M-18 Revisions for Seasonal DR Registration Aggregation Proposal

4.3 Load Management Products

Load management is the ability to reduce metered load, either manually or automatically by the customer, after a request from the resource provider which holds the Load management rights or its agent. ~~(for Contractually Interruptible), or automatically in response to a communication signal from the resource provider which holds the Load management rights or its agent (for Legacy Direct Load Control).~~

A load management program (e.g., ~~Legacy Direct Load Control (LDLC)~~, Firm Service Level (FSL), or Guaranteed Load Drop (GLD) program) is eligible to be offered by a resource provider as a **Demand Resource (DR)** into the Base Residual Auction or an Incremental Auction and is paid the applicable LDA product-specific Resource Clearing Price if such resource clears in the auction.

4.3.1 Requirements of Load Management Products in RPM

In order to offer a Demand Resource in an RPM Auction or commit a Demand Resource in an FRR Capacity Plan, a demand resource provider must submit no later than 15 business days prior to the RPM Auction or prior to the deadline for submitting the FRR Capacity Plan a Demand Resource Sell Offer Plan (DR Sell Offer Plan) in accordance with Attachment C of this Manual. Actual deadline date for a DR Sell Offer Plan for an RPM Auction or FRR Capacity Plan is provided in the RPM Auction Schedule posted on the PJM website. A demand resource provider with a PJM approved DR Sell Offer Plan for the RPM Auction will be permitted to offer their Demand Resource(s) into such RPM Auction or commit such Demand Resource in an FRR Capacity Plan, provided the additional demand resource requirements in section 4.3.3 are met.

Demand resources that clear in an RPM Auction will have an RPM Resource Commitment for the relevant Delivery Year. Effective with the 2016/2017 Delivery Year, an RPM Resource Commitment will be further classified as a Non-Capacity Performance or Capacity Performance depending on how the Demand Resource offers and clears in an RPM Auction. Demand resources that are committed to an FRR Capacity Plan will have an FRR Capacity Plan Commitments for the relevant Delivery Year. Effective with the 2019/2020 Delivery Year, the FRR Capacity Plan Commitment will be further classified as Base or Capacity Performance depending on how the Demand Resource was committed by the FRR Entity in the FRR Capacity Plan. A resource provider who has RPM Resource Commitments or FRR Capacity Plan Commitments for their demand resource must meet the following requirements:

- Must be registered in the Pre-Emergency or Emergency Load Response Program (see more detail below in the Pre-Emergency and Emergency Load Response Registration section) prior to the start of the relevant Delivery Year.
- Have the capability to retrieve electronic messages from PJM which notify curtailment service providers of a load management event in accordance with PJM Manual 1: Control Center and Data Exchange Requirements.
- Provide (or contract with another party to provide) customer-specific compliance and verification information within 45 days after the end of the month in which a PJM-

initiated Load Management event or Performance Assessment Interval occurred, in accordance with the Load Management Event Compliance section, Section 8.7 or the Measuring Compliance during Performance Assessment Interval section, Section 8.7A of this manual. Provide (or contract with another party to provide) customer-specific compliance and verification information in accordance with the timelines established in the Load Management Test Compliance section, Section 8.8 of this manual. Statistical sampling may be used instead of customer-specific compliance and verification information for residential customers without interval metering when approved by PJM in accordance with **PJM Manual 19: Load Forecasting & Analysis, Attachment D**.

- Provide load drop estimates for all Load Management events (whether initiated by PJM or the resource provider) and provider initiated test event, in accordance with **PJM Manual 19: Load Forecasting & Analysis.**
- Provide accurate estimates of the amount of energy that will be reduced in direct response to PJM dispatch of demand response during the Delivery Year (see more detail in the Load Reduction Reporting section)

These requirements are described in terms of the customer response and qualifications. The specifics of the customer contract and tariffs are the responsibility of the resource provider and the regulatory process. PJM does not have direct involvement with customers.

The entity requesting load management must verify that each customer's load management meets the following criteria:

- Availability for PJM-initiated interruptions in accordance with the availability requirements of the demand resource product type.
  - Limited DR (Effective through 2017/2018 Delivery Year for RPM and through 2018/2019 Delivery Year for FRR Entities) – Limited DR is available for interruption for at least 10 times during the summer period of June through September in the Delivery Year, and will be capable of maintaining each such interruption for at least a 6-hour duration. At a minimum, the Limited Demand Resource shall be available for such interruptions on weekdays, other than NERC holidays, from 12:00PM (noon) to 8:00PM Eastern Prevailing Time.
  - Extended Summer DR (Effective 2014/2015 – 2017/2018 Delivery Years for RPM and 2014/2015-2018/2019 Delivery Years for FRR Entities) – Extended Summer DR is available for an unlimited number of interruptions during an extended summer period of June through October and the following May, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time.
  - Annual DR (Effective 2014/2015 – 2017/2018 Delivery Years for RPM and 2014/2015-2018/2019 Delivery Years for FRR Entities) – Annual DR is available for an unlimited number of interruptions during the Delivery Year, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time for the months of June through October and the following May, and 6:00AM through 9:00PM Eastern Prevailing Time for the

months of November through April unless there is an Office of the Interconnection approved maintenance outage during October through April.

- Base Capacity DR (Effective 2018/2019 – 2019/2020 Delivery Year) – Base Capacity DR is available for unlimited number of interruptions during June through September in the Delivery Year and will be capable of maintaining such interruption for at least a 10 hour duration between the hours of 10:00 AM to 10:00 PM Eastern Prevailing Time.
- Capacity Performance DR (Effective 2016-2017 Delivery Year) – Capacity Performance DR is available for an unlimited number of interruptions during the Delivery Year, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time for the months of June through October and the following May, and 6:00AM through 9:00PM Eastern Prevailing Time for the months of November through April unless there is an Office of the Interconnection approved maintenance outage during October through April.
- Summer-Period DR (Effective 2020/2021 Delivery Year) – Summer-Period DR is available for an unlimited number of interruptions during an extended summer period of June through October and the following May, and will be capable of maintaining such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time.

- Load management must be able to be implemented within two hours of notification to the resource provider of a PJM-initiated load management event. Effective with the 2015/2016 Delivery Year, load management will be required to fully respond within 30 minutes of notification unless an exception request for 60 or 120 minutes notification time is approved by PJM. If qualified for one of the following exceptions, then CSP shall elect either 60 minute or 120 minute lead time based on the resources physical capability to provide the load reduction:
  - The manufacturing processes for the Demand Resource Registration require gradual reduction to avoid damaging major industrial equipment used in the manufacturing process, or damage to the product generated or feedstock used in the manufacturing process; or
  - Transfer of load to back-up generation requires time-intensive manual process taking more than 30 minutes; or
  - On-site safety concerns prevent location from implementing reduction plan in less than 30 minutes; or
  - The Demand Resource Registration is comprised of mass market residential customers or similarly situated mass market small commercial customers which collectively cannot be notified of a Load Management event within a 30-minute timeframe due to unavoidable communications latency, in which case the requested notification time shall be no longer than 120 minutes.
  - The intent of these exemptions is to accommodate ~~resources~~Demand Resource Registrations with legitimate, physical reasons as to why the load reduction cannot be achieved in the default, 30 minute notification time period and require

up to 120 minutes to fully provide the load reduction. CSP must provide additional data and information within three business days of PJM request to substantiate the request for a longer lead time (60 or 120 minutes). PJM will make its determination within ten business days of receiving such additional information regarding the appropriate lead time for the registration.

- Initiation of load interruptions upon request of PJM must be within the authority of the resource provider dispatcher without any additional approvals being required.
- LDLC programs are certified based on load research and customer subscription data. Load Research guidelines are outlined in PJM Manual 19: Load Forecasting & Analysis.

4.3.2 Types of Load Management Programs

PJM recognizes three types of Load Management programs:

- ~~Legacy Direct Load Control (LDLC) – Load management that is initiated directly by the resource provider's market operations center or its agent, employing a communication signal to cycle equipment (typically water heaters or central air conditioners) and is qualified based on load research and customer subscription data. LDLC is only in effect through May 31, 2016.~~
- 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 resource provider's market operations center or its agent.
- 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 resource provider's market operations center or its agent. Typically, the load reduction is achieved through running customer-owned backup generators, or by shutting down process equipment.

