

DR Product Training

Spring 2011

Welcome

Disclaimer:

PJM has made all efforts possible to accurately document all information in this presentation. The information seen here does not supersede the PJM Operating Agreement or the PJM Tariff both of which can be found by accessing:

<http://www.pjm.com/documents/agreements/pjm-agreements.aspx>

For additional detailed information on any of the topics discussed, please refer to the appropriate PJM manual which can be found by accessing:

<http://www.pjm.com/documents/manuals.aspx>

- Introduce three DR product types and their requirements
- Present operational constraints in RPM Auctions
- Understand DR participation process in RPM Auctions
- Learn how to submit coupled-sell offers in RPM Auctions
- Discuss credit-limited sell offers in RPM Auctions
- Discuss registration process in eLRs prior to DY
- Clarify DY performance assessments – commitment, event, and test compliance

Introduction to DR Product Types

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- Effective with the 2014/2015 DY, a load management resource (i.e., demand resource) may be one of three product types:
 - ❖ **Limited Demand Resource**
 - ❖ **Extended Summer Demand Resource**
 - ❖ **Annual Demand Resource**

Requirement	Limited DR	Extended Summer DR	Annual DR
Availability	Any weekday, other than NERC holidays, during June – Sept. period of DY	Any day during June-October period and following May of DY	Any day during DY (unless on an approved maintenance outage during Oct. - April)
Maximum Number of Interruptions	10 interruptions	Unlimited	Unlimited
Hours of Day Required to Respond <i>(Hours in EPT)</i>	12:00 PM – 8:00 PM	10:00 AM – 10:00 PM	Jun – Oct. and following May: 10 AM – 10 PM Nov. – April: 6 AM- 9 PM
Maximum Duration of Interruption	6 Hours	10 Hours	10 Hours
Notification	Must be able to reduce load when requested by PJM All Call system within 2 hours of notification, without additional approvals required		
Registration in eLRS	Must register sites in Emergency Load Response Program in Load Response System (eLRS)		
Event Compliance	Must provide customer-specific compliance and verification information within 45 days after the end of month in which PJM-initiated LM event occurred.		
Test Compliance	In absence of the PJM-initiated LM event, CSP must test load management resources and provide customer-specific compliance and verification information.		

PJM recognizes three types of LM Programs:

- Direct Load Control (DLC) – Load management which is initiated directly by the LSE's market operations center, employing a communication signal to cycle equipment
- Firm Service Level (FSL) – Load management achieved by a customer reducing its load **to** a pre-determined level (the Firm Service Level), upon notification from the LSE's market operations center
- Guaranteed Load Drop (GLD) - Load management achieved by a customer reducing its load **by** a pre-determined amount (the guaranteed load drop), upon notification from the LSE's market operations center



- The nominated value is the maximum load reduction of an end-use customer site.
- The process to determine this value is consistent with the process for the determination of the capacity obligation for the customer.

Load Management Program Type	Nominated Value
Direct Load Control	# Customers * Per Participant Impact * Loss Factor
Firm Service Level	Peak Load Contribution – (Firm Load Level * Loss Factor)
Guaranteed Load Drop	Min (Peak Load Contribution, Customer Load Reduction Value * Loss Factor)

The maximum load reduction for each resource is adjusted to include system losses.

No Change

Unforced Capacity (UCAP) value of a Demand Resource is calculated as:

$$\text{Unforced Capacity Value Of DR X} = \text{Nominated DR Value} * \text{DR Factor*} * \text{Forecast Pool Requirement (FPR)}$$

For Example:

$$\underline{10.3} \text{ MW} = 10 * 0.956 * 1.0809$$

Unforced Capacity Value For DR = 10.3 MW

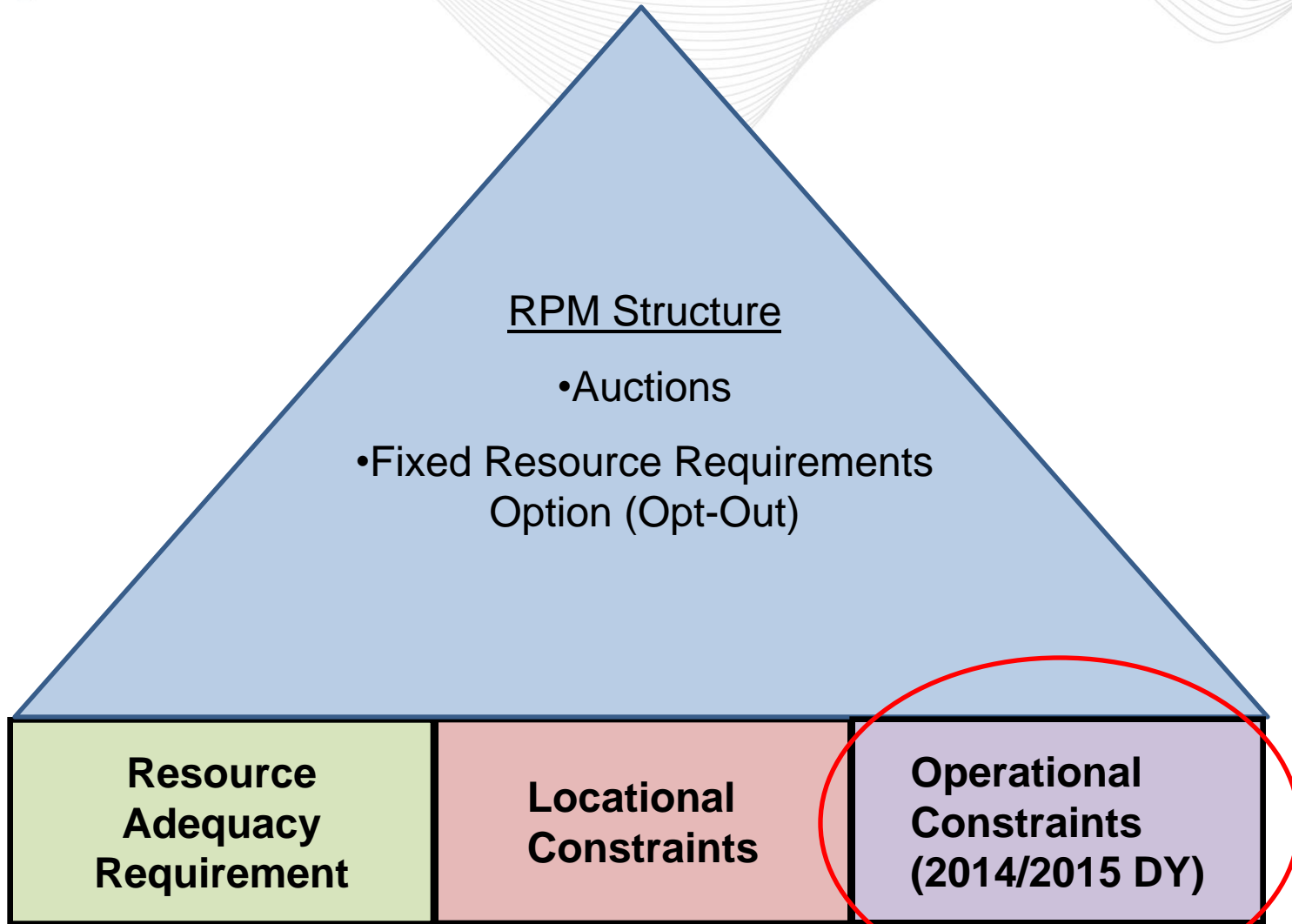
**DR Factor is determined by PJM's Reliability Study and represents the reliability benefit of active load management based on the specification of 10 interruptions for PJM use.*

Effective with 2012/2013 Delivery Year, the DR Factor and Forecast Pool Requirement is not finalized until the Third IA for the DY.

No
Change

Operational Constraints in RPM Auctions

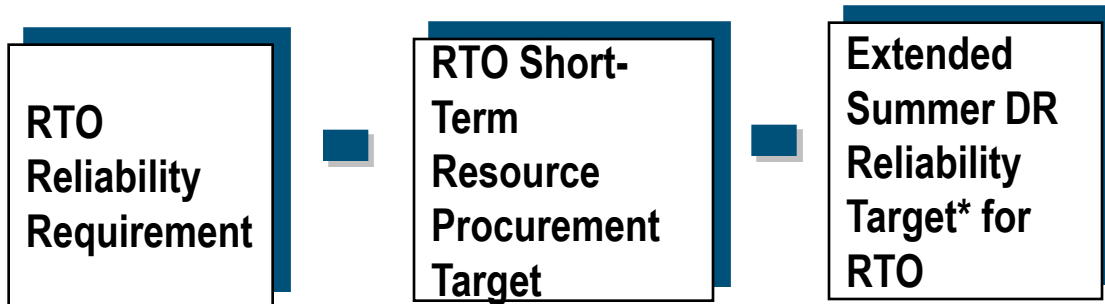
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- Limitations of Demand Resources with regards to availability and duration of interruptions are potential Operational Constraints
 - *As the commitment of Limited DR (with 10 interruptions/6 hours per interruption limitations) increases, the commitment of “unlimited resources” decreases, and the need to interrupt Limited DR would increase beyond the tariff limit, and system reliability problems could result.*
- PJM determines Minimum Annual Resource Requirement and Minimum Extended Summer Resource Requirement for RTO and modeled LDAs and includes such requirements in RPM Auctions to recognize and quantify the operational value of capacity resources
- RPM Auction clearing process will select Annual Resources or Extended Summer DR in out of merit order if needed to satisfy the minimum requirements

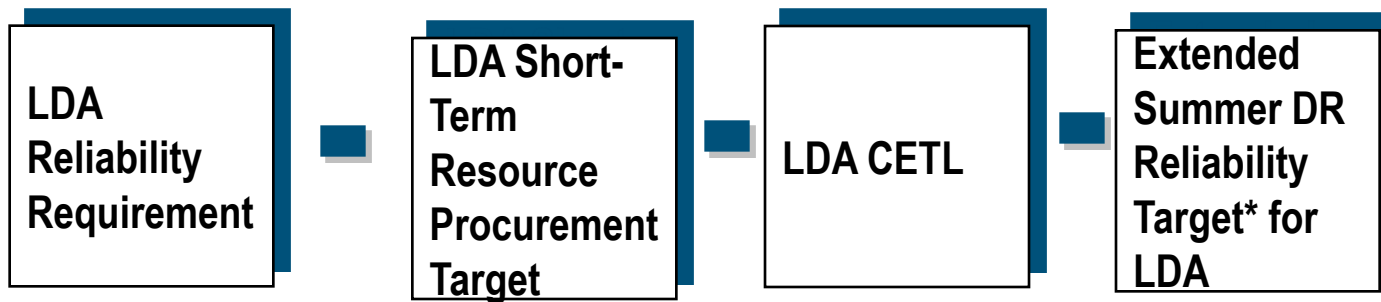
Minimum Annual Resource Requirement = Minimum amount of capacity PJM seeks to procure from Annual resources (generation, Annual DR, and energy efficiency resources) located in RTO/LDA

