer Rating = 100 MW, DY EFORd = 0.03
- Multiple Parties Committed Unit to RPM & FRR for entire DY

	Avg Daily RPM Resource Commitments (UCAP)	Avg Daily RPM Resource Commitments (ICAP)	Avg Daily FRR Commitments (ICAP)	Unit Avg Daily ICAP Commitment Amount
Provider A	29	29.9	20	49.9
Provider B	49	50.5	0	50.5
Unit 1 Total	78	80.4	20	100.4

Total Unit ICAP Commitment Amount =

Lesser of (Unit Avg Daily ICAP Commitment Amount, Max Summer Net Dependable Rating)

Total Unit ICAP Commitment Amount = 100 MW

Provider's Share of Total Unit ICAP Commitment Amount

	Average Daily FRR ICAP Commitment Amount	Average Daily RPM ICAP Commitment Amount	Share of Total Unit ICAP Commitment Amount
Unit Level	20	80	100
Provider A	20	29.8	49.8
Provider B	0	50.2	50.2

Provider's Avg Daily RPM ICAP Commitment Amount based on pro-rata share of Daily RPM Resource Commitments

Provider's Share of Unit Peak-Hour Period Capacity Shortfalls

Provider	Share of Total Unit ICAP Commitment Amount	EFORd-5	EFORp	Share of TCAP	Share of PCAP	Share of Unit Peak-Hour Period Capacity Shortfall
Provider A	49.8	0.05	0.10	47.3	44.8	2.5
Provider B	50.2	0.05	0.10	47.7	45.2	2.5
Unit 1 Total	100	0.05	0.10	95	90	5

Target Unforced Capacity (TCAP) = Total Unit ICAP Commitment Amt * (1-EFORd-5)

Peak Period Capacity Available (PCAP) = Total Unit ICAP Commitment Amt * (1-EFORp)

Shortfall = TCAP - PCAP

Positive shortfall indicates underperformance.

Net Peak Hour Period Capacity Shortfall

- The Net Peak Hour Period Capacity Shortfall nets the Unit Peak-Hour Period Capacity Shortfalls across all units in the LDA
  - The netting is performed across committed units within a single account in eRPM
- Starting 2009/2010 DY, Eligible Available Capacity in a party's portfolio may help cure a party's Net Peak Hour Period Capacity Shortfall

Eligible Available ICAP

- PJM will determine the Eligible Available Capacity (EAC) for each generation resource.
- A unit's EAC represents the amount of the unit's available capacity for the DY that met the capacity resource obligations by:
  - (1) offering into the DA Energy Market (if available)
  - (2) satisfying summer and winter capability test requirements (i.e., test to their committed ICAP level) and
  - (3) entering outages into eDart and GADS.

Calculation of Eligible Available Capacity for Individual Units

- PJM will determine the Daily EAC for a unit for each day of the Delivery Year and calculate the resource's Average Daily EAC for the entire Delivery Year.
- If portions of the unit are committed by multiple resource providers, the unit's Average Daily EAC is allocated to resource provider's that had available capacity during the Delivery Year to determine a Provider's Share of Average Daily EAC.
- PJM will determine a Provider's Net Eligible Available PHPA Shortfall for each provider in an LDA by summing the Provider's share of Eligible Available PCAP values for all units in an LDA within a provider's RPM account.
- A Provider's Net Eligible Available PHPA Shortfall in an LDA is used to reduce a party's positive Net Peak Hour Period Capacity Shortfall in an LDA in their single RPM account.

Provider's Share of Eligible Available Capacity Shortfall of a Unit

Provider	Share of Eligible Available Capacity	EFORp	Share of PCAP	Share of Eligible Available Peak-Hour Period Capacity Shortfall
Provider A	2	0.10	1.8	-1.8
Provider B	8	0.10	7.2	-7.2
Unit 2 Total	10	0.10	9	-9

Provider's share of Eligible Available PHPA Shortfall of a Unit = Provider's share of Eligible Available Capacity * (1-EFORp)

For more information, review the "Implementation of Peak Hour Period Availability (PHPA) Enhancement" posting on the RPM Auction User Information Page of PJM.com.