For each type of recognized Load Management Program, there can be three notification periods:

- 30 Minute Lead Time – Load management which must be fully implemented in 30 minutes or less from the time the PJM dispatcher notifies the market operations center of a curtailment event.
- 60 Minute Lead Time – Load management which requires more than 30 minutes but no more than one hour, from the time the PJM dispatcher notifies the market operations center of a curtailment event, to be fully implemented.
- 120 Minute Lead Time - Load management which requires more than one hour but no more than two hours, from the time the PJM dispatcher notifies the market operations center of a curtailment event, to by fully implemented.

4.3.3 Demand Resources

Both Existing and Planned Demand Resources may participate in RPM Auctions or commit to FRR Capacity Plan if a demand resource provider has a PJM approved Demand Resource Sell Offer Plan.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Existing Demand Resources are those MWs on a demand resource identified in a pre-registration process in the eRPM system prior to the RPM Auction.[1] The Nominated DR Values (in MWs) associated with end-use customer sites that the Curtailment Service Provider (CSP) has under contract for the current Delivery Year (i.e., end-use customer sites registered in PJM DR Hub system for the current Delivery Year)[2] and that the CSP intends to have under contract for the auction Delivery Year are considered Existing MWs. The summer Nominated DR Value of a Demand Resource Registration is used in the calculation of Existing MWs; however, in the case of end-use customer sites registered as Capacity Performance product-type for the 2017/2018 and 2018/2019 Delivery Year, the annual Nominated DR Value is used in the calculation of Existing MWs . A CSP may request an adjustment to the summer Nominated DR Value (in MWs) associated with an end-use customer site and used in the determination of a CSP's Existing MWs if the following three criteria are satisfied:

- The original Nominated DR Value for the end-use customer was determined based on one registration in DR Hub.
- The peak load contribution (PLC) reported in the DR Hub registration for the end-use customer is at least 2 MW lower than it should have been due to an anomaly. An anomaly is a condition at the end-use customer site that resulted in significantly low usage that is not expected to occur in the future, such as a lighting strike or a major mechanical failure to an end use device.
- The CSP provides supporting information including historical load data to support an adjustment to the Nominated DR Value for the end-use customer.

A CSP request for an adjustment to the summer Nominated DR Value of an end-use customer and supporting information must be submitted via email to rpm_hotline@pjm.com at least five business days prior to the opening of the pre-registration window in the eRPM system for an RPM Auction. PJM will notify the CSP of the approval or rejection of their request prior to the opening of the pre-registration window in the eRPM system for an RPM Auction.

Planned Demand Resources are defined as resources that do not currently have the capability to provide reduction in demand or to otherwise control load in PJM, but that is scheduled to be capable of providing such reduction or control on or before the start of the Delivery Year. Planned Demand Resources are those MWs on a demand resource that the CSP intends to offer in the RPM Auction or commit to an FRR Capacity Plan in excess of the CSP's Existing MWs on such demand resource.

Planned Demand Resources must establish an RPM Credit Limit prior to an RPM Auction. Credit requests should be made to PJM's Treasury Department at least two weeks prior to an RPM Auction.

A resource provider may offer Demand Resources (Planned or Existing) associated with Behind the Meter Generation for an entire Delivery Year into the Base Residual or Incremental Auctions.

1 For an FRR Entity, a pre-registration process is performed manually through spreadsheets provided by PJM.

2 For a Base Residual Auction and a Third Incremental Auction, end-use customer sites registered in the PJM eLRS system for the subsequent Delivery Year may also be considered as existing DR provided the registrations are in "Confirmed" status by specified deadlines established by PJM and communicated to CSPs in advance of the DR Sell Offer Plan submittal deadline.

If the DR offer clears in an RPM auction for a given Delivery Year, the Behind the Meter Generation cannot be netted from load for the purposes of calculating the Peak Load Contributions for that Delivery Year. Requests for Behind the Meter changes for capacity obligations must be received by PJM by December 1 prior to the start of the Delivery Year as outlined in ***PJM Manual 14D: Generator Operational Requirements, Appendix A: Behind the Meter Generation Business Rules.***

If offering as a Demand Resource in the Base Residual Auction or Incremental Auction, a sell offer must be submitted in the Base Residual Auction or Incremental Auction. Demand Resources offered and cleared in a Base Residual or Incremental Auction will receive the corresponding LDA product-specific Resource Clearing Price determined by the optimization algorithm.

4.3.4 Demand Resource Modifications (DR Mods)

Prior to the 2015/2016 Delivery Year, Demand Resource Modification (DR MOD), a type of eRPM transaction, was used to track an increase or decrease of the nominated value of a provider's DR Resource in the eRPM system. Effective with the 2015/2016 Delivery Year, DR MODs are no longer submitted by DR Providers. PJM may submit a DR MOD for an FRR Entity to establish the Daily Nominated DR Value for an FRR Entity's Demand Resource based on PJM's approval of the FRR Entity's DR Sell Offer Plan. After the Delivery Year demand resource registration process begins in DR Hub system, the Daily Nominated DR Value for a Demand Resource is established based on confirmed Demand Resource Registrations in "completed" status linked to the DR Resource in the DR Hub system. For a Demand Resource of the Limited DR, Extended Summer DR, Annual DR, Base product-type, the Daily Nominated DR Value for the Delivery Year is based on the sum of the summer nominated DR values of the registrations linked to such Demand Resource.[3] For the 2017/2018 and 2018/2019 Delivery Years, the Daily Nominated DR Value for a Capacity Performance Demand Resource for the Delivery Year is based on the sum of the annual nominated DR values of registrations linked to the Capacity Performance Demand Resource. For the 2019/2020 Delivery Year, the Daily Nominated DR Value for a Capacity Performance Demand Resource during the Delivery Year is based on the lesser of (a) the sum of the summer nominated DR values of the registrations linked to such Demand Resource or (b) the sum of the winter nominated DR values of the registrations linked to such Demand Resource. Effective with the 2020/2021 Delivery Year, the Daily Nominated DR Value for a Capacity Performance Demand Resource during the summer period of June through October and May of the Delivery Year is based on the sum of the summer nominated DR values of the registrations linked to such Demand Resource. The Daily Nominated DR Value for a Demand Resource during the non-summer period of November through April is based on the lesser of (a) the sum of the summer nominated DR values of the registrations linked to such Demand Resource or (b) the sum of the winter nominated DR values of the registrations linked to such Demand Resource.

4.3.5 Pre-Emergency and Emergency Load Response Registration

[3] For the 2016/2017 Delivery Year, the Daily Nominated DR Value for the Delivery Year for a Capacity Performance Demand Resource was also based on sum of the summer Nominated DR Values of the registrations linked to such Demand Resource.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Pre-Emergency and Emergency Load Response Registration is the process of providing the following information through the submittal of a Pre-Emergency or Emergency Load Response registration into PJM's DR Hub system. As part of this process, resource providers will submit the following types of information:

- Customer-specific load management information for planning and verification purposes (i.e., EDC account number, Zone, etc.)
- Customer-specific information to establish nominated load management levels (i.e., Peak Load Contribution, Winter Peak Load, EDC Loss Factor, notification period, Firm Service Level data (summer and winter), ~~Legacy Direct Load Control data~~, Guaranteed Load Drop data (summer and winter). Winter Peak Load and winter Firm Service Levels are required for Capacity Performance DR registrations effective with the 2017/2018 Delivery Year. However, effective with the 2020/2021 Delivery Year, winter Peak Load and winter Firm Service Levels are not required if such registration indicates that it is a Summer-Period DR Only registration. Economic, Pre-Emergency, or Emergency Load Response registrations that would like to be eligible for Bonus Performance for a Performance Assessment Interval must have both customer-specific summer and winter based data provided in the registration.
- Demand Resource name to link the Demand Resource Registration to the appropriate Demand Resource modeled in the eRPM system.
- Load Management product type for customer site (Limited DR, Extended Summer DR, or Annual DR,(2014/2015 – 2017/2018 Delivery Years for RPM and 2014/2015-2018/2019 Delivery Years for FRR Entities), Base DR (Effective 2018/2019 – 2019/2020 Delivery Year for RPM and 2019/2020 Delivery Year for FRR), Capacity Performance DR (Effective with 2016/2017 Delivery Year for RPM and 2019/20120 Delivery Year for FRR Entities), Summer-Period DR[4](Effective with 2020/2021 Delivery Year).
- A point of contact with appropriate backup to ensure single call notification from PJM and timely execution of the notification process

A resource provider who has RPM or FRR Resource Commitments for their demand resource must register customers in the Full Program Option or as a Capacity Only Option of the Emergency Load Response or Pre-Emergency Load Response Program.