RTO Minimum Annual Resource Requirement =



**Extended Summer DR Reliability Target = maximum amount of the combination of Extended Summer DR and Limited DR (in UCAP) determined by PJM in accordance with DR Reliability Target Analysis Procedures.*

LDA Minimum Annual Resource Requirement =



Minimum Extended Summer Resource Requirement (Effective 2014/2015 DY)

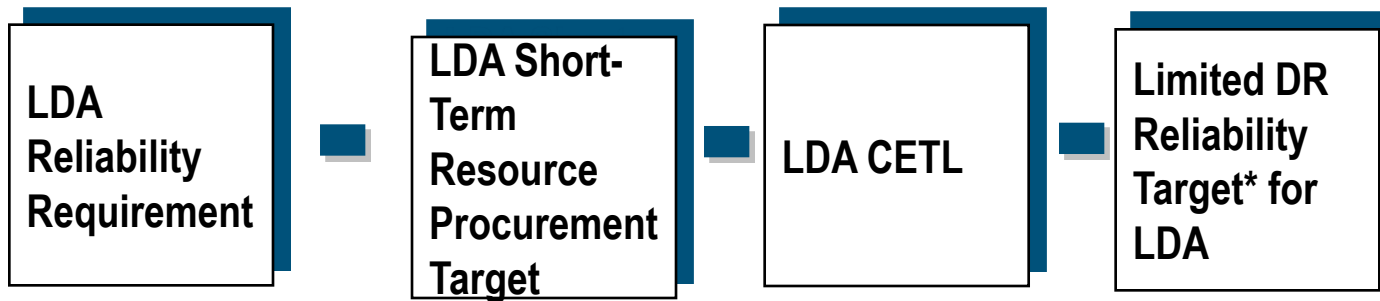
Minimum Extended Summer Resource Requirement = Minimum amount of capacity PJM seeks to procure from Annual resources (generation, Annual DR, and energy efficiency resources) and Extended Summer DR located in RTO/LDA

RTO Minimum Extended Summer Resource Requirement =



**Limited DR Reliability Target = maximum amount of Limited DR (in UCAP) determined by PJM in accordance with DR Reliability Analysis Procedures.*

LDA Minimum Extended Summer Resource Requirement =



Demand

- RTO/LDA Variable Resource Requirement (VRR) Curves for Base Residual Auction
- Locational Buy Bids by Auction Participants and/or PJM for Incremental Auctions

Supply

- Resource-specific Sell Offers
- Effective 12/13 DY, may include PJM locational sell offer in IA

Optimization Algorithm

Auction Results

- Resource Commitments
- Resource Clearing Prices
- UCAP Obligation values
- Capacity Transfer Rights

Zonal Capacity
Prices
CTR Rates

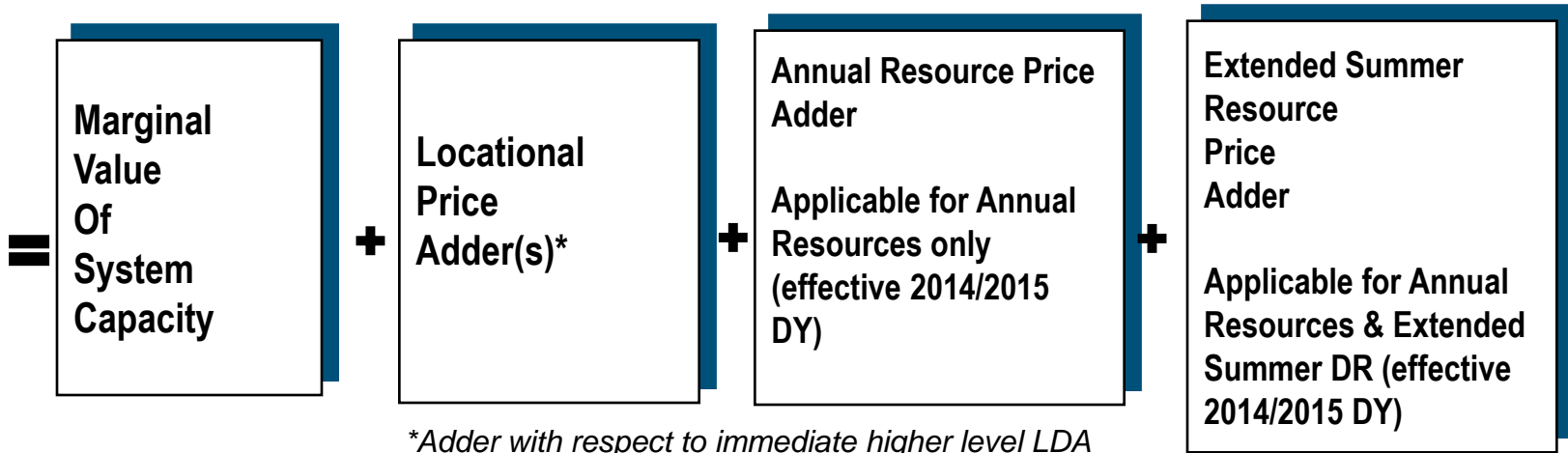
Constraints

- Locational Constraints: LDA CETLs
- Operational Constraints: RTO/LDA Minimum Annual Resource Requirements & Minimum Extended Summer Resource Requirements (Effective 14/15 DY)

- RPM Auctions use an optimization-based market clearing algorithm.
- This algorithm has the objective of minimizing capacity procurement costs given
 - Supply Offers
 - Demand Curves
 - Locational Constraints
 - Operational Constraints (Effective 2014/2015 DY)
- The clearing price for each LDA is determined by the optimization algorithm.

- The **Resource Clearing Price (RCP)** for Generation Resources, Demand Resources, and EE Resources within each LDA is the sum of :
 - (1) the marginal value of system capacity; (2) Locational Price Adder(s), if any in such LDA;
 - (3) Annual Resource Price Adder, if any in such LDA; and (4) Extended Summer Resource Price Adder, if any in such LDA.

Resource Clearing Price in LDA

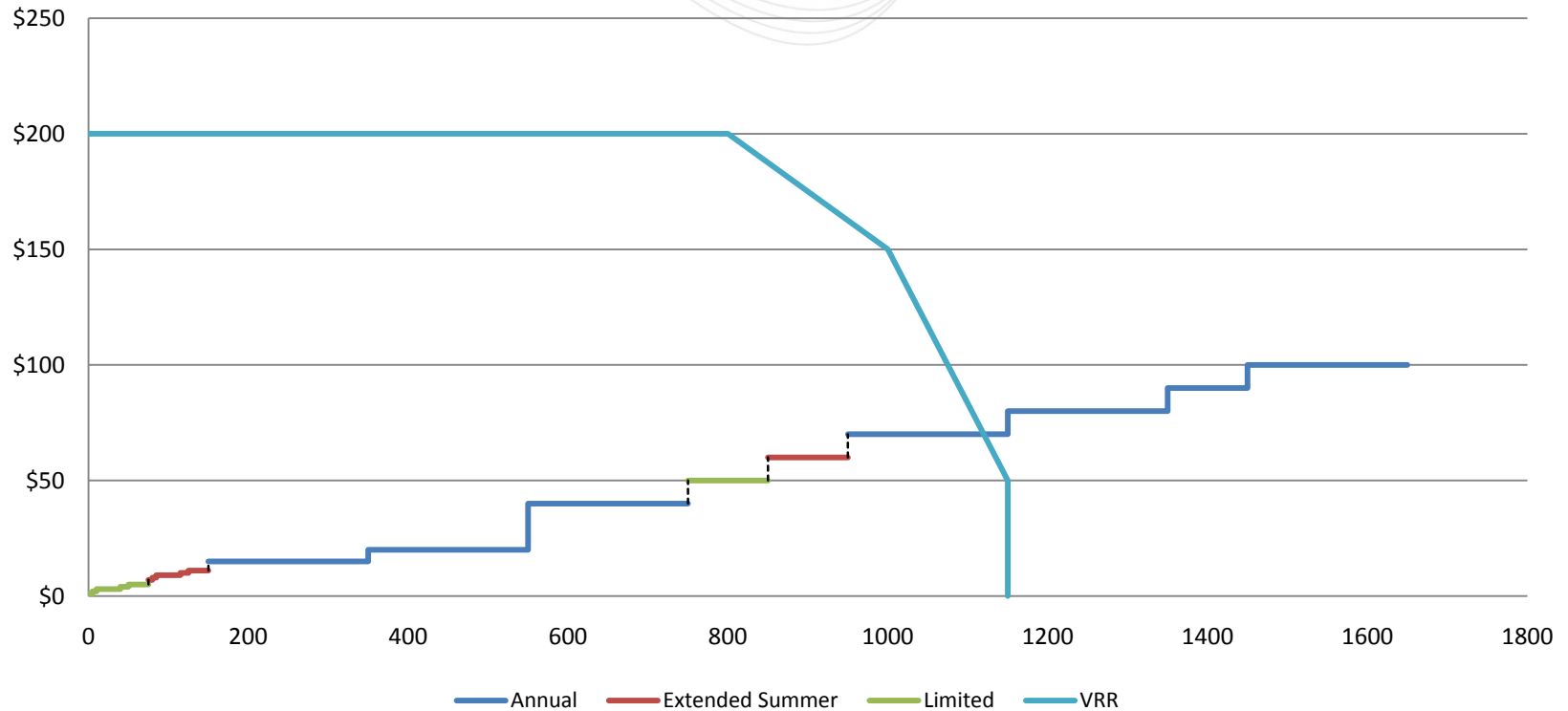


- RCP for Limited DR within the Rest of the RTO is the marginal value of system capacity.