Net Eligible Available Peak Hour Period Capacity Shortfall

- A Provider's Net Eligible Available PHPA Shortfall in an LDA is determined by netting the Eligible Available PHPA Shortfall of a Unit across all units in the LDA
  - The netting is performed across units within a single account in eRPM
- A Provider's Net Eligible Available PHPA Shortfall in an LDA is subtracted from the Net Peak Hour Period Capacity Shortfall in an LDA to yield the Adjusted Net Pk-Hr Period Capacity Shortfall
  - The Net Eligible Available PHPA Shortfall may not be used to reduce a party's negative Net Peak Hour Period Capacity Shortfall in an LDA.

Adjusted Net Peak-Hour Period Capacity Shortfalls in LDA

LDA	Net Pk-Hr Period Capacity Shortfall	Net Eligible Available PHPA Shortfall	Adjusted Net Pk-Hr Period Capacity Shortfall
MAAC	2.5	-1.8	0.7
RTO	2.0	-3.0	0

Adjusted Net Pk-Hr Period Shortfall equals:

Net Pk-Hr Period Capacity Shortfall + Net Eligible Available PHPA Shortfall

- Net Eligible Available PHPA Shortfall cannot be greater than 0.
- Net Eligible Available PHPA shortfalls applied to a positive Net Pk-Hr Period Shortfall cannot make the Adjusted Net Pk-Hr Period Capacity Shortfall negative.

Provider's Adjusted Net Pk Hr Period Capacity Shortfalls in LDA by Commitment Type

Provider A:

LDA	Net Pk-Hr Period Capacity Shortfall	Net Eligible Available PHPA Shortfall	Adjusted Net Pk-Hr Period Capacity Shortfall	Pk-Hr Period Capacity Shortfall for RPM	Pk-Hr Period Capacity Shortfall for FRR
MAAC	2.5	-1.8	0.7	0.4	0.3
RTO	2.0	-3.0	0	0	0

Shortfalls by Commitment Type based on percentage of the Provider's Net Share of Total Unit ICAP Commitment Amount in LDA due to RPM or FRR commitments.

Peak-Hour Period Availability Charges

Provider A:

Net Daily Pk-Hr Period Capacity Shortfall for RPM	Daily Pk-Hr Period Availability Charge Rate for RPM	Daily Pk-Hour Period Availability Charges for RPM	Net Pk-Hr Period Capacity Shortfall for FRR	Daily Pk-Hr Period Availability Charge Rate for FRR	Daily Pk-Hour Period Availability Charges for FRR
.4 MW	$100/MW-day	$40/day	0.3 MW	$172/MW-day	$51.60/day

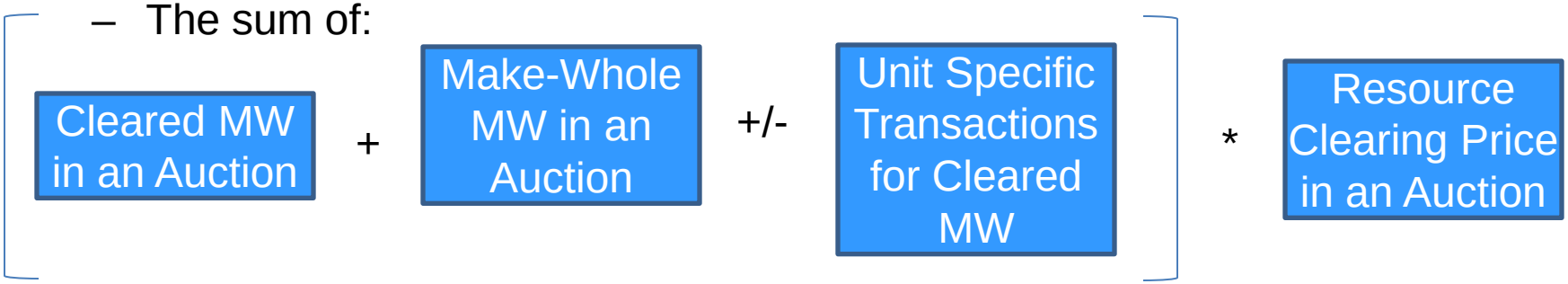
RPM Rate is Provider's Weighted Average Resource Clearing Price in LDA

FRR Rate is weighted average of resource clearing prices across all RPM Auctions for the LDA encompassing the zone of the FRR Entity, weighted by quantities cleared in RPM Auctions.