The Full Program and Capacity Only Option enable a resource provider that has approved registrations for the Delivery Year prior to the applicable registration deadline to receive capacity credits, in the form of RPM Auction Credits, if the resource provider cleared their demand resource in an RPM Auction, for that Delivery Year. Full Program Option resource providers may claim an energy settlement for a PJM-initiated Load Management Event. Capacity Only Option resource providers may not claim an energy settlement for a PJM-initiated Load Management Event for Capacity Only registrations.

4Summer-Period DR is included in Capacity Performance DR registration when a Nominated DR Value based on summer data is greater than Nominated DR Value based on winter data. If Summer- Period DR Only is checked on the registration, such registration is only required to provide Nominated DR Value based on summer capability when dispatched in the summer period. If Summer-Period DR Only is not checked on the registration, the registration is required to provide Nominated DR Value based on summer capability and Nominated DR Value based on non-summer capability.

Customer sites registered in the Energy Only Program are not eligible to receive capacity credits.

A provider with RPM or FRR Resource Commitments for their Demand Resource must register customer sites that are of the same product-type (Limited, Extended Summer, or Annual for 2014/2015-2017/2018 Delivery Years for RPM and 2014/2015-2018/2019 Delivery Years for FRR Entities; Base DR for 2018/2019-2019/2020 Delivery Years for RPM and 2019/2020 Delivery Year for FRR; Capacity Performance DR effective for 2016/2017 Delivery Year for RPM and for 2019/20120 Delivery Year for FRR Entities) as the committed Demand Resource. Effective with the 2020/2021 Delivery Year, a provider with RPM or FRR Resource Commitments for their Demand Resource must register customer sites that are the Capacity Performance product-type.[5]

A completed Load Response registration in DR Hub for a DR resource must be submitted no later than one day before the tenth business day preceding the relevant Delivery Year. All registrations that have not been approved on or before May 31st preceding the relevant Delivery year shall be rejected by PJM.

Full details of the Pre-Emergency and Emergency Load Response registration and approval process may be found in ***Section 10 of PJM Manual for Scheduling Operations (M-11).***

4.3.6 End-Use Customer Aggregation

A resource provider may aggregate multiple end-use customer sites to create a single Demand Resource for the purposes of submitting an offer in the RPM Auctions, if all the end-use customer sites have the same following characteristics:

- Curtailment Service Provider
- Electric Distribution Company (EDC)
- Transmission Zone (or sub-zonal LDA)

The mechanism for aggregating end-use customer sites to create a single Demand Resource is to select the same Demand Resource for multiple end-use customer sites during the registration process.

4.3.7 Determination of Nominated Values for Load Management

Once an end-use customer is registered in the Pre- Emergency or Emergency Load Response Program (Full Program Option or Capacity Only), a nominated load reduction value is calculated for that customer. A summer, winter, and annual nominated load reduction value may be calculated for a registration depending on the product-type registration and Delivery Year. The determination of the value of the load reduction is consistent with the process for determination of the capacity obligation for the customer. Nominated value of a load management resource is equivalent to the Installed Capacity value of a generation resource. ~~The nominated load reduction for a registration is effective for an entire Delivery Year. Effective with the 2020/2021 Delivery~~

[5] A Capacity Performance product-type registration includes Summer-Period DR when a Nominated DR Value based on summer data is greater than Nominated DR Value based on winter data.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

~~Year, the nominated load reduction for a Capacity Performance DR registration may be higher in the summer period than in the non-summer period.~~

For an end-use customer registration, the ~~maximum load reduction (used in determining the Nominated DR Value)~~summer nominated DR value for the registration is based on the Peak Load Contribution in place at the time of the registration in the DR Hub system. ~~Effective with the 2017/2018 Delivery Year, the~~ The winter nominated DR value for a Capacity Performance registration is based on the ~~takes into consideration the~~ Winter Peak Load in place at the time of registration in the DR Hub system. The annual nominated DR value for a Capacity Performance registration is the lesser of the summer nominated DR value and winter nominated DR value of such registration. Effective with the 2019/2020 Delivery Year, an annual nominated DR value for a Capacity Performance registration is no longer calculated.

Nominated Value of Firm Service Level Resources

~~The nominated value for a Firm Service Level customer will be based on the Peak Load Contribution for the customer, as determined by the Electric Distribution Company.~~

A registration for a Firm Service Level (FSL) customer includes a summer nominated DR value. Registrations of the Capacity Performance product-type also include a winter nominated DR value and an annual nominated DR value.

The summer nominated DR value for a Firm Service Level ~~(FSL)~~ customer on a Limited DR, Extended Summer DR, Annual DR, Base DR, Capacity Performance DR (prior to 2017/2018 Delivery Year), and Summer-Period DR Only (effective 2020/2021 Delivery Year) product-type registrations ~~will be~~is equal to the difference between its Peak Load Contribution (PLC) and its pre-determined summer firm service level load adjusted for system losses.

$$Summer\ NominatedValueofFSLCustomer = PLC - (SFSL * LossF)$$

Where:

[Term Header]	[Description Header]
PLC	the customer’s EDC-assigned Peak Load Contribution;
SFSL	Summer Firm Service Load level;
LossF	the customer’s EDC-assigned loss factor.

(Do not edit this paragraph...)

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Effective ~~with the~~for the 2017/2018 Delivery Year and 2018/2019 Delivery Year, the annual nominated DR value for a Firm Service Level customer on a Capacity Performance product-type registration shall equal the lesser of (a) summer nominated DR Value or (b) winter nominated DR value on such registration. Effective with the 2019/2020 Delivery Year, an annual nominated DR value for a Capacity Performance registration is no longer calculated.

The summer nominated DR value for a Firm Service Level customer on a Capacity Performance product-type registration is calculated as the Peak Load Contribution for customer minus (the summer Firm Service Level times the loss factor). ~~or (b)~~

The winter nominated DR value for a Firm Service Level customer on a Capacity Performance product-type registration is calculated as (Winter Peak Load for customer multiplied by Zonal Winter Weather Adjustment Factor minus winter Firm Service Level) times the loss factor.

~~Prior to 2020/2021 Delivery Year, the nominated value for a Firm Service Level customer on a Capacity Performance product-type registration shall be effective for the entire Delivery Year. Effective with the 2020/2021 Delivery Year, the nominated value for a Firm Service Level customer on a Capacity Performance product-type registration for summer period of June through October and May of the Delivery Year will be based on the summer period capability of the registration and the nominated value for non-summer period of November through April of the Delivery Year will be based on the annual capability of the registration. The summer period capability of a Firm Service Level customer on the registration shall equal the Peak Load Contribution minus (the summer Firm Service Level multiplied by the loss factor). The annual capability for a Firm Service Level customer on the registration shall equal the lesser of (a) Peak Load Contribution for customer minus (the summer Firm Service Level times the loss factor) or (b) (Winter Peak Load for customer multiplied by Zonal Winter Weather Adjustment Factor minus winter Firm Service Level) times the loss factor~~. If a Capacity Performance product-type registration indicates that such registration is for Summer-Period DR Only, the winter nominated DR value for a Firm Service Level registration ~~for the summer period of June through October and May of the Delivery Year will be based on the summer period capability of the registration and the nominated value for non-summer period of November through April of the Delivery Year~~ will be zero.

The Winter Peak Load is determined by the Curtailment Service Provider based on the average of the Demand Resource customer's specific peak hourly load between hours ending 7:00 EPT through 21:00 EPT on the PJM defined 5 coincident peak (5CP) days from December through February two Delivery Years prior to the Delivery Year for which the registration is submitted. Notwithstanding, if the average use between hours ending 7:00 EPT through 21:00 EPT on a winter 5 coincident peak day is below 35% of the average hours ending 7:00 EPT through 21:00 EPT over all five of such peak days, then up to two such days and corresponding peak demand values may be excluded from the calculation. ~~customer's peak load between hour ending 7:00 EPT~~

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

~~through 21:00 EPT on each of the PJM defined five coincident peak (5CP) days from December through February two Delivery Years prior to the Delivery Year for which the registration is submitted. The Winter Peak Load is calculated as the average of the customer's five peak demand values on the PJM defined winter 5 CP days. PJM posts the RTO winter 5 CP days on the pjm website.~~ If no hourly load data exists for December through February two Delivery Years prior to the Delivery Year, or if more than two days meet the exclusion criteria, then the CSP may use the most recent December through February hourly load data to calculate the Winter Peak Load, upon PJM verification. If no hourly load data for the customer exists for the last two December through February periods prior to the Deliver Year, or if more than two days meet the exclusion criteria for the last two December through February periods prior to the Delivery Year, the CSP may provide alternative data to support a Winter Peak Load subject to PJM's review and approval of the use of alternative data.