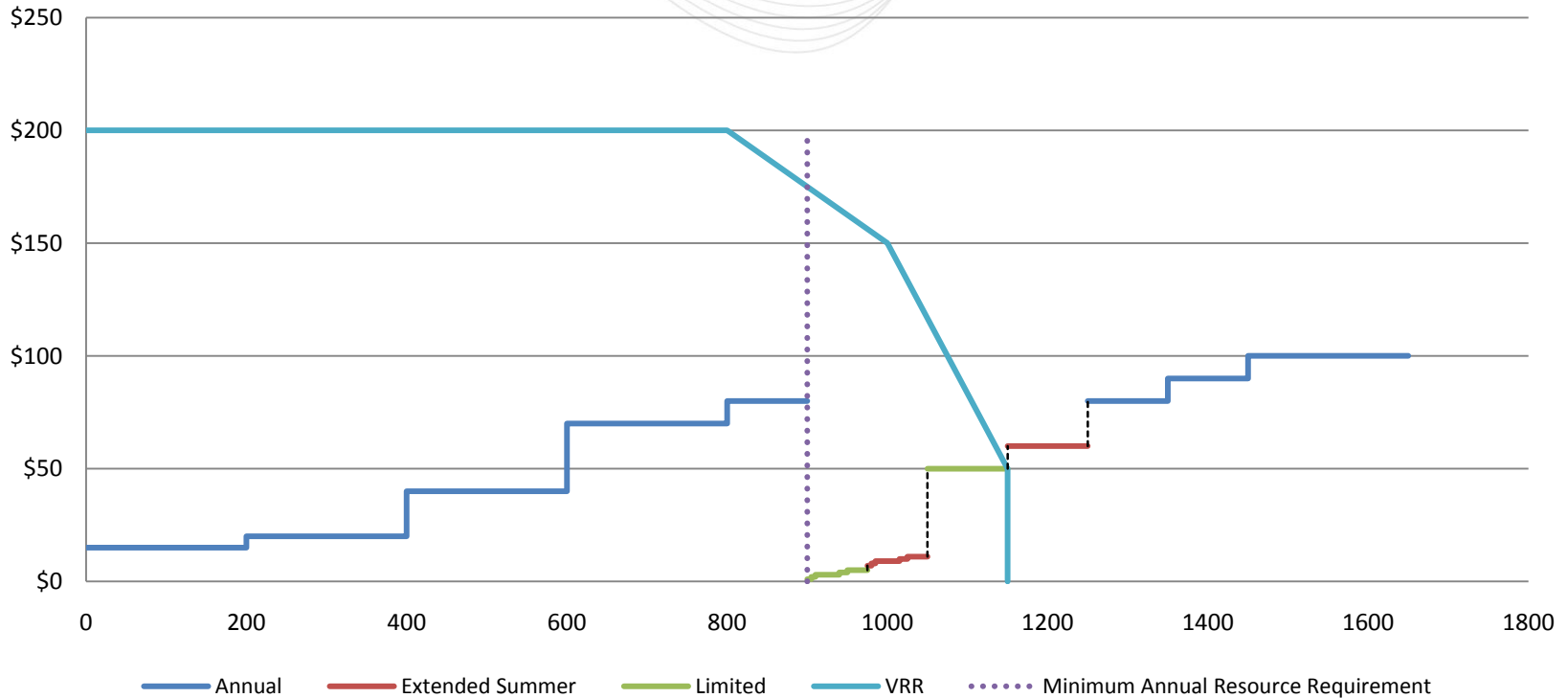
RCP may not be equal to Final Zonal Capacity Price. RCP (price paid to resources) and Final Zonal Capacity Price (price paid by LSEs) are different terms in RPM.

Resource Type	Capacity of the Resource, MW	Offer Price
Limited DR 14	5	\$1
Limited DR 15	5	\$2
Limited DR 16	30	\$3
Limited DR 17	10	\$4
Limited DR 18	25	\$5
Extended Summer DR 8	5	\$7
Extended Summer DR 9	5	\$8
Extended Summer DR 10	30	\$9
Extended Summer DR 11	10	\$10
Extended Summer DR 12	25	\$11
Annual Resource 1	200	\$15
Annual Resource 2	200	\$20
Annual Resource 3	200	\$40
Limited DR 19	100	\$50
Extended Summer DR 13	100	\$60
Annual Resource 4	200	\$70
Annual Resource 5	200	\$80
Annual Resource 6	100	\$90
Annual Resource 7	200	\$100

- Multiple Offers of each Product Type
- Assume One LDA
- The following examples illustrate the clearing results considering three cases:
 - No Minimum Requirements
 - Annual Requirement Only
 - Annual and Extended Summer Requirements



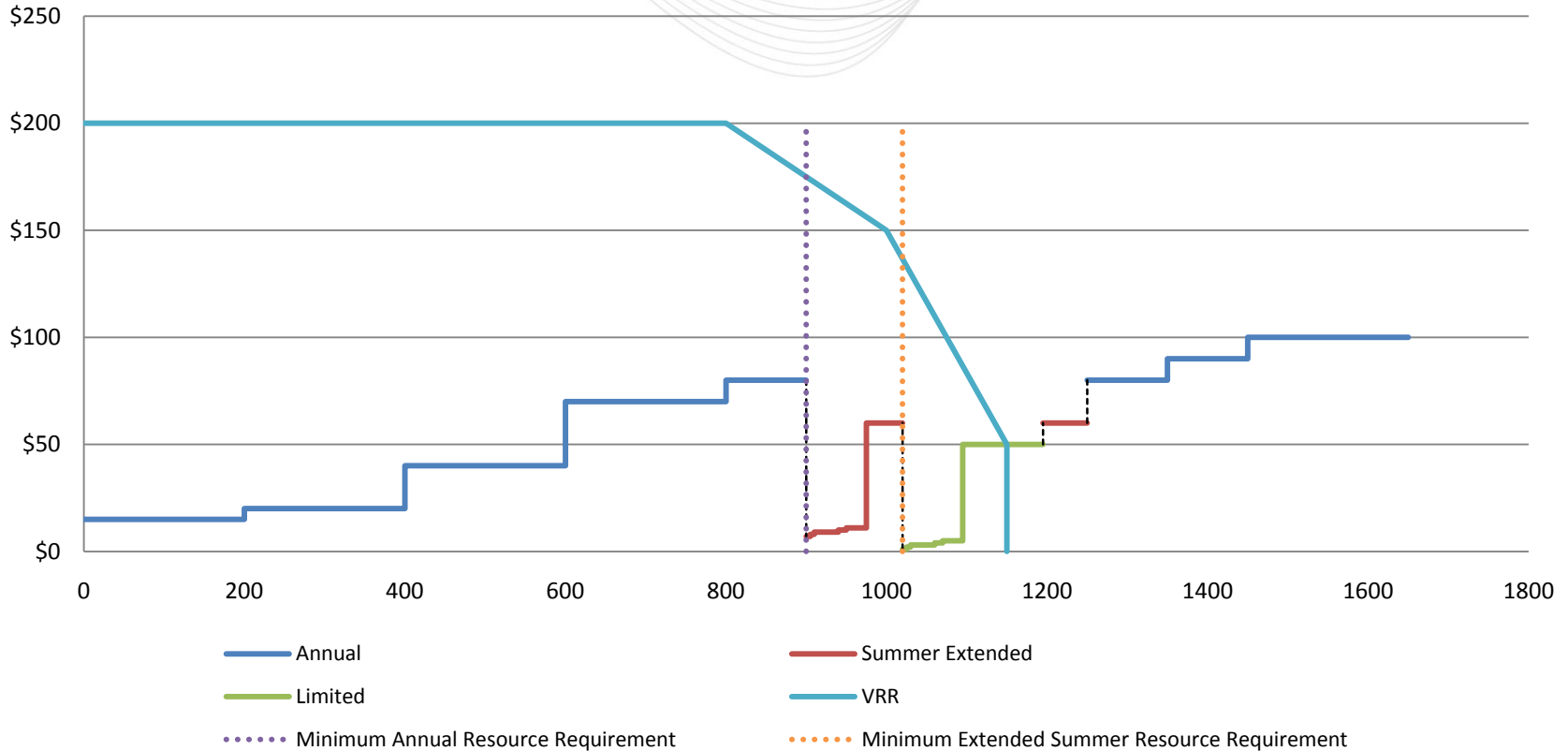
Marginal Value Of System Capacity = \$70
Annual Resource Price Adder = \$0
Extended Summer Price Adder = \$0



Marginal Value Of System Capacity = \$50
Annual Resource Price Adder = \$30
Extended Summer Price Adder = \$0

Clearing Example 3

Minimum Annual and Extended Summer Resource Requirements



Marginal Value Of System Capacity = \$50
Annual Resource Price Adder = \$20
Extended Summer Price Adder = \$10

	Example 1	Example 2	Example 3
Minimum Annual Resource Requirement	0 MW	900 MW	900 MW
Minimum Extended Summer Resource Requirement	0 MW	0 MW	1020 MW
Limited DR Cleared	175 MW	175 MW	130 MW
Extended Summer DR Cleared	175 MW	75 MW	120 MW
Annual Resources Cleared	775 MW	900 MW	900 MW
Total Resources Cleared	1125 MW	1150 MW	1150 MW
Marginal Value of System Capacity	\$70	\$50	\$50
Extended Summer Price Adder	\$0	\$0	\$10
Annual Price Adder	\$0	\$30	\$20

DR Participation Process

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If Planned DR, Notify PJM of Intent to Offer *(Planned DR must submit DR Plan no later than 15 business days prior to Auction)*

PJM to model Demand Resource in eRPM (if not already modeled)

Create DR MOD in eRPM

If Planned DR, request credit with PJM Credit Department
(2 weeks prior to auction window)

DR MOD in “Provisionally Approved” Status

- Provisionally approval granted for Existing DR if pre-registered.
- Provisionally approval granted for Planned DR if PJM approved DR Plan and participant posted credit.

(Prior to opening of auction window)

Post Credit
(Prior to opening of auction window)

Prior to Auction Window

Offer DR into RPM Auction (eRPM)

DR Clears in RPM Auction (Results in eRPM)

During Auction Window

Site Registration (eLRS)

Link Site to DR Resource (eLRS)

Prior to Delivery Year

DR MOD in “Approved” status

- Approval granted by PJM if sites are registered and approved for Emergency Load Response program in eLRS.
- Must be in “Approved” status prior to start of DY to avoid commitment shortfall & Capacity Resource Deficiency Charge

Pre-Auction Activities

Spring 2011

Demand Resources in RPM may be classified as either Planned or Existing

Existing	Planned
<p>I. Currently have capability to provide reduction in demand and will provide load reduction capability for DY of RPM Auction</p> <p>II. Existing MWs based on pre-registrations in Load Response system</p> <p>III. No Credit Requirement</p> <p>IV. Not subject to offer caps</p>	<p>I. Do not currently have capability to provide reduction in demand, but is scheduled to be capable of providing such reduction on or before start of DY</p> <p>II. Planned MWs based on DR Plan submittal</p> <p>III. Credit Requirement is Pre-Clearing BRA Credit Rate * Number of Planned MWs</p> <p>IV. Not subject to offer caps</p>

- DR Plan documentation must be submitted via email to rpm_hotline@pjm.com
- Guidelines for DR Plan documentation are posted at <http://www.pjm.com/markets-and-operations/rpm/~media/markets-ops/rpm/rpm-auction-info/planned-demand-resource-rpm-auction-participation-information.ashx>
 - Effective with 14/15 DY, plan must indicate product type (Annual, Extended Summer, or Limited) for each Demand Resource
- Deadline date for DR Plan submittals for 14/15 BRA: April 11, 2011.

- Pre-registration of a site is required to enable submission of an “Existing” Demand Resource in an RPM auction
 - Ensure sites will be available during the DY
 - Properly determine credit requirements
 - Only currently registered sites can be considered “existing”
- How does a CSP pre-register sites?