Peak-Hour Period Availability Charges and Credits are assessed daily and billed retroactively for the entire Delivery Year in the August bill (issued in September) after the conclusion of the Delivery Year.

Weighted Average Resource Clearing Price

- A party's Weighted Average Resource Clearing Price (WARCP) in an LDA is equal to:
  - The sum of:



    for each auction.
  - Divided by the total Cleared MW, Make-Whole MW, and Unit Specific Transactions for Cleared MW across all auctions.
- If a party's Weighted Average RCP in an LDA is $0/MW-day, the PJM Weighted Average RCP will be used
- PHPA Charges do not apply to Wind or Solar Resource, or DR or EE Resources. As a result, they are not considered in this calculation

Weighted Average Resource Clearing Price Example

Auction	Cleared MW	Make-Whole MW	Unit Specific Transactions as Buyer*	Unit Specific Transactions as Seller**	Resource Clearing Price
Base	500	0	0	30	$100
First	0	0	20	0	$50
Second	10	5	0	0	$75
Third	40	0	0	5	$25

$$WARCP = [(\text{Total Cleared MW}_{Base} * RCP_{Base)} + (\text{Total Cleared MW}_{First} * RCP_{First)} + (\text{Total Cleared MW}_{Second} * RCP_{Second)} + (\text{Total Cleared MW}_{Third} * RCP_{Third)}] / \text{Total Cleared MW}_{All\ auctions}$$

$$= [(500 - 30) * \$100 + 20 * \$50 + (10 + 5) * \$75 + (40 - 5) * \$25] / [(500 - 30) + 20 + (10 + 5) + (40 - 5)]$$

$$= \$94.42$$

Assumes all MWs are located in the same LDA

*The Buyer of Unit Specific Transactions for Cleared MW would have the purchased MWs added to their Total Cleared MW total

*The Seller of Unit Specific Transactions for Cleared MW would have the purchased MWs subtracted from their Total Cleared MW total

Allocation of Daily Peak-Hour Period Availability Charges

	Net Shortfall (Excess) in LDA for RPM (MW)	Charge Rate ($/MW-day)	Charge (Credit) ($/day)	Net Shortfall (Excess) in LDA for FRR (MW)	Charge Rate ($/MW-day)	Charge (Credit) ($/day)
Provider A	.4	$100	$40	.3	$172	$51.60
Provider B	0	$100	$0	0	$172	$0
Provider C	(.2)	$94.42	$18.89	0	$172	$0
Allocation to LSEs			($21.11)			($51.60)

•Charges are first allocated to resource providers that overperformed with credits capped at Net Excess * Charge Rate.

•Remaining balance allocated to LSEs charged a Daily Locational Reliability Charge or FRR LSEs that overperformed. Allocated on pro-rata basis based on daily unforced capacity obligations.

Replacement Capacity Considerations

- Specify replacement capacity by “Replacement Capacity” transaction or by updating FRR Capacity Plan in eRPM
  - Results in increase/decrease of the Total Unit ICAP Commitment Amount on replacement resource/resource being replaced
- Positive or Negative Unit Peak-Hour Period Capacity Shortfall only calculated if Total Unit ICAP Commitment Amount > 0 MW.
- For Total Unit ICAP Commitment Amount to be reduced to 0 MW, must specify enough replacement capacity prior to start of Delivery Year.
- Specifying replacement capacity during Delivery Year will reduce but not eliminate Unit Peak-Hour Period Capacity Shortfall on resource being replaced.
- If specify replacement prior to or during delivery year, final performance of replacement resource is not known at time of replacement.
  - Total Unit ICAP Commitment Amount, EFORp, Unit Shortfalls are not finalized until after the conclusion of the Delivery Year.