The Zonal Winter Weather Adjustment Factor is equal to the zonal winter weather normalized peak divided by the zonal average of five coincident peak loads in December through February. PJM posts the RTO winter 5 CP days on the PJM website. PJM calculates and posts the Zonal Winter Weather Adjustment Factors on the pjm website.

Comment [TE1]: These proposed updates are up for endorsement at June MIC and MRC meeti

Nominated Value of Guaranteed Load Drop Resources

A registration for a Guaranteed Load Drop (GLD) customer includes a summer nominated DR value. Registrations of the Capacity Performance product-type also include a winter nominated DR value and an annual nominated DR value.

The summer nominated DR value for a Guaranteed Load Drop ~~(GLD)~~ customer on a Limited DR, Extended Summer DR, Annual DR, Base DR, Capacity Performance DR (prior to 2017/2018 Delivery Year) and Summer-Period DR Only (effective 2020/2021 Delivery Year) product-type registrations will be the summer guaranteed load drop amount, adjusted for system losses, as established by the customer's contract with the resource provider. The value nominated shall not exceed the customer's Peak Load Contribution.

$$Summer\ NominatedValueofGLD = SGLD\ (LossF)$$

Where:

[Term Header]	[Description Header]
GLD	Customer's Summer Guaranteed Load Reduction;
LossF	the customer's EDC-assigned loss factor.

(Do not edit this paragraph...)

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Effective ~~with~~for the 2017/2018 and 2018/2019 Delivery Years, the annual nominated DR value for a GLD customer on a Capacity Performance DR product-type registration is the lesser of (a) the summer ~~or winter guaranteed load drop amount, adjusted for system losses, as established by the customer's contract with the resource provider~~nominated DR value or (b) winter nominated DR value on such registration. ~~The value nominated shall not exceed the customer's Peak Load Contribution~~. Effective with the 2019/2020 Delivery Year, an annual nominated DR value for a Capacity Performance registration is no longer calculated.

~~Prior to 2020/2021 Delivery Year, the nominated value for a GLD customer on a Capacity Performance product-type registration shall be effective for the entire Delivery Year. Effective with the 2020/2021 Delivery Year, the nominated value for a GLD customer on a Capacity Performance product-type registration for the summer period of June through October and May of the Delivery Year will be based on the summer period capability of the customer. The nominated value for a GLD customer on a Capacity Performance product-type registration for the non-summer period of November through April of the Delivery Year will be based on the annual capability of the customer.~~

The summer nominated DR value ~~period capability of~~for a GLD customer on a Capacity Performance product-type registration shall equal the summer guaranteed load drop amount multiplied by the loss factor, as established by the customer's contract with the resource provider. The summer nominated DR value shall not exceed the customer's Peak Load Contribution.

The winter nominated DR value for a GLD customer on a Capacity Performance product-type registration shall equal the winter guaranteed load drop amount multiplied by the loss factor, as established by the customer's contract with the resource provider. The winter nominated DR value shall not exceed the Winter Peak Load for customer multiplied by Zonal Winter Weather Adjustment Factor times the loss factor. ~~The annual capability for a GLD customer on a registration shall equal the lesser of the summer or winter guaranteed load drop amount multiplied by the loss factor. The nominated values for both summer and non-summer period shall not exceed the customer's Peak Load Contribution.~~ If a Capacity Performance product-type registration indicates that such registration is for Summer-Period DR Only, the winter nominated value for the GLD customer on the registration ~~for the summer period of June through October and May of the Delivery Year will be based on the summer period capability of the customer and the nominated value for the non-summer period of November through April of the Delivery Year~~ will be zero.

~~**Nominated Value of Legacy Direct Load Control Resources**~~

~~The nominated value for a Legacy Direct Load Control (LDLC) program will be based on load research and customer subscription. The value of the program is equal to the PJM-approved per-participant load reduction (evaluated at average peak day weather conditions and adjusted for the switch operability rate) multiplied by the number of active participants, adjusted for system losses.~~

$$\cancel{NominatedValueofLDLC = PPI * Cust * LossF}$$

~~**Where:**~~

~~[Term Header]~~	~~[Description Header]~~
~~PPI~~	~~the PJM-approved Per-Participant Impact;~~
~~Cust~~	~~the number of active participants;~~
~~LossF~~	~~the EDC-assigned loss factor.~~

(Do not edit this paragraph...)

~~The per-participant impact is to be estimated at long-term average local weather conditions at time of the RTO summer peak. Load research studies to support per-participant impacts must comply with the Guidelines for LDLC load research studies presented in ***PJM Manual 19: Load Forecasting & Analysis of this Manual.***~~

4.3.8 Determination of the UCAP Value of Load Management

Prior to 2018/2019 Delivery Year, the Unforced Capacity (UCAP) value of a Load Management product is equal to the Nominated Value of that product multiplied by the Demand Resource Factor (DR Factor) and the Forecast Pool Requirement (FPR). Effective with the 2018/2019 Delivery Year, the unforced capacity (UCAP) value of a Load Management product is equal to the Nominated Value of that product multiplied by the Forecast Pool Requirement.[6]

$$UCAPValue_{LM} = NominatedValue * DRFactor * FPR \text{ (Prior to 2018/2019 DY)}$$

$$UCAPValue_{LM} = NominatedValue * FPR \ (Effective \text{ 2018/2019 DY)}$$

[6] The UCAP value of Load Management product committed to an FRR Capacity Plan is equal to Nominated Value times DR Factor times FPR in the 2018/2019 Delivery Year.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

4.3.9 Load Reduction Reporting

PJM requires an accurate estimate of the amount of energy that will be reduced in direct response to PJM dispatch of Pre-Emergency and Emergency Demand Response capacity resources. This information will be used by PJM to determine the amount of DR resources to dispatch during a pre-emergency or emergency event. The Curtailment Service Provider will contact DR resources, as necessary, to determine a reasonably accurate load reduction capability. The CSP will analyze and review the load reduction capability on a periodic basis to ensure it is reasonably accurate before it is provided to PJM.

Load Reduction Capability

The Load Reduction Capability provided by the CSP should represent the expected future incremental load reduction of energy that will be provided by the DR resources if dispatched by PJM under pre-emergency or emergency conditions. The Load Reduction Capability should only include energy load reductions expected to occur if a pre-emergency or emergency DR event is declared. This is independent of the committed capacity MW on the registration(s) and represents the operational expectations regarding the ability to reduce load for the specific time period. The Load Reduction Capability should not include load reductions that have already occurred or are already planned such as the following:

- Planned or unplanned outages at the facility
- Load reductions based on high expected prices, peak shaving or existing contract provisions

PJM will adjust, downward, the reported Load Reduction Capability values to account for any real time or day ahead economic market dispatch that has been assigned to the registered location(s) by PJM. The difference between the Load Reduction Capability and any economic dispatch reductions will indicate the estimated load reductions still available and able to respond to a PJM call for Pre-Emergency or Emergency DR.

Reporting

Curtailment Service Providers that have active Full Program Option or Capacity Only registrations shall provide PJM the Load Reduction Capability by zone, by lead time, and by product-type on a monthly basis, to be submitted by the last business day of a given month and effective on the first business day of the following month. During the months of June through September, CSPs will provide any updates to this information for each day by no later than 4 p.m. on the day prior to the operating day.

On days for which a Maximum Emergency Generation/Load Management Alert or Action has been issued as communicated through the PJM ALL CALL and/or published on Data Viewer emergency messages, the Curtailment Service Provider shall on an hourly basis provide any updates to their information for the remaining hours of the day beginning at 10 a.m. and continuing until 7 p.m.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

The Curtailment Service Provider shall submit the information electronically to the appropriate PJM system.

4.3.10 Maintenance Outage Reporting for Annual Demand Resource

An annual product (prior to 2018/2019 Delivery Year) and Capacity Performance product (effective 2018/2019 Delivery Year) Pre-Emergency or Emergency Load Response registration may request a maintenance outage during the months of October through April. The maintenance is defined as:

- maintenance to a device or generator used to reduce load at the end use customer location that cannot be reasonably scheduled outside of the annual product availability window, or
- maintenance of a CSP's system used to dispatch DR, but such maintenance shall be limited to no more than two times per quarter, shall not exceed one day in duration, and shall be on a Saturday or Sunday.