Register (for 11/12 DY) and Select (for 14/15 DY)

- 1) CSP registers sites in PJM's ILR/DR program (via eLRS) for the upcoming DY (2011/2012):
 - Confirmed status by April 11, 2011
 - PJM will supply CSPs with a list of their Confirmed registrations by April 13, 2011

- 2) CSP selects those sites that they reasonably believe they will have under contract and will reduce load in 2014/15 DY. This is the basis of their Existing Demand Resource offer into the 2014/2015 BRA.
 - For 14/15 DY, the CSP must also nominate the product type(s) the site currently is capable of achieving
 - Selection submitted to PJM by COB April 20, 2011

- CSP attests that registered end use customer site will have load reduction capability and will register as DR in the 14/15 DY
- CSP will select sites from their list and nominate the applicable Product Type(s) for each site and return to PJM by COB April 20, 2011
 - Product Type should reflect the current capability of the site
 - Return spreadsheet to: rpm_hotline@pjm.com

- RPM Team will model DR resources in eRPM
 - Will create one resource per:
 - Zone/LDA
 - Existing or Planned
 - Product Type: Limited, Extended Summer, Annual
- After DR Resource is modeled, CSP is responsible for submitting a DR Modification in eRPM to assign the Nominated MW amount

Offering DR into RPM Auction

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- Sell Offers for RPM Auctions must be submitted in PJM's eRPM system.
 - Must be Resource-Specific
 - From a Generation Unit, Demand Resource, Energy Efficiency, or Qualify Transmission Upgrade
 - Only accepted during a fixed bidding window which is open for at least five (5) business days.
 - May not be changed or withdrawn after the bidding window for RPM Auction is closed.
 - Smallest Offer MW = .1 MW
 - May be self-scheduled (Offer Price = \$0/MW-day, Min MW = Max MW)

Cleared sell offers and offers receiving Make-Whole payments are binding commitments to provide capacity.

Resource Providers can submit up to 10 Offer Segments

Base Offer Segments

- Up to 10 Segments
- Price-Quantity pairs
- Various Output levels of Resource
- Block Offer Curve

- **Sell Offer Quantity** in the Base Offer Segment
 - Min and Max ICAP MW quantity specified
 - DR will be converted into an UCAP MW quantity by the current Forecast Pool Requirement (FPR) and Demand Resource Factor (DR Factor) for use in the auction clearing
 - 2014/2015 BRA FPR: 1.0809
 - 2014/2015 BRA DR Factor: 0.956
 - The sum of all Max ICAP MWs in offer segments **can not exceed** the Available ICAP Position on the resource
- **Sell Offer Price** in Base Offer Segment
 - Is in UCAP terms and WILL NOT be converted for use in the auction clearing.

DEMAND - LIMITED DR

Available ICAP MW

Current 43.1

Base Offer Segments										
	1	2	3	4	5	6	7	8	9	10
Min MW	0.0	0.0	0.0	0.0	(null)	(null)	(null)	(null)	(null)	(null)
Max MW	10.0	10.0	10.0	13.1	(null)	(null)	(null)	(null)	(null)	(null)
Price	0.00	50.00	100.00	150.00	(null)	(null)	(null)	(null)	(null)	(null)
Scheduling Option	Regular Schedule	Regular Schedule	Regular Schedule	Regular Schedule	(null)	(null)	(null)	(null)	(null)	(null)

DEMAND - EXT SUMMER DR

Available ICAP MW

Current 43.1

Base Offer Segments										
	1	2	3	4	5	6	7	8	9	10
Min MW	0.0	0.0	0.0	0.0	(null)	(null)	(null)	(null)	(null)	(null)
Max MW	10.0	10.0	10.0	13.1	(null)	(null)	(null)	(null)	(null)	(null)
Price	0.01	50.01	100.01	150.01	(null)	(null)	(null)	(null)	(null)	(null)
Scheduling Option	Regular Schedule	Regular Schedule	Regular Schedule	Regular Schedule	(null)	(null)	(null)	(null)	(null)	(null)

DEMAND - ANNUAL DR

Available ICAP MW

Current 43.1

Base Offer Segments										
	1	2	3	4	5	6	7	8	9	10
Min MW	0.0	0.0	0.0	0.0	(null)	(null)	(null)	(null)	(null)	(null)
Max MW	10.0	10.0	10.0	13.1	(null)	(null)	(null)	(null)	(null)	(null)
Price	0.02	50.02	100.02	150.02	(null)	(null)	(null)	(null)	(null)	(null)
Scheduling Option	Regular Schedule	Regular Schedule	Regular Schedule	Regular Schedule	(null)	(null)	(null)	(null)	(null)	(null)

The Resource Offer Screen will include a filter to list resources belonging to the CSP defined coupling groups to aide in entering offers.

- Demand Resource with potential to qualify as either Limited DR, Extended Summer DR, or Annual DR may submit separate but coupled Sell Offers for each type of resource for which it qualifies at different prices and the auction clearing algorithm will select the Sell Offer that yields the least-cost solution.
- For coupled sell offers, the offer price of Annual DR must be at least \$0.01/MW-day greater than the offer price of a coupled Summer DR offer, and the offer price of a Extended Summer DR offer must be at least \$0.01/MW-day greater than the offer price of a coupled Limited DR offer.

- CSP can structure the offer to ensure that the more limited DR resource will clear in the case where minimum resource requirement constraints do not bind in the RPM auction
 - The maximum MW quantity of the less limited DR product offer is no greater than the maximum MW quantity of the more limited coupled DR product offer and;
 - The minimum MW quantity of the more limited DR product offer is no greater than the minimum MW quantity of the less limited coupled DR offer.

- Suppose the following Pre-Registration data was submitted:

Coupled Offer	Zone Name	Annual	Extended Summer	Limited	Nominated MW
x	PECO	x	x	x	30
x	PECO	x	x	x	30
x	PECO		x	x	20
	PECO			x	10
	PECO			x	10
Max DR Mod:		60	80	100	100

RPM Hotline would model 3 resources for the Existing Registrations in PECO: One Annual, One Extended Summer, One Limited

Coupled Offers cannot clear more than 100 MWs.

- A CSP must couple Demand Resources in eRPM prior to submitting an offer into the auction:
 - Must be in the same Zone and LDA
 - Must be unique product types
- CSP will assign a unique name to identify the coupling group (i.e., Existing PECO Couple)
- Coupled Offers cannot use the Credit Limited Clearing Option

The eRPM User Guide will be updated with instructions on how to couple resources.

- Offers are coupled by segment number
 - Offer segment 1 of Resource A, B and C is coupled
 - Offer segment 2 of Resource A, B and C is coupled
 - Etc.
- Each coupled segment can be considered as a separate coupled single-segment DR offer
 - Only one offer from each segment group may clear at most and each segment group is cleared independent of the other segment group.
- The sum of the Max MW for each Segment in a Coupled Offer cannot exceed the total MWs approved via the DR Plan or Pre-Registration process.

Couple Name	Resource		1	2	3	4	Total
Existing PECO Couple	Limited	Min	0	0	0	0	
		Max	30	30	20	20	
		Price	\$5	\$35	\$50	\$70	
Existing PECO Couple	Summer Ext	Min	0	0	0		
		Max	30	30	20		
		Price	\$30	\$70	\$80		
Existing PECO Couple	Annual	Min	0	0			
		Max	30	30			
		Price	\$60	\$90			
Max MW of each segment			30	30	20	20	100

- Each Segment is considered independently.
- The Sum of the Max MW of each segment is equal to the pre-registered MW total.

Couple Name	Resource		1	2	3	4	Total
Existing PECO Couple	Limited	Min	0	0	0	0	
		Max	50	20	10	20	
		Price	\$5	\$35	\$50	\$70	
Existing PECO Couple	Summer Ext	Min	0	0	0		
		Max	50	20	10		
		Price	\$30	\$70	\$80		
Existing PECO Couple	Annual	Min	0				
		Max	60				
		Price	\$60				
Max MW of each segment			60	20	10	20	110

- The Sum of the Max MW of each segment (110 MW) is higher than the pre-registered MW total (100 MW).
- PJM would notify the CSP and require the offer to be amended

Scenario 1: No Price Separation between Limited, Extended Summer, or Annual

Resource Name	Type	Min MW	Max MW	Offer Price	Resource Clearing Price	Cleared MW
Resource A	Limited	0	100	\$5	\$65	100
Resource B	Extended Summer	0	80	\$30	\$65	0
Resource C	Annual	0	60	\$60	\$65	0

- Limited Offer will clear as it provides the most “profit”
 - Profit = (Clearing Price – Offer Price) * MW
 - Profit_{Limited} = (\$65 - \$5) * 100 MW = \$6000
 - Profit_{Ext Sum} = (\$65 - \$30) * 80 MW = \$2800
 - Profit_{Annual} = (\$65 - \$60) * 60 MW = \$300

Scenario 2: Price Separation between Limited and Annual: Limited Offer Clears

Resource Name	Type	Min MW	Max MW	Offer Price	Resource Clearing Price	Cleared MW
Resource A	Limited	0	100	\$5	\$75	100
Resource B	Extended Summer	0	80	\$30	\$75	0
Resource C	Annual	0	60	\$60	\$100	0

- Limited Offer will clear as it provides the most “profit”
 - Profit = (Clearing Price – Offer Price) * MW
 - Profit_{Limited} = (\$75 - \$5) * 100 MW = \$7000
 - Profit_{Ext Sum} = (\$75 - \$30) * 80 MW = \$3600
 - Profit_{Annual} = (\$100 - \$60) * 60 MW = \$2400

Scenario 3: Price Separation between Limited , Extended Summer, and Annual: Annual Offer Clears

Resource Name	Type	Min MW	Max MW	Offer Price	Resource Clearing Price	Cleared MW
Resource A	Limited	0	100	\$5	\$10	0
Resource B	Extended Summer	0	80	\$30	\$35	0
Resource C	Annual	0	60	\$60	\$100	60

- Annual Offer will clear as it provides the most “profit”
 - Profit = (Clearing Price – Offer Price) * MW
 - Profit_{Limited} = (\$10 - \$5) * 100 MW = \$500
 - Profit_{Ext Sum} = (\$35 - \$30) * 80 MW = \$400
 - Profit_{Annual} = (\$100 - \$60) * 60 MW = \$2400

- The ability to submit a Credit Limited Sell Offer is still under consideration at FERC
 - Requested Order date: April 20, 2011
- If approved, Planned DR will have the ability to nominate a Maximum Post-Auction Credit Exposure (MPCE)
- The Auction will only clear Planned MWs up to the CSP's nominated MPCE

- CSPs must notify PJM upon approval of DR Plan that they intend to utilize MPCE
- An MPCE is assigned separately to each Planned Resource
- The sum of the MPCE nominated for each Planned Resource in a party's portfolio may not exceed their total available credit
- Coupled DR Resources may not utilize the Credit Limited Offer Functionality.