The outage request must be submitted at least four business days before the requested start date in the appropriate PJM system and will be evaluated on a first come first served basis. If a request is submitted less than four business days in advance, PJM may approve the request up to one day prior to operating day. The maintenance outage must be between one and thirty days and an extension may be requested during an approved outage at least four business days before the beginning of the extension period. PJM may deny a maintenance outage request if the outage is expected to create reliability issues. A maintenance outage denied by PJM may be resubmitted by the CSP to request another time period for the outage. CSPs should make a best effort not to request outages during weekday annual product availability hours for the months of January and February. A CSP may cancel maintenance outage at any time and the associated registration(s) will be required to respond to a PJM-initiated Load Management Event and shall be measured for event compliance or Non-Performance Assessment if the event or Performance Assessment Interval starts after PJM receives the cancellation. PJM may cancel a previously approved maintenance outage one day prior to the start of the outage for reliability concerns.

A registration associated with an approved maintenance outage that is in effect during a PJM-initiated Load Management event or Performance Assessment Interval will not be considered as dispatched for such an event or Performance Assessment Interval.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

4.7.2 Resource Position for Demand Resources

A party's Demand Resource portfolio may consist of existing Demand Resources or Planned Demand Resources. Qualification requirements for Demand Resources are presented in Load Management Products Section of this Manual.

A party's Daily ICAP Owned for a specific demand resource is equal to the Daily Nominated DR Value adjusted for the ICAP amounts transacted through a party's approved unit-specific bilateral sales/purchases for such demand resource in effect for such day. The Daily Nominated DR Value for a Demand Resource for a Delivery Year is established based on confirmed Demand Resource ~~r~~Registrations in "completed" status linked to such Demand Resource in the DR Hub system. For a Demand Resource of the Limited DR, Extended Summer DR, Annual DR, Base product-type, the Daily Nominated DR Value for the Delivery Year is based on the sum of the summer nominated DR values of the registrations linked to such Demand Resource.[7] For the 2017/2018 and 2018/2019 Delivery Years, the Daily Nominated DR Value for a Capacity Performance Demand Resource for the Delivery Year is based on the sum of the annual nominated DR values of registrations linked to the Capacity Performance Demand Resource. For the 2019/2020 Delivery Year, the Daily Nominated DR Value for a Capacity Performance Demand Resource during the Delivery Year is based on the lesser of (a) the sum of the summer nominated DR values of the registrations linked to such Demand Resource or (b) the sum of the winter nominated DR values of the registrations linked to such Demand Resource. Effective with the 2020/2021 Delivery Year, the Daily Nominated DR Value for a Capacity Performance Demand Resource during the summer period of June through October and May of the Delivery Year is based on the sum of the summer nominated DR values of the registrations linked to such Demand Resource. The Daily Nominated DR Value for a Demand Resource during the non-summer period of November through April is based on the lesser of (a) the sum of the summer nominated DR values of the registrations linked to such Demand Resource or (b) the sum of the winter nominated DR values of the registrations linked to such Demand Resource.

A party's Daily Resource Position for a Demand Resource (in unforced capacity terms) is calculated dynamically by the eRPM system and is equal to the Daily ICAP Owned * DR Factor * Forecast Pool Requirement. Effective with the 2018/2019 Delivery Year, the DR Factor is eliminated and no longer considered in the calculation of the Daily Demand Resource Position.

$$DailyResourcePosition_{DR} = DailyICAPOwned * DRFactor * FPR$$

A Demand Resource that is in a party's Demand Resource portfolio may be offered into RPM Auctions, if there is Available ICAP to offer from the Demand Resource A Demand Resource's Available ICAP for an RPM Auction is determined based on pre-registration confirmation process in the eRPM system for such RPM Auction and PJM's approval of the Curtailment Service Provider's DR Sell Offer Plan for such RPM Auction. A Demand Resource's Existing Available ICAP is determined based on the CSP's completion of the pre-registration process and the DR Existing

[7] For the 2016/2017 Delivery Year, the Daily Nominated DR Value for the Delivery Year for a Capacity Performance Demand Resource was also based on sum of the summer Nominated DR Values of the registrations linked to such Demand Resource.

Setup process in the eRPM system. A Demand Resource's Planned Available ICAP is determined based on PJM's approval of the CSP's DR Sell Offer Plan and the CSP's completion of the DR Planned Setup process in the eRPM system. A Demand Resource's Available ICAP is equal to the Existing Available ICAP and Planned Available ICAP. Effective with the 2020/2021 Delivery Year, a Demand Resource's Existing Available ICAP and Planned Available ICAP is further classified by CSP in the DR Existing/Planned Setup process as MWs intend to offer as Annual Capacity Performance, MWs intend to offer Summer-Period Capacity Performance, and MWs intend to offer as part of an Aggregate Resource.

A party's Daily RPM Resource Commitments for a specific demand resource are calculated by adding the sum of any UCAP Cleared plus UCAP Makewhole for such demand resource in RPM Auctions to decreases/increases of RPM Resource Commitments due to approved unit-specific bilateral sales/purchases of cleared capacity and the specification of replacement resources, and to increases of RPM Resource Commitments due to approved Locational UCAP transactions.

A party's Daily FRR Capacity Plan Commitments for a specific demand resource are equal to the total amount of Nominated DR that was committed from the demand resource for the FRR Capacity Plan.

A party's Daily RPM Demand Resource Position for a specific demand resource is equal to the (Daily ICAP Value – Daily FRR Capacity Plan Commitments)* DR Factor * Forecast Pool Requirement. Effective with the 2018/2019 Delivery Year, the DR Factor is no longer considered in the calculation of a party's Daily RPM Demand Resource Position.

$$DailyRPMPosition_{DR}$$
$$= (DailyNomDRValue - DailyFRRCommittments) * DRFactor * FPR$$

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

8.7 Load Management Event Compliance

Load Management Event Compliance is applicable to Limited, Extended Summer, and Annual product-type registrations with non-Capacity Performance RPM commitments (prior to the 2018/2019 Delivery Year) and with FRR commitments (prior to the 2019/2020 Delivery Year). Load Management Event Compliance is not applicable to a Base or Capacity Performance product-type registration which is subject to Non-Performance Assessment.

Compliance is the process utilized to review resource performance during PJM-initiated Load Management events, as defined in the tariff. The process establishes potential under/over compliance values for each dispatched Demand Resource ~~r~~Registration of the Limited, Extended Summer, and Annual product-type.

Compliance is evaluated separately by event in each Compliance Aggregation Area (“CAA”) as defined in the tariff for Demand Resource~~s~~ Registrations dispatched by PJM. Response to transmission sub-zonal dispatch is mandatory (meaning there are penalty charges assessed for non-performance) if the sub-zone is defined and publicly posted the day before the Load Management event. Response to zonal dispatch is mandatory for the DR product type dispatched within the compliance period of such DR product type for all Delivery Years.

Resource providers may use substitute registrations of a different resource product type to cover the commitment of non-performing registrations that cannot respond to a PJM initiated Load Management event. The non-performing registration(s) and corresponding substitute registration(s) must be in the same geographic location defined by the PJM dispatch instruction with the same designated lead time. In addition, the total nominated value of the substitute registration(s) must be comparable (within either +/- 25% or +/- 0.5 MW) to the total nominated value of the corresponding non-performing registration(s). Resource providers that use substitute registrations must submit their list of nonperforming registrations and corresponding substitute registrations to PJM by 11:59 pm of the event day in the appropriate PJM system. PJM may also request that resource providers submit evidence that notification to respond were sent to substitute registrations in advance or during the event to verify that meter data was not used after the fact in finding the substitutes. Any registration used as a substitute must be included in the submittal of compliance information to the appropriate PJM system. The reduction value(s) of the substitute registration(s) will be used by PJM when measuring event compliance for the corresponding non-performing registration(s). Non-performing registration(s) will be considered to have not performed. Registrations used as substitutes during an event will have the same obligation to respond to future event(s) as if it did not respond to such event.

Resource providers are responsible for the submittal of compliance information to PJM through the Load Response system for each PJM initiated Load Management event during the compliance period.

PJM will establish and communicate reasonable deadlines for the timely submittal of event data to expedite compliance reviews.

Compliance reviews will be completed as soon after the event as possible, with the expectation that reviews of a single event will be completed within two months of the end of the month in which the event took place.