- CSP wishes to offer 300 MW of Planned MW
 - Pre-Auction Credit Requirement would be:
 - $300 \text{ MW} * \$37,474 = \$11,242,200$
- CSP has \$3,000,000 of available Credit
- CSP nominates \$1,000,000 MPCE for each Offer
- Auction is run to determine initial clearing results.
 - Cleared MWs by Resource
 - Resource Clearing Price
 - Post Auction Credit Rate
 - Resulting Post-Auction Credit Exposure (PCE)
- Any resources that have a PCE greater than the specified MPCE will cause the auction to re-execute until a solution yields a PCE equal to or less than the MPCE

Resource Name	MPCE (\$/yr)	Max MW	Offer Price (\$/M W-day)	Resource Clearing Price (\$/MW-day)	Cleared MW	Post Auction Credit Rate (\$/MW-yr)	Post-Auction Credit Exposure (PCE) (\$/yr)
COMED 1	\$1,000,000	100	\$5	\$10	100	\$7,300	\$730,000
PPL 1	\$1,000,000	100	\$30	\$100	100	\$7,300	\$730,000
PECO 1	\$1,000,000	100	\$60	\$200	100	\$14,600	\$1,460,000

The Post Auction Credit Exposure of the EMAAC Resource (PECO 1) is greater than the MPCE.

If there are resources with PCE that did not exceed MPCE, the remaining credit availability on such resources is not applied to the resource with PCE that exceeded their MPCE.

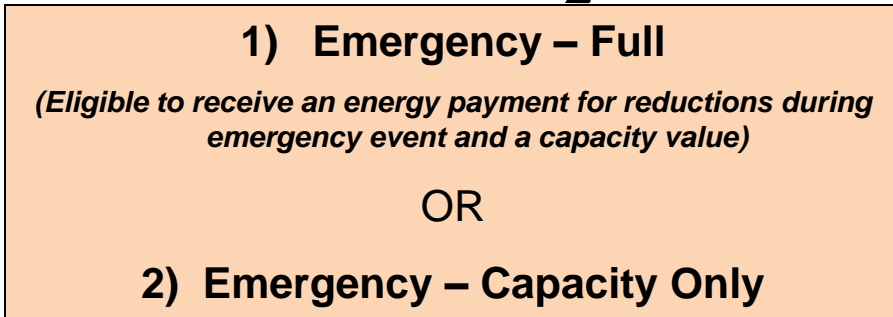
Resource Name	MPCE (\$/yr)	Max MW	Offer Price (\$/M W-day)	Resource Clearing Price (\$/MW-day)	Cleared MW	Post Auction Credit Rate (\$/MW-yr)	Post-Auction Credit Exposure (PCE) (\$/yr)
COMED 1	\$1,000,000	100	\$5	\$10	100	\$7,300	\$730,000
PPL 1	\$1,000,000	100	\$30	\$100	100	\$7,300	\$730,000
PECO 1	\$1,000,000	100	\$60	\$220	62	\$16,060	\$995,720

The EMAAC Resource Clearing Price can increase due to unavailability of the CSP's EMAAC Resource MWs.

The final Auction Solution ensures the PCE does not exceed the MPCE.

Post -Auction Activities

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Each customer site may have 2 registrations – 1 Economic and 1 Emergency

*** Special Case: If one CSP has the economic registration, a second CSP can register the site, but only as Emergency- Capacity only. ***

-Registration done through eLRS Application-

- **Timeline**
 - Registration must be approved prior to start of Delivery Year by May 31st 11:59:59 PM (EPT).
 - Need to respect 10-day EDC/LSE approval window
- **New Requirements (2014/2015 DY)**
 - Each registration must indicate product type (Annual, Extended Summer, Limited)
 - Each registration may only be linked to a single DR Resource modeled in eRPM and the linked DR Resource must be of the same product type and zone as the registration
 - CSP must have registrations that total $\geq 100\text{kW}$ by zone and product type
 - Locations may be aggregated to reach minimum registration value

RPM Commitment Compliance

Spring 2011

- RPM Commitment Compliance is evaluated during the Delivery Year on a ***resource-specific basis*** to determine if a Resource Provider has enough unforced capacity to satisfy their Daily RPM Resource Commitments on their generation resources, demand resources, or Qualifying Transmission Upgrades.

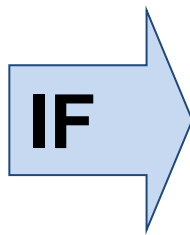
RPM Commitment Compliance is not determined based on party's portfolio of resources (generation, DR, EE, or QTUs) in a party's eRPM account. RPM Commitment Compliance is evaluated separately for each resource in a party's eRPM account.

A failure to meet the Demand Resource's daily RPM Resource Commitments may be due:

- Failure to register enough end-use customer sites that are of the same product type as the Demand Resource in eLRs prior to the DY
- Decrease in DR Factor or FPR from the DR Factor or FPR Factor that was used in the RPM Auction for which such DR Resource cleared

During the Delivery Year, a party's Daily RPM Resource Position is compared to their Daily RPM Resource Commitments to determine if a RPM Capacity Resource Deficiency Charge is to be assessed on the delivery day.

Capacity
Resource
Deficiency



Daily RPM
Resource
Commitment
For
Demand
Resource

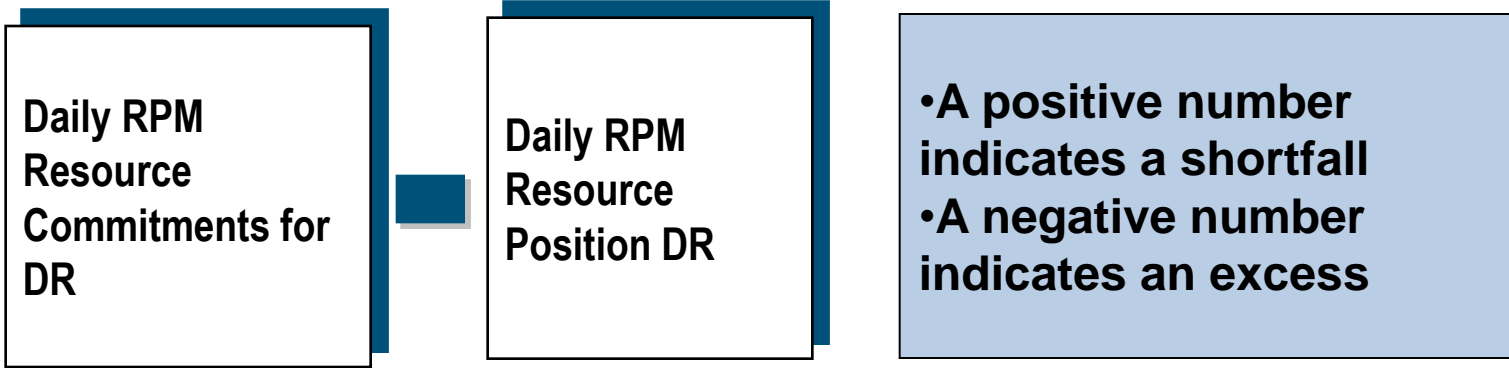


Daily
RPM
Resource
Position
For
Demand
Resource

Includes sum of cleared and make-whole UCAP, sum of unit-specific sales/purchases of cleared MWs, and increases/decreases due to replacement capacity transactions

UCAP value of the portion of resource dedicated to RPM

Daily RPM Commitment Shortage =



Daily Capacity Resource Deficiency Charge =



*Daily Deficiency Rate = Party's Weighted Average RCP + Higher of (20% * Party's Weighted Average RCP OR \$20/MW-day)


- Party's Weighted Average Resource Clearing Price (WARCP) for such resource is determined by calculating the weighted average of resource clearing prices for such resource, weighted by a party's cleared and makewhole MWs for such resource.
- If a Party's WARCP for such resource is \$0/MW-day, a PJM WARCP in the LDA is used.
- PJM WARCP is determined by calculating the weighted average resource clearing prices in the LDA across all RPM Auctions, weighted by the total cleared and make-whole MWS in the LDA.
- Charges are allocated on a pro-rata basis to those LSEs who were charged a Daily Locational Reliability Charge based on their Daily UCAP Obligation.
- The Resource Provider may still receive an RPM Auction Credit.

- Existing DR that cleared in BRA or 2nd IA (prior to 12/13 DY) or Existing DR that cleared in BRA, 1st IA, or 2nd IA (effective 12/13 DY*) can receive relief from Capacity Resource Deficiency Charges if they failed to meet their RPM Resource Commitments due to a decrease in Peak Load Contributions that were due to permanent departure of load from the transmission system (e.g., plant closure or efficiency gains)
- Request for relief from deficiency charges must be made via email to rpm_hotline@pjm.com no later than two weeks after the posting of the 3rd IA results (prior to 12/13 DY) and no later than two weeks in advance of opening the 3rd IA (effective 12/13 DY).
- The request for relief must provide PJM with adequate information for PJM to assess the merits of the request for relief.
- If relief is granted by PJM, the resource provider will receive a reduction in their Base Residual Auction Credits or Incremental Auction Credits

No
Change


Load Management Event Compliance

- PJM dispatches based on expected system conditions during emergencies.
- When need to call on DR arises, PJM will maximize use of available resources by calling long-lead time resources first, if there is sufficient time to meet the expected system reliability need.
- Zone or sub-zone dispatch based on current and expected transmission constraints and system topology.
 - PJM often dispatches DR across multiple zones
- Communication processes include:
 - “All Call” Telephone system
 - PJM eData system
 - PJM eLRs system
 - Email notification to personnel identified by CSP

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Dispatch of
DR under
discussion at
DRD STF

- PJM may need to further subdivide categories by which DRs are dispatched to include dispatch by product type
- PJM would dispatch Annual DR and Extended Summer DR prior to Limited DR for emergency events that occur early in summer to reserve Limited DR capability for other potential system emergencies
- Extent to which PJM will dispatch Annual DR or Extended Summer without dispatching Limited DR depends on number of factors:
 - Amount of DRs committed for DY for each product type
 - Number, lead time, location and performance of past load management events.
 - Expected future system conditions that may necessitate additional LM events

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Dispatch of
DR under
discussion at
DRD STF

- CSP may respond to a dispatch call for a product type with registration(s) that are of different product type provided registration(s):
 - Located in same geographic location
 - Has same lead time notification
 - Have comparable load reduction commitments as the registration(s) that are were intended for dispatch
- If CSP elects to respond with substitute registration(s) of a different product-type, such response will not be counted against the maximum number of events that PJM may call on such product
 - For example, if PJM dispatches Annual DR and Extended Summer DR and CSP uses Limited DR registration(s) to respond to event, PJM will not reduce the number of times that PJM can subsequently call on Limited DR.

- For each CSP, compliance is determined by event and will be evaluated by zone, aggregating the compliance results of registrations that were dispatched
 - Registration(s) of a different product-type in same geographic location and lead time may be substituted for registration(s) that were dispatched if the registration(s) have a comparable load reduction commitment as the registration(s) that were intended for dispatch

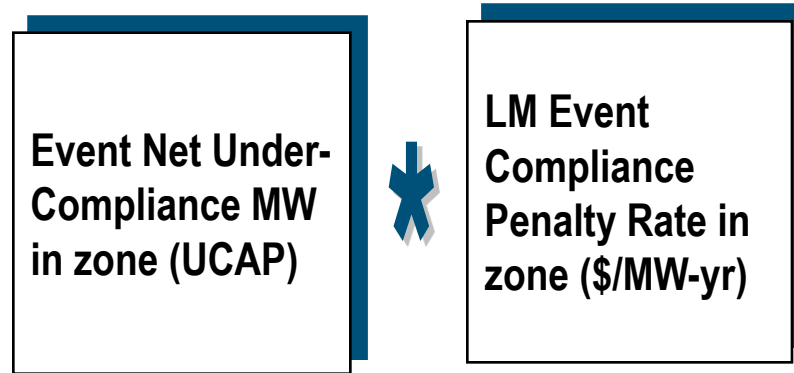
How is compliance measured for each registration?

LM Program	How is compliance measured?
Firm Service Level (FSL)	Compare load during event vs. firm service level
Guaranteed Load Drop (GLD)	Compare load dropped during the event to the nominated amount of load drop. LM Providers must submit actual loads and comparison loads for the event hours. Comparison loads must be developed from the guidelines included in Attachment A of Manual 19, and note which method was employed.
Direct Load Control (DLC)	Compliance based on timing of control signal.

- Compliance is averaged over the full hours of an LM event.
 - For example, if event starts at 12:15 and ends @16:45 then compliance will be measured from hours ending 14:00 through 16:00 for a total of 3 “full” hours.
- For GLD, meter data submission has been expanded to include all 24 hours for event/test day and all 24 hours for any additional days as required by PJM to calculate load reduction.
- No compliance credit will be given for the incremental load drop below zero (i.e., exported energy).

- A net zonal compliance position will be determined for each CSP per event
- CSP's net zonal undercompliance in a zone will be reduced by CSP's relevant Capacity Resource Deficiency shortfalls on the day of the LM event
- Net zonal undercompliance in zone may be separated into undercompliance MWs for sub-zone and rest of zone.
- Net zonal under-compliance MWs will be associated with specific registrations that under-complied prior to billing.

Load Management Event Compliance Penalty Charge =



- Load Management Compliance Penalty charges are assessed to those CSPs that under-complied in zone during an event.
- All charges to be assessed after conclusion of DY. Assessed later of (1) June following the DY or (2) third billing month following the last event
- Total Charges assessed for all events will be capped at Annual Revenues received by provider in DY.

LM Compliance Penalty Rate depends on the time period in which the event is called.

On Peak: Any weekday, other than NERC holidays, during June-Sept period of DY from 12 PM to 8 PM

Off Peak: All days and hours outside of the above defined On Peak period

- On Peak LM Compliance Penalty Rate (\$/MW-yr) = Lesser of (1/actual number of events during the delivery year, or 50%) * Party's Weighted Annual Revenue Rate (\$/MW-yr)
- Off Peak LM Compliance Penalty Rate (\$/MW-yr) = $1/52$ * Party's Weighted Annual Revenue Rate (\$/MW-yr)
- If a LM Event is comprised of both an On-Peak and Off-Peak Periods, the LM Penalty Rate (\$/MW-yr) = The higher of the charges based on:
 - (A) Lesser of (1/actual number of events during the delivery year, or 50%) * Party's Weighted Annual Revenue Rate (\$/MW-yr); OR
 - (B) $1/52$ * Party's Weighted Annual Revenue Rate (\$/MW-yr)

Resource Name	Auction	MWs Cleared (UCAP) in PSEG zone	Resource Clearing Price (RCP) (\$/MW-day)	Annual Revenue Rate (\$/ MW-yr) = RCP * 365 days/yr
CSP PEPCO ANNUAL DR	14/15 DY BRA	5.4	191.32	\$69,831.80
	14/15 DY 2nd IA	3.2	152.30	\$55,589.50
	14/15 DY 3rd IA	1.7	98.65	\$36,007.25
CSP PEPCO EXTENDED SUMMER DR	14/15 DY BRA	3.6	163.81	\$59,790.65
	14/15 DY 1st IA	1	152.00	\$55,480.00
	14/15 DY 2nd IA	0.3	98.65	\$36,007.25
CSP PEPCO LIMITED DR	14/15 DY BRA	2.3	163.81	\$59,790.65
	14/15 DY 1st IA	1.5	152.00	\$55,480.00
Total		19		

Party's Weighted Annual Revenue Rate in the PEPCO Zone =

$$[5.4 \text{ MW} * (\$69,831.80) + 3.2 \text{ MW} * (\$55,589.50) + 1.7 \text{ MW} * (\$36,007.25) + 3.6 \text{ MW} * (\$59,790.65) + 1 \text{ MW} * (\$55,480) + 0.3 \text{ MW} * (\$36,007.25) + 2.3 \text{ MW} * (\$59,790.65) + 1.5 \text{ MW} * (\$55,480)] / 19 \text{ MW} =$$

\$58,866/MW-yr

If Party's Weighted Annual Revenue Rate is \$0/MW-day (only committed DR resource through replacement capacity transaction or Locational UCAP transaction), a PJM Weighted Annual Revenue Rate for the zone will be used.

- The resource, CSP PEPCO ANNUAL, has a 10 MW ICAP Commitment for the entire DY and is comprised of the following registrations in the PEPCO Zone.

Registration ID	Nominated MW Amount (ICAP)	Location	Registration Commitment Share (ICAP)*
234567	1.5	DC	0.9
234568	2.4	DC	1.5
234569	0.7	Rest Of	0.4
234570	3	DC	1.8
234571	4.9	Rest Of	3
234572	2.6	Rest Of	1.6
234573	0.9	Rest Of	0.6
234574	0.3	DC	0.2
Total	16.3		10

*The Registration Commitment Share is calculated as the Resource Commitment times (Registration Nominated MW Amount)/(Total Resource Nominated MW Amount)

During the Delivery Year there were 3 Events Called in the PEPSCO zone. The Events were called as follows:

Event	Duration	Product Type Dispatched	Zone
1	June 17, 2014 from 1 PM to 7 PM (On Peak)	Annual	DC Portion of PEPSCO
2	August 15, 2014 from 11 AM to 9 PM (On and Off Peak)	Annual	All of PEPSCO Zone
3	October 22, 2014 from 11 AM to 5 PM (Off Peak)	Annual	DC Portion of PEPSCO

- Below is the performance of Registrations linked to the CSP PEPCO ANNUAL Resource during Event 1

Registration ID	Location	Registration Commitment Share (ICAP)*	Reduction Amount (ICAP)	Compliance Amount (ICAP)
234567	DC	0.9	0.1	-0.8
234568	DC	1.5	0.5	-1
234569	Rest Of	0	0	0
234570	DC	1.8	2	0.2
234571	Rest Of	0	0	0
234572	Rest Of	0	0	0
234573	Rest Of	0	0	0
234574	DC	0.2	0.1	-0.1
Total		4.4	2.7	-1.7

A negative Compliance Amount represents Under-Compliance

*Only the DC Portion of PEPCO was called, therefore, PJM will only consider the commitments of those registrations in the DC Portion of PEPCO

- Total Net Compliance for this Event is -1.8 MW in UCAP (-1.7 MW ICAP*1.0809*.956)
- There were a total of 3 Events called during the Year for the DC Portion of PEPCO, and this event is considered On-Peak, therefore the Penalty Rate for this event is 1/3 * \$58,866/MW-Year
- Total Penalty Charge for Event 1 is \$34,966

$$\text{UCAP Shortfall} * \text{Penalty Rate} = 1.8 \text{ MW} * 0.33 * \$58,866/\text{MW-Year}$$

- Below is the performance of Registrations linked to the CSP PEPCO ANNUAL Resource during Event 2

Registration ID	Location	Registration Commitment Share (ICAP)*	Reduction Amount (ICAP)	Compliance Amount (ICAP)	Registration Compliance Share (ICAP)
234567	DC	0.9	0.5	-0.4	-0.2
234568	DC	1.5	1	-0.5	-0.3
234569	Rest Of	0.4	0.4	0	0.0
234570	DC	1.8	1.9	0.1	0.0
234571	Rest Of	3	3.2	0.2	0.0
234572	Rest Of	1.6	1.5	-0.1	-0.1
234573	Rest Of	0.6	0.7	0.1	0.0
234574	DC	0.2	0.2	0	0.0
Total		10	9.4	-0.6	-0.6

A negative Compliance Amount represents Under-Compliance

*All of the PEPCO Zone was called, therefore, PJM will consider the commitments of those registrations in the PEPCO Zone

- Total Net Compliance for Event 2 is -0.6 MW in UCAP (-0.6 MW ICAP*1.0809*.956)
 - The Net Shortfall is then allocated to those underperforming registrations to determine the shortfall amount by sub-zone.

- **Event 2 spanned On and Off Peak Periods**

- The Registrations in the DC Portion of PEPCO would be assessed a LM Penalty Rate of $\frac{1}{3} * \text{Party's Weighted Annual Revenue Rate}$

The higher of the charges based on (Lesser of $(\frac{1}{3}, \text{ or } 50\%) * \text{Party's Weighted Annual Revenue Rate } (\$/\text{MW-yr})$, OR $\frac{1}{52} * \text{Party's Weighted Annual Revenue Rate } (\$/\text{MW-yr})$)

- The Registrations in the Rest of PEPCO Zone would be assessed a LM Penalty Rate of $\frac{1}{2} * \text{Party's Weighted Annual Revenue Rate}$.

The higher of the charges based on (Lesser of $(\frac{1}{1}, \text{ or } 50\%) * \text{Party's Weighted Annual Revenue Rate } (\$/\text{MW-yr})$, OR $\frac{1}{52} * \text{Party's Weighted Annual Revenue Rate } (\$/\text{MW-yr})$)

- **Total Penalty Charge for Event 2 is \$12,656**

- DC Portion: \$9,713
 - UCAP Shortfall * Penalty Rate = $0.5 \text{ MW} * 0.33 * \$ 58,866/\text{MW-Year}$
- Rest of PEPCO Zone: \$2,943
 - UCAP Shortfall * Penalty Rate = $0.1 \text{ MW} * 0.5 * \$58,866/\text{MW-Year}$

- Below is the performance of Registrations linked to the CSP PEPCO ANNUAL Resource during Event 3

Registration ID	Location	Registration Commitment Share (ICAP)*	Reduction Amount (ICAP)	Compliance Amount (ICAP)
234567	DC	0.9	0.9	0
234568	DC	1.5	1.2	-0.3
234569	Rest Of	0	0	0
234570	DC	1.8	1.7	-0.1
234571	Rest Of	0	0	0
234572	Rest Of	0	0	0
234573	Rest Of	0	0	0
234574	DC	0.2	0.2	0
Total		4.4	4	-0.4

A negative Compliance Amount represents Under-Compliance

*Only the DC Portion of PEPCO was called, therefore, PJM will only consider the commitments of those registrations in the DC Portion of PEPCO

- Total Net Compliance for Event 3 is -0.4 MW in UCAP (-0.4 MW ICAP*1.0809*.956)
- Event 3 is considered Off-Peak, therefore the Penalty Rate for this event is 1/52 * \$58,866/MW-Year
- Total Penalty Charge for Event 3 is \$471

$$\text{UCAP Shortfall} * \text{Penalty Rate} = 0.4 \text{ MW} * 0.02 * \$58,866$$

- Charges for an event are allocated on a pro-rata basis to those CSPs that provided load reductions in excess of the amount that they were obligated to provide for such event.
- Allocation to each over-performing CSP shall not exceed the volume of excess MWs provided during a single event times 0.2 times the Weighted Annual Revenue Rate.
- Remaining Penalty Charges not allocated to over performing providers are allocated to LSEs based on LSE's average Daily UCAP Obligation during the month the PJM-initiated LM event occurred.
- LM Event Compliance Penalty Credits for an event are allocated when charges are assessed.