8.7.1 Measuring Event Compliance

PJM verifies Load Management Event Compliance on an end-use customer basis by reviewing the data submitted by the resource provider through the DR Hub system. Load Management Event Compliance for non-interval metered residential customers may be verified using a statistical sample of end-use customers in accordance with ***PJM Manual 19: Load Forecasting & Analysis, Attachment D*** and subject to PJM approval. Like the determination of Nominated Values, Compliance is measured differently for each type of Load Management program.

~~Compliance for Legacy Direct Load Control (LDLC) programs will consider only the transmission of the control signal. Resource providers are required to report the time period (during the Load Management event) that the control signal was started and stopped. Failure to start the signal by the start of the event and continue the signal for the duration of the event will result in a deficiency for that end-use customer.~~

Compliance for Firm Service Level (FSL) customers will be determined by comparing actual load during the event to the nominated firm service level. Resource providers must submit load data for all hours of the event and test day and for all days required for PJM to calculate compliance through the Load Response system.

Compliance for Guaranteed Load Drop (GLD) customers will be determined by comparing actual load dropped during the event to the nominated amount of load drop. Resource providers must submit load data for all hours of the event and test day and for all days required for PJM to calculate compliance. Comparison loads must be developed from the guidelines included in ***Attachment A of PJM Manual M-19 Load Data Analysis*****,** and note which method was employed.

Load Management customers may not reduce their load below zero (i.e., export energy into the system). No compliance credit will be given for the incremental load drop below zero.

Compliance is averaged over the hours the registration was dispatched for at least 30 minutes of the clock hour during the event for FSL and GLD customers. Compliance is averaged over all hours the registration was dispatched for non-interval metered LDLC programs. For FSL and GLD customers dispatched by PJM for at least 30 minutes of the clock hour (i.e. "partial dispatch compliance hour"), the registered capacity commitment for the partial dispatch compliance hour will be prorated based on the number of minutes dispatched during the clock hour.

- Curtailment Service Provider may submit 1 minute load data for use in capacity compliance calculations for partial dispatch compliance hours subject to PJM approval and in accordance with the PJM Manuals where: (a) metering meets all Tariff and Manual requirements, (b) 1 minute load data shall be submitted to PJM for all locations on the registration, and (c) 1 minute load data measures energy consumption over the minute.

CSP may provide 1 minute meter data to use for capacity compliance measurement for partial dispatch hour instead of using prorated.

The averaged compliance data will be used to determine a Resource Compliance Position for the Load Management event for each dispatched registration. Compliance data is netted for a DR Provider by CAA for all Demand Resource ~~r~~Registrations in the DR Hub System that were dispatched.

Resource Compliance Position for a Demand Resource ~~r~~Registration is determined as the Nominated Load Reduction Value reported in the Load Response system minus the actual load reduction, where the Nominated Load Reduction Value is capped at the RPM/FRR Commitment for such registration on the day of the event. If multiple registrations are linked to a committed Demand Resource in the eRPM system, the RPM/FRR Commitment for such Demand Resource is allocated to the linked Demand Resource ~~r~~Registrations pro-rata based on the nominated load reduction value of the registrations.

Resource Compliance Positions for a registration that are positive indicate that the registration under complied during the event. Resource Compliance Positions that are negative indicate that the registration over complied during the event.

8.7.2 Load Management Event Compliance Allocation

For each Demand Resource (DR) provider, compliance data will be totaled over all Demand Resource ~~r~~Registrations dispatched by CAA, to determine the DR Provider's actual CAA load reduction for the event.

For any Load Management event where the actual net load reduction value achieved by a resource provider in a CAA is less than the provider's RPM/FRR Resource Commitments in that CAA on the day of the event, the net CAA under-compliance MWs will be allocated back to the registration level on an under-compliance ratio share; however, such net CAA under-compliance MWs will be reduced by the total amount of a Provider's Daily RPM/FRR Commitment Shortages in a CAA for all their committed Demand Resources that are of the same product type dispatched on the day of the event, before such an allocation occurs. Registrations that were compliant (or over-compliant) in the CAA will not be allocated a portion of the net CAA under-compliance.

For any Load Management event where the actual net CAA load reduction value achieved by a resource provider in a CAA is greater than the provider's RPM/FRR Resource Commitments in that CAA on the day of the event, the net CAA over-compliance will be allocated back to the registration level on an over-compliance ratio share. Registrations that were not over-compliant or did not have a commitment in the CAA will not be allocated a portion of the net CAA over-compliance.

Following the allocation, under-compliant registrations will be subject to a Load Management Event Penalty Charge. Over-compliant registrations may be eligible to receive a Load Management Penalty Charge Allocation.

11.4 Supply Resources in the FRR Alternative

The supply resources available and the qualification requirements for use in FRR Capacity Plans are very similar to RPM resources.

11.4.1 Resource Portfolio

An FRR Entity must specify through the eRPM system, before the FRR Capacity Plan Submittal Deadline, the amounts of installed capacity from resources in their eRPM resource portfolio that are being committed to their FRR Capacity Plan for the Delivery Year.

A party's Daily Generation Resource Position is calculated dynamically by the eRPM system for each unit and is equal to the Daily ICAP Owned on a unit multiplied by one minus the unit's Effective EFORd.

The Daily ICAP Owned on a unit is calculated by adding the ICAP Value of a unit as determined by a party's approved Capacity Modifications to ICAP amounts transacted through a party's approved unit-specific bilateral sales/purchases.

The Installed Capacity (ICAP) Value of a unit is based on the summer net dependable rating of the unit as determined in accordance with PJM's Rules and Procedures for the Determination of Generating Capability.

The EFORd of a unit is based on forced outage data from an October through September period.

If a unit does not have a full one-year history of forced outage data, the EFORd will be calculated using class average EFORd and the available history as described in the Reliability Assurance Agreement, Schedule 5, Section B.

New units are initially assigned a class average EFORd.

The class average EFORds that are used by PJM to calculate a unit's EFORd are posted to the PJM website by November 30 prior to the Delivery Year.

The Effective EFORd is the EFORd that is effective for the delivery day in the eRPM system.

Prior to the Delivery Year, the Effective EFORd is the most recently calculated EFORd that has been bridged to the eRPM system.

During the Delivery Year, the Effective EFORd is based on forced outage data from the October through September period prior to the Delivery Year.

The EFORd that is effective for the Delivery Year is considered locked in the eRPM system by November 30 prior to the execution of the Third Incremental Auction.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

A unit that is in a party's Generation Resource portfolio in eRPM may be committed to FRR Capacity Plan if the party has Daily Available ICAP to commit from the unit for the entire term of the commitment specified in the FRR Capacity Plan.[8] If the party's Daily Available ICAP for the unit varies for the term of the commitment specified in the FRR Capacity Plan, only the minimum Daily Available ICAP may be committed for the term of the commitment specified in the FRR Capacity Plan.

For a party, the Daily Available ICAP to commit on a unit is equal to Daily ICAP Owned - (Daily RPM Resource Commitments/(1-Effective EFORd)) – Daily FRR Capacity Plan Commitments.

A party's Daily RPM Resource Commitments for a specific generating unit are calculated by adding the sum of any UCAP Cleared plus UCAP Makewhole for such unit in RPM Auctions to decreases/increases of RPM Resource Commitments due to approved unit-specific bilateral sales/purchases of cleared capacity, approved locational UCAP transactions, and the specification of replacement resources.

A party's Daily FRR Capacity Plan Commitments for a specific generating unit are equal to the total amount of installed capacity that was committed from the unit for the FRR Capacity Plan.

A party's Daily FRR Generation Resource Position for a specific unit is calculated by multiplying the Daily FRR Capacity Plan Commitments by (1-Effective EFORd).

An LSE's Daily Total FRR Generation Resource Position is calculated by summing the Daily FRR Generation Resource Positions of all units in their resource portfolio in eRPM.

An LSE's Daily LDA FRR Generation Resource Position is calculated by summing the Daily FRR Generation Resource Positions of all units in the LDA.