- Load reductions will be added back for purpose of calculating peak load for capacity under these conditions:
 - Emergency Load Response or Economic Load Response
 - LM resources registered as Emergency Load Response Full Program Option or Capacity Only resources
 - Response during June 1 through September 30

Load Management Test Compliance

Spring 2011

- *In the absence of being dispatched for a PJM initiated LM event, a LM Resource Test provides the means to assess whether or not a DR Resource honored their commitments and provided the expected reliability services during the Delivery Year.*
- Incentivizes LM resource providers to perform through exposure to deficiency or penalty charges

Testing requirement applies to:

- Committed Limited DRs in zone if PJM did not initiate a LM-event for Limited DRs in such zone during June-Sept of DY.
- Committed Extended Summer DRs in zone if PJM did not initiate a LM-event for Extended Summer DR in such zone during June-October or May of DY.
- Committed Annual DRs in zone if PJM did not initiate a LM-event in such zone for Annual DRs during DY.

- CSP is required to simultaneously test all their sites registered as Limited DR in a zone if PJM has not called an event for Limited DR in that zone by August 15 of DY
 - If PJM initiated a LM event for Limited DR in zone for long lead time resources only, CSP is required to test sites registered as short lead time, Limited DR in zone.
 - If PJM initiated a LM event for Limited DR in sub-zone only, CSP required to test sites registered as Limited DR in rest of zone.
- If a PJM-initiated LM event for Limited DR is called between August 16 and September 30 of DY, no test will be required
- If a PJM-initiated LM event for Limited DR is called between June 1 and September 30 of DY, LM test compliance will not be evaluated and LM Test Failure Charges will not be assessed for Limited DR.

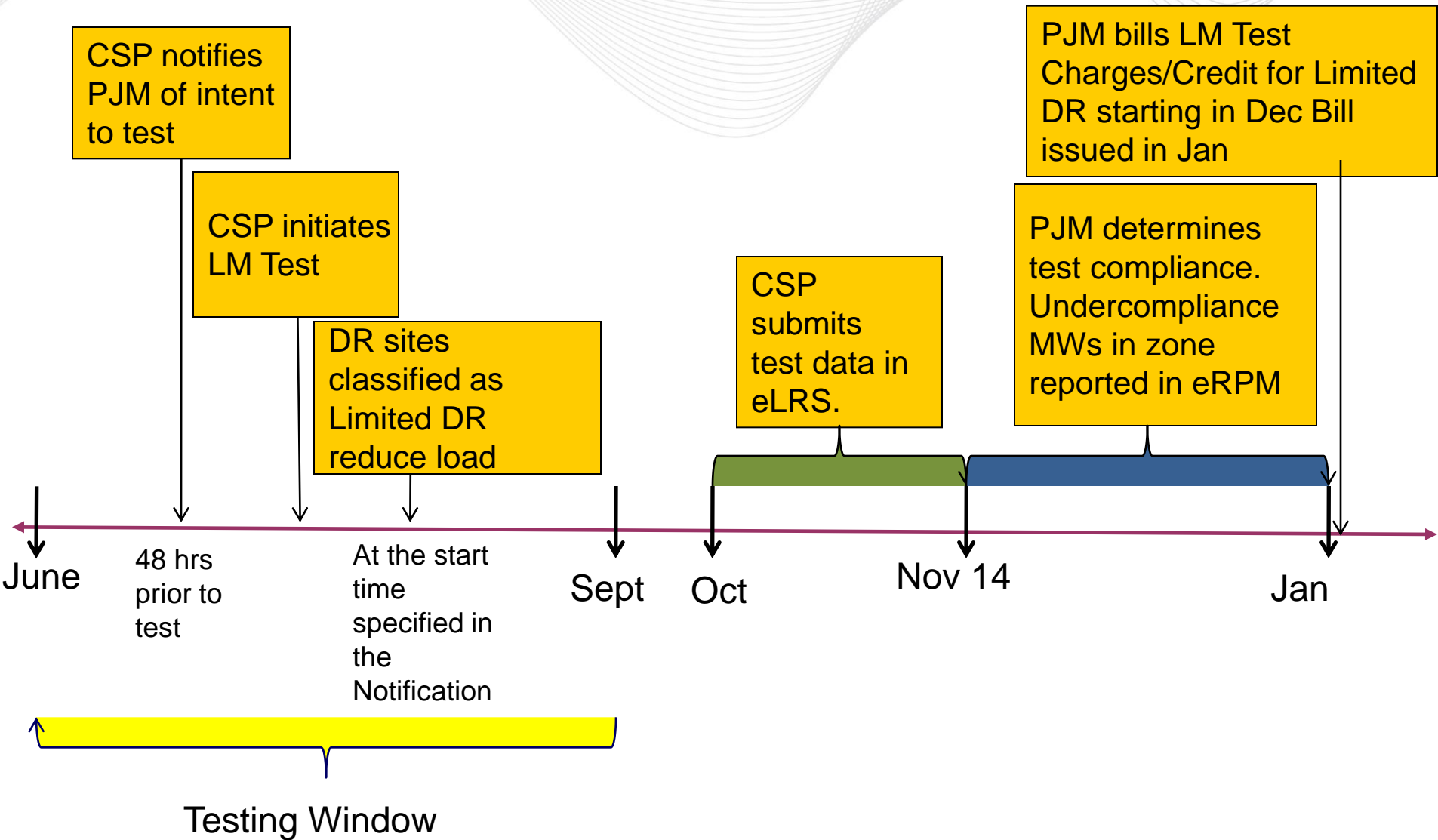
Test required only if there is no PJM-initiated LM event for Limited DR in that zone for lead time type (i.e., long lead time, short lead time).

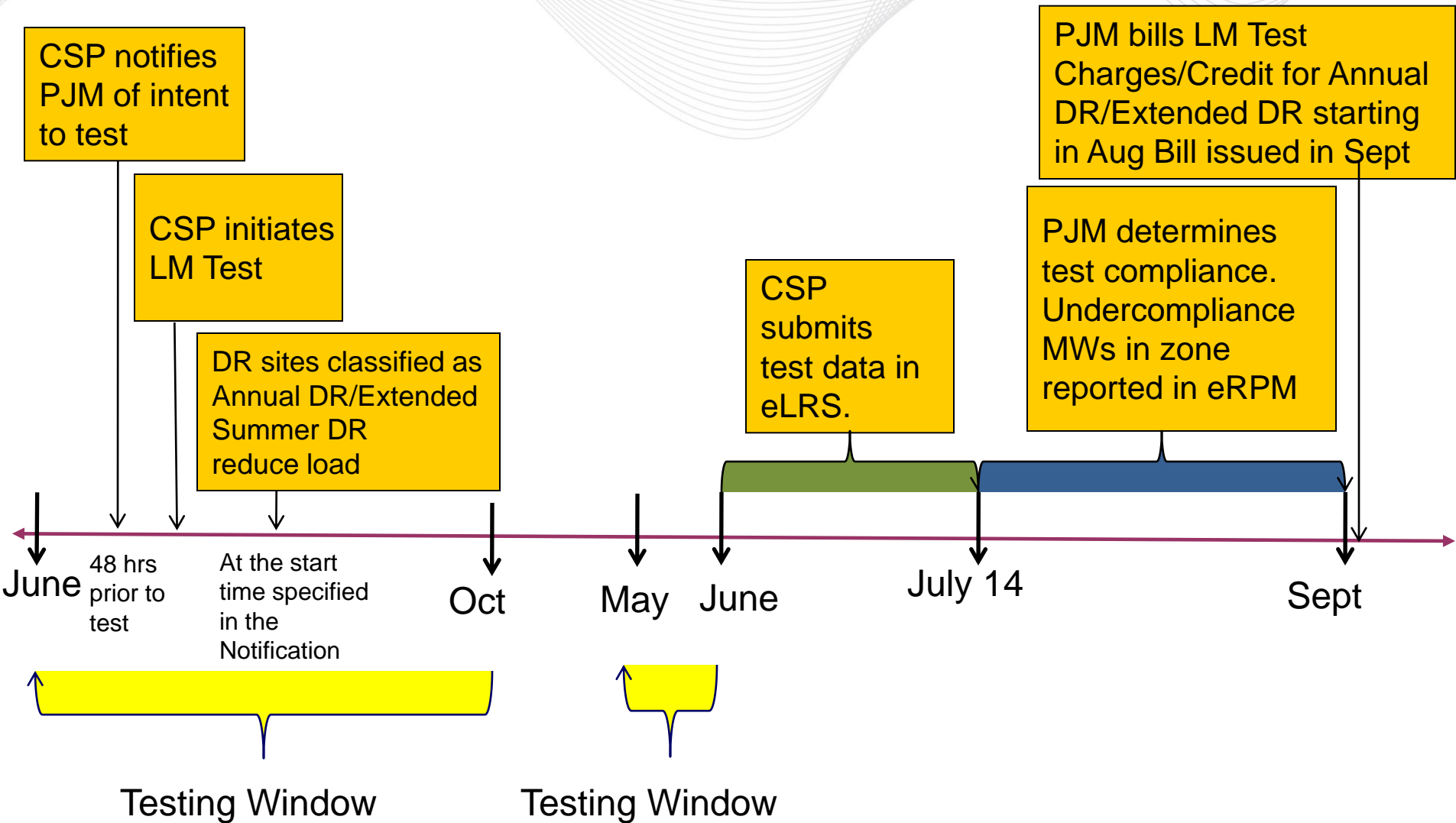
- CSP is required to simultaneously test all their sites registered as Annual DR in a zone if PJM has not called an event for Annual DR in that zone during the Delivery Year
 - If PJM initiated a LM event for Annual DR in zone for long lead time resources only, CSP is required to test sites registered as short lead time, Annual DR resources in zone.
 - If PJM initiated a LM event for Annual DR in sub-zone only, CSP required to test sites registered as Annual DR in rest of zone.
- If a PJM-initiated LM event for Annual DR is called during Delivery Year, no test will be required

Test required only if there is no PJM-initiated LM event for Annual DR in that zone for lead time type (i.e., long lead time, short lead time).

- CSP is required to simultaneously test all their sites registered as Extended Summer DR in a zone if PJM has not called an event for Extended Summer DR in that zone during June – October or May of the Delivery Year
 - If PJM initiated a LM event for Extended Summer DR in zone for long lead time resources only, CSP is required to test sites registered as short lead time, Extended Summer DR in zone.
 - If PJM initiated a LM event for Extended DR in sub-zone only, CSP required to test sites registered as Extended DR in rest of zone.
- If a PJM-initiated LM event for Extended Summer DR is called during June – October or May of Delivery Year, no test will be required

Test required only if there is no PJM-initiated LM event for Extended Summer DR in that zone for lead time type (i.e., long lead time, short lead time).





- All of CSP's registrations for the same product type in the same zone are required to test at the same time for a 1 hour period during any hour when a PJM-initiated LM event for such product type would be called
 - Limited DR: 12:00 PM – 8:00 PM
 - Extended Summer DR/Annual DR: 10:00 AM – 10:00 PM
- Test must be conducted on a non-holiday weekday during the following testing periods:
 - Limited DR: June – September of DY
 - Extended Summer DR/Annual DR: June – October, May of DY
- Notify PJM of intent to test 48 hours in advance
- No limit on the number of tests a CSP can perform
 - Only submit data for specific test that you want PJM to measure compliance

- Notify PJM of intent to test 48 hours in advance of test
- *Notification of Intent to Test* must be sent to dsr_ops@pjm.com with “Load Management Test Notice” as the subject line in e-mail message
- Notification must include test date, start and end times, zone, product type (Annual DR, Extended Summer DR, or Limited DR) and expected zonal MW reduction in body of e-mail message.
- May cancel *Notification of Intent to Test* by sending e-mail message to dsr_ops@pjm.com with “Cancellation of Load Management Test” as subject line in the e-mail message
 - Provide cancellation notice no later than 4 hours prior to scheduled test start time.

- If CSP failed to provide the required load reduction by product type in a zone by less than 25% of their committed load reduction by product type in a zone, the CSP can re-test the subset of failed resources.
- CSP may elect to maintain the initial test result of a failed resource if CSP notifies PJM 48 hours prior to a retest
- If no election is made to maintain the initial test result, the retest must be performed for all resources (i.e., end-use customer sites) in the zone that failed the initial test.
- Any resource affiliated with a failed resource must also participate in the re-test, even if it passed the in the initial test.
 - Affiliated resources are resources that have ability to shift load and are owned or controlled by the same entity.
- Re-test must be performed on comparable day (same time of day and under approximately the same weather conditions of original test)
- No limit on the number of re-tests a CSP can perform
 - Only submit data for specific re-test that you want PJM to measure compliance

INITIAL TEST and RE-TEST MUST BE COMPLETED BY SEPTEMBER 30 FOR LIMITED DR AND BY MAY 31 FOR ANNUAL DR OR EXTENDED SUMMER DR

- Test data must be submitted on or after Oct. 1 and by end of day Nov. 14 of the DY for Limited DR
- Test data must be submitted on or after June 1 and by end of day July 14 after the DY for Annual DR or Extended DR
- Only submit final test results and, if applicable, final “retest” results
- If initial test results are not submitted for a registration on-time then load reduction provided is 0 MW for such registration in the initial test
- If retest data is not submitted for entire subset of failed registrations and any affiliated registrations (with the exception of those registrations where CSP elected to maintain initial test data), CSP will not be eligible for re-test provisions and initial test results will be used for all registrations
- Test data will be submitted through eLRS system the same way emergency event compliance data is submitted
- For GLD registrations, meter data submission has been expanded to include all 24 hours for event/test day and all 24 hours for any additional days as required by PJM to calculate load reduction.

- Methods to measure test compliance for FSL, GLD, or DLC registrations are the same methods used to measure event compliance
- LM Test Compliance is measured over the hour of the test
- No compliance credit will be given for the incremental load drop below zero (i.e. exported energy).
- If CSP is eligible for re-test provision and re-test data is submitted for a subset of failed registrations in zone, re-test data will be used in determining final reduction for such registrations
- CSP test compliance is aggregated by Zone and product-type
- Net shortfall by zone and product type is determined by comparing the total zonal load reduction provided by registrations of the product-type to the Summer Average of Commitments for such zone and product-type
- Performance review of submitted test results will be completed by PJM between November 15 and December 31 during the DY for Limited DR and between July 15 and August 30 after the DY for Annual DR and Extended Summer DR

Net Testing Shortfall in zone for product-type =

Summer Avg RPM Commitments in zone for product-type

Total MWs of Load Reduction provided by registrations in zone for product-type

Summer Daily Avg of Capacity Resource Deficiency Shortfalls for product-type

To avoid double-counting of deficiencies

Includes both RPM & FRR Commitments

Shortfalls in ICAP will be converted to UCAP using final DR Factor and FPR for DY.

- A positive number indicates a shortfall
- A negative number indicates an excess

Resource in eLRS	Resource in eRPM	Nominated Load Reduction (MW)	Initial Test Reduction (MW)	Pass/Fail Initial Test	Retest Reduction (MW)	Final Reduction (MW)
FSL1*	CSP1 PEPCO LDR1	5	4.7	Fail	4.8	4.8
FSL2	CSP1 PEPCO LDR1	8	8.3	Pass		8.3
FSL3	CSP1 PEPCO LDR1	2	1.5	Fail	1.6	1.6
FSL4*	CSP1 PEPCO LDR1	10	10	Pass	11	11
GLD1	CSP1 PEPCO LDR2	15	8	Fail	10	10
GLD2	CSP1 PEPCO LDR2	3	2	Fail	0	0
GLD3	CSP1 PEPCO LDR2	7	0 (no data submitted)	Fail	7.3	7.3
DLC1	CSP1 PEPCO LDR2	50	50	Pass		50
	Zonal Total	100	84.5			93

Resource	Summer Average of Commitments (ICAP MWs)
CSP1 PEPCO LDR1	25
CSP1 PEPCO LDR2	73
Zonal Total	98

No LM event for Limited DR in PEPCO zone.

*FSL1 & FSL4 are affiliated resources, and, as such, must perform together in any re-test.

Since Zonal Initial Test Reduction MW > 0.75 * Zonal Summer Average of Commitments (i.e., 73.5 MWs), CSP qualifies for re-test provision.

Resource	Summer Average of Commitments (ICAP MWs)	Final Load Reduction (MW)	Shortfall (MW)	Allocation of Net Zonal Shortfall (MW)
CSP1 PEPCO LDR1	25	25.7	- 0.7	0
CSP1 PEPCO LDR2	73	67.3	5.7	5
Zonal Total	98	93	5	5

- A positive number indicates a shortfall
- A negative number indicates an excess

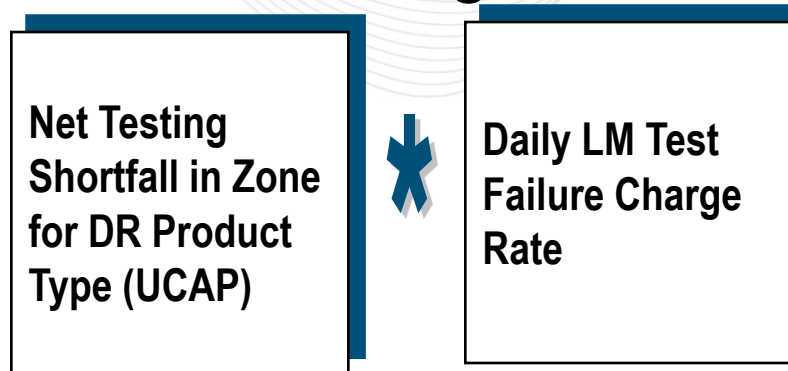
Resource Shortfall = Summer Avg of Commitments – Final Load Reduction

Positive shortfalls represent under compliance.

Net Zonal Shortfall allocated among underperforming resources on pro-rata basis based on underperformance.

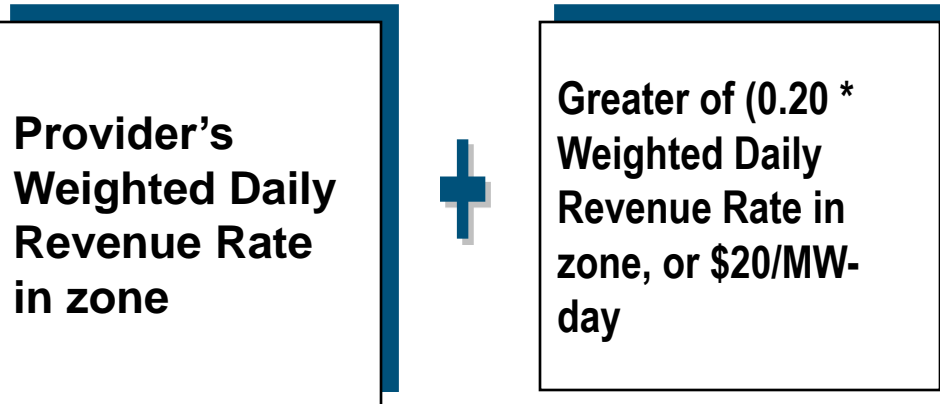
CSP will be assessed LM Test Failure Charge for a positive net zonal shortfall.

Daily LM Test Failure Charge =



- Load Management Test Failure Charges are assessed to a provider that under-complied in a zone for DR product type during a test.
- For Limited DR: Assessed daily and billed monthly; provided, however that a lump sum payment may be required to reflect amounts due, as a result of the testing failure, from the start of the DY to the day the charges are reflected in regular billing (December bill issued in January)
- For Annual DR/Extended Summer DR: Assessed daily and charged as a lump sum payment to reflect amounts due for the entire DY in the August bill issued in September after conclusion of the DY.
- Charges are allocated on a pro-rata basis to those LSEs who were charged a Daily Locational Reliability Charge based on their Daily UCAP Obligation

Daily LM Test Failure Charge Rate =



- Provider's Weighted Daily Revenue Rate in a zone is determined by calculating the weighted average of resource clearing prices received across all RPM auctions by zonal DRs, weighted by MWs cleared (including any makewhole MWs)
- Resource Provider still receives Daily RPM Auction Credit for DR resources

Replacement Resources

Spring 2011

- Participants may specify replacement resources in order to avoid or reduce performance assessment shortfalls and associated deficiency/penalty charges.
- Replacement capacity that is purchased to reduce a DR commitment must be acquired for the balance of the Delivery Year.
- Replacement Resources include:
 - Generation, DR, or EE Resources with Available ICAP
 - Cleared Buy Bids
 - Locational UCAP
 - Excess Commitment Credits

Will be defined by both location and product type for 14/15 DY

- Replacement Resource must meet similar locational requirements
- Replacement Resource must meet same or better temporal availability characteristics.
 - Annual DR may be replaced by an Annual Resource (generation, energy efficiency, or Annual DR); Cleared Buy Bid, Locational UCAP, or Excess Commitment Credits of an Annual product type
 - Extended Summer DR may be replaced by Annual Resource or Extended Summer DR; Cleared Buy Bid, Locational UCAP, or Excess Commitment Credits of Annual or Extended Summer product types
 - Limited DR may be replaced by Annual Resource, Extended Summer DR, or Limited DR; Cleared Buy Bid, Locational UCAP, or Excess Commitment Credits of Annual, Extended Summer, or Limited DR product types