A party's Daily ICAP Owned for a specific demand resource is equal to the Daily Nominated DR Value adjusted for the ICAP amounts transacted through a party's approved unit-specific bilateral sales/purchases for such demand resource in effect for such day. Prior to the Delivery Year demand resource registration process in DR Hub system, the Daily Nominated DR Value for an FRR Entity's Demand Resource is established based on PJM's approval of the FRR Entity's DR Sell Offer Plan and PJM's submittal of a corresponding DR Modification into the eRPM system. After the Delivery Year demand resource registration process begins in DR Hub system, the Daily Nominated DR value for a Demand Resource for a Delivery Year is established based on confirmed Demand Resource Registrations in "completed" status linked to the DR Resource in the DR Hub system in accordance with Section 4.3.4 of Manual 18. ~~Effective with the 2020/2021 Delivery Year, the Daily Nominated Value of a Demand Resource is determined for summer period of June through October and May of Delivery Year and non-summer period of November through April of Delivery Year based on information provided in the linked Capacity Performance registrations in the DR Hub system.~~

[8] The term of the resource's commitment to the FRR Capacity Plan may be less than a Delivery Year.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

A party's Daily Demand Resource Position for a Demand Resource is calculated dynamically by the eRPM system and is equal to the Daily ICAP Owned * DR Factor * Forecast Pool Requirement. Effective with the 2018/2019 Delivery Year, the DR Factor is no longer considered in the calculation of a party's Daily Demand Resource Position in the eRPM system.

A Demand Resource that is in a party's Demand Resource portfolio may be committed to the FRR Capacity Plan, if there is Daily Available ICAP to commit from the Demand Resource for the entire term of the commitment specified in the FRR Capacity Plan.

For a party, the Daily Available ICAP for a specific demand resource is equal to the resource's Daily ICAP Owned- ((Daily RPM Resource Commitments/(DR Factor *Forecast Pool Requirement)) – Daily FRR Capacity Plan Commitments. Effective with the 2018/2019 Delivery Year, the DR Factor is no longer considered in the calculation of a party's Daily Available ICAP in the eRPM system.

A party's Daily RPM Resource Commitments for a specific demand resource are calculated by adding the sum of any UCAP Cleared plus UCAP Makewhole for such demand resource in RPM Auctions to decreases/increases of RPM Resource Commitments due to the specification of replacement resources, approved unit specific transactions for cleared capacity, and approved locational UCAP transactions.

A party's Daily FRR Capacity Plan Commitments for a specific demand resource are equal to the total amount of Nominated DR that was committed from the Demand Resource for the FRR Capacity Plan.

A party's Daily FRR Demand Resource Position for a specific demand resource is equal to Daily FRR Capacity Plan Commitments* DR Factor* Forecast Pool Requirement. Effective with the 201~~8~~9/20~~19~~20 Delivery Year, the DR Factor is no longer considered in the calculation of a party's Daily FRR Demand Resource Position.

A LSE's Daily LDA FRR Demand Resource Position is calculated by summing the Daily FRR Demand Resource Positions of all demand resources in the LDA. Effective for the 2017/2018 and 2018/2019 Delivery Years, an FRR Entity shall receive no credit for the unforced capacity of Limited Demand Resources to the extent committed in excess of the applicable Limited Resource Constraint and shall receive no credit for the sum of Limited Demand Resources and Extended Summer Demand Resources to the extent the sum of the unforced capacity from such resources exceeds the applicable Sub-Annual Resource Constraint.

A party's Daily FRR Capacity Plan Commitments for a specific EE Resource are equal to the total amount of Nominated EE that was committed from the EE Resource for the FRR Capacity Plan.

A party's Daily FRR EE Resource Position for a specific EE Resource is equal to Daily FRR Capacity Plan Commitments* DR Factor* Forecast Pool Requirement. Effective with the 20~~18~~19/20~~19~~20 Delivery Year, the DR Factor is no longer considered in the calculation of party's Daily FRR EE Resource Position.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

A LSE's Daily Total FRR EE Resource Position is equal to the sum of the Daily FRR EE Resource Position of all EE resources in their resource portfolio in eRPM.

A LSE's Daily LDA FRR EE Resource Position is calculated by summing the Daily FRR EE Resource Positions of all EE resources in the LDA.

An LSE's Daily Total FRR Resource Position is calculated by summing the Daily FRR Generation Resource Positions, Daily FRR Demand Resource Positions, and Daily FRR EE Resource Positions of all resources in their eRPM resource portfolio. Effective for the 2019/2020 Delivery Year, an FRR Entity shall receive no credit for the sum of Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources to the extent committed in excess of the applicable Base Capacity Demand Resource Constraint, and shall receive no credit for the sum of Base Capacity Demand Resources, Base Capacity Energy Efficiency Resources, and Base Capacity Generation Resources to the extent committed in excess of the applicable Base Capacity Resource Constraint. Effective for the 2020/201 Delivery year, an FRR Entity shall only receive credit for Capacity Performance Resources.

After the FRR Capacity Plan Submittal Deadline, an LSE's Daily Total FRR Resource Position is compared to their Daily Preliminary Unforced Capacity Obligation to determine if the LSE has satisfied their Preliminary Unforced Capacity Obligation for the entire Delivery Year.

After the FRR Capacity Plan Submittal Deadline, an LSE's Daily Total FRR Resource Position is compared to their Daily Threshold Quantity, if applicable, to determine if the LSE has satisfied their Daily Threshold Quantity for the entire Delivery Year.

During the Delivery Year, an LSE's Daily Total FRR Resource Position is compared to their Daily Final Unforced Capacity Obligation to determine if a Capacity Resource Deficiency Charge is to be assessed.

An LSE's Daily LDA FRR Resource Position is calculated by summing the Daily LDA FRR Generation Resource Positions, Daily LDA FRR Demand Resource Positions, and Daily LDA FRR EE Resource Positions of all resources in their FRR Capacity Plan.

After the FRR Capacity Plan Submittal Deadline, an LSE's Daily LDA FRR Resource Position is compared to Amount of Internal Resources Required in the LDA to determine if the LSE has satisfied the Percentage of Internal Resources Required in the LDA for the entire Delivery Year.

During the Delivery Year, an LSE's Daily LDA FRR Resource Position is compared to the Amount of Internal Resources Required in the LDA to determine if a Capacity Resource Deficiency Charge is to be assessed.

11.4.2 Existing Generation

Existing generation located within the PJM region or outside the PJM region is eligible to be committed to the FRR Capacity Plan if it meets the requirements set forth in Section 4 of this manual.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

11.4.3 Planned Generation

Planned generation located within the PJM region or outside the PJM region is eligible to be committed to the FRR Capacity Plan if it meets the requirements set forth in Section 4 of this manual.

11.4.4 Capacity Modifications (Cap Mods)

RPM Business Rules regarding Capacity Modifications in Section 4 of this manual apply to the FRR Alternative.

CAP MODs with a start date that occurs on or before the start of the Delivery Year must be submitted and "Provisionally Approved" in the eRPM system in order for the CAP MODs to be considered in a party's Daily Generation Resource Position and the calculation of Available ICAP to commit to the FRR Capacity Plan.

If the status of a "Provisionally Approved" CAP Mod changes to "Denied" or "PJM Withdrawn" all bilateral transactions for the unit will be changed from "Approved" to "Denied". There will be no change to any party's RPM Resource Commitments; however, there may be a change to a party's FRR Capacity Commitments.

11.4.5 Bilateral Unit-Specific Transactions

RPM Business Rules regarding Bilateral Unit-Specific Transactions in Section 4 of this manual apply to the FRR Alternative.

Available or Unoffered installed capacity purchased through a bilateral unit-specific transaction that is reported via PJM's eRPM system may be committed to an FRR Capacity Plan.

All unit-specific bilateral transactions that are in the "Provisionally Approved" or "Approved" status in the eRPM system will be considered in a party's Daily Generation Resource Position and the calculation of Daily Available ICAP to commit.

The Capacity Export Charge and Credit described in Section 4: Supply Resources in the Reliability Pricing Model, under 4.6.3 Exporting a Generation Resource and in Section 9: Settlements are applicable to resources owned by FRR Entities also.

11.4.6 Qualified Transmission Upgrade

A Qualified Transmission Upgrade may be included in an LSE's FRR Capacity Plan. Such a transmission upgrade must be approved and assigned an incremental import capability value into the constrained LDA by the PJM Planning Department at least 45 days prior to deadline for submitting the initial FRR Capacity Plan for the Delivery Year.

An approved Qualified Transmission Upgrade may be used to reduce the Amount of Internal Capacity Required in the LDA for the FRR LSE.

The planned transmission upgrade in-service date must be on or before the start of the Delivery Year.

At a minimum, a facilities study agreement must be executed for the proposed transmission upgrade, in order for approval to be granted and the transmission upgrade must conform to all applicable standards of the PJM Regional Transmission Expansion Planning Process.

If a Qualified Transmission Upgrade is not completed by the start of the Delivery Year, the LSE who included the upgrade as part of their FRR Capacity Plan for the Delivery Year shall provide a replacement in the form of an equivalent amount of capacity resource capability within the applicable LDA by the start of the delivery Year. If replacement capacity is not provided, a Capacity Resource Deficiency Charge may apply.

11.4.7 Load Management Products

A Load Management program (e.g., ~~Legacy Direct Load Control~~, Firm Service Level, or Guaranteed Load Drop program) is eligible to be committed as a Demand Resource (DR) to the FRR Capacity Plan, if the program meets the requirements specified in the Load Data Systems Manual (M-19) and Section 4.3 of this manual.

In order to commit a Demand Resource to the initial FRR Capacity Plan for a Delivery Year, an FRR Entity must submit no later than 15 business days prior to the initial FRR Capacity Plan submittal deadline a DR Sell Offer Plan as described in Attachment C of this Manual (i.e., a completed DR Plan template and DR Officer Certification Form). The completed DR Plan template must clearly identify in the Summary section the Existing Nominated DR Value or Planned Nominated DR Value in ICAP MWs that the FRR Entity intends to commit to their initial FRR Capacity Plan. Effective with the 2020/2021 Delivery Year, the FRR Entity must further classify the Existing/Planned Nominated DR Value as MWs intend to commit as Annual Capacity Performance for annual period and MWs intend to commit as Summer –Period Capacity Performance for summer period, and MWs intend to commit as part of an Aggregate Resource. Actual deadline date for the DR Plan template and DR Officer Certification is provided in the RPM Auction Schedule posted on the PJM website.

If an FRR Entity intends to commit demand resources located in a pre-identified zone/sub-zone, PJM will grant conditional approval of the total Nominated DR Value in such zone/sub-zone pending the PJM review of DR Sell Offer Plans for the Base Residual Auction for such Delivery Year.

An FRR Entity with PJM approved or conditionally approved Nominated DR Value(s) in zone/sub-zone(s) will be permitted to commit the associated Demand Resource(s) to the FRR Capacity Plan, provided credit has been posted with the PJM Treasury Department for any Planned Demand Resource(s).

If a review of the DR Sell Offer Plans for the Base Residual Auction for such Delivery Year reveals that any of the conditionally approved MWs in a pre-identified zone/sub-zone are ascribed to another CSP by a letter of support from an end-use customer, such MWs shall be uncommitted from the FRR Capacity Plan and additional capacity resources shall be committed by the FRR Entity to the FRR Capacity Plan to satisfy the FRR Entity's Preliminary Unforced Capacity Obligation.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

The UCAP value of a Demand Resource committed to an FRR Capacity Plan is the Nominated DR Value committed* DR Factor * Forecast Pool Requirement. Effective with the 201~~8~~9/20~~19~~20 Delivery Year, the DR Factor is no longer considered in the calculation of the UCAP value of a Demand Resource committed to an FRR Capacity Plan.

The Nominated DR Values (summer, winter, or annual) for a load management program registration ~~cannot exceed the maximum value~~are determined in accordance with Section 4.3.7 of this manual and the Daily Nominated DR Value of a Demand Resource for a Delivery Year is established based on confirmed Demand Resource Registrations in "completed" status linked to such Demand Resource in DR Hub system in accordance with Section 4.3.4 and 4.7.2 of this manual.

A resource provider who has FRR Capacity Plan Commitments for their demand resource must meet (or contract with another party to meet the requirements specified in Section 4.3.1 of this manual.

A resource provider who has FRR Capacity Plan Commitments for their demand resource will be subject to the Load Management Event Compliance (prior to 2019/2020 Delivery Year) or Non-Performance Assessment (effective 2019/2020 Delivery Year) and Load Management Test Compliance in accordance with Section 8 of this manual.

11.4.8 Demand Resource Modifications (DR MODs)

RPM Business Rules for DR MODs in Section 4 of this manual apply to the FRR Alternative.

Effective 2015/2016 Delivery Year, DR MODs are no longer submitted by participants. A DR Mod submitted by PJM based on FRR Entity's approved DR Sell Offer Plan must be in a "Provisionally Approved" or "Approved" status in order for the DR MOD to be considered in a party's Demand Resource Position and in the calculation of Available ICAP to commit to the FRR Capacity Plan. After the Delivery Year demand resource registration process begins in DR Hub system, the Daily Nominated DR value for a Demand Resource for a Delivery Year is established based on confirmed registrations in "completed" status linked to the DR Resource in the DR Hub system in accordance with Section 4.3.4 and 4.7.2 of this manual.

11.4.9 Energy Efficiency Resources

An EE Resource may commit to an FRR Capacity Plan for a maximum of up to four consecutive Delivery Years. The time period of an Energy Efficiency installation determines whether an installation is eligible to be a capacity resource for a Delivery Year. The time period of Energy Efficiency installations and their associated eligibility, in addition to the modeling of EE Resources in the PJM Capacity Market, is presented in ***PJM Manual 18B: Energy Efficiency Measurement &Verification,***

An EE Resource must meet the following minimum requirements:

- Submit Initial Measurement &Verification (M&V) Plan no later than 30 days prior to the FRR Capacity Plan submittal in which the EE Resource is initially committed

- Submit Updated M&V Plan no later than 30 days prior to next FRR Capacity Plan submittal in which EE Resource is subsequently committed
- Establish credit with PJM Credit Department prior to FRR Capacity Plan submittal (for planned EE Resources)
- Submit Energy Efficiency Resource Modification (EE MOD) in eRPM system
- Submit Initial Post-Installation M&V Report no later than 15 business days prior to first Delivery Year that the EE Resource is committed
- Submit Updated Post-Installation M&V Reports no later than business 15 days prior to each subsequent Delivery Year that the EE Resource is committed
- Permit Post- Installation M&V Audit(s) by PJM or Independent Third Party.

PJM Manual 18B: Energy Efficiency Measurement & Verification establishes the requirements for the Initial M&V Plan, Updated M&V Plans, Initial Post-Installation M&V Report, Updated Post-Installation M&V Reports, and the M&V Audit.

11.4.10 Energy Efficiency Modifications (EE MODs)

RPM Business Rules for EE MODs in Section 4 of this manual apply to the FRR Alternative.

EE MODs submitted by PJM based on the FRR Entity’s approved initial/updated M&V Plan must be in a “Provisionally Approved” or “Approved” status in order for the EE MOD to be considered in a party’s EE Resource Position and in the calculation of Available ICAP to commit to the FRR Capacity Plan.

An EE MOD may be required prior to the Delivery Year to reflect the final Nominated EE Value or final Capacity Value of an EE Resource for the Delivery Year. An EE MOD decrease may result in the reduction of FRR Capacity Plan Commitments.

Attachment A: Glossary of Terms

Welcome to the *Glossary of Terms* section of the ***PJM Manual for the Capacity Market***. In this section, you will find the following information:

Adjusted Zonal Capacity Prices – are determined based on the results of RPM Incremental Auctions. Preliminary Zonal Capacity Prices that result from the Base Residual Auction are adjusted to account for the procurement in the RPM Incremental Auctions.

Auction Specific MW Transactions – are transactions reported to PJM via eRPM between a buyer and seller that report the transfer of physical MW between the buyer and seller using the eRPM system and PJM settlement process. Auction Specific MW Transactions are not eligible to be offered in an RPM auction. Auction Specific MW Transactions are settled at the weighted average Resource Clearing Price of the MW supplying the transaction.

Available Transfer Capability (ATC) – is the amount of energy above "base case" conditions that can be transferred reliably from one area to another over all transmission facilities without violating any pre- or post-contingency criteria for the facilities in the PJM Control Area under specified system conditions.

Base LDA Unforced Capacity Obligation – is equal to the sum of the Base Zonal Unforced Capacity Obligations for all the zones in an LDA and is the result of the clearing of the Base Residual Auction.

Base Offer Segment – is the sell offer segment that may be offered as either a single price quantity for the capacity of the resource or divided into up to ten (10) offer blocks with varying price-quantity pairs that represent various output levels of the resource. The Base Offer Segment will consist of block segments at the specified price-quantity pairs. Effective with the 2018/2019 Delivery Year, the Base Offer segment corresponds to a sell offer segment for Base capacity.

Base Residual Auction (BRA) – allows for the procurement of resource commitments to satisfy the region's unforced capacity obligation and allocates the cost of those commitments among the LSEs through the Locational Reliability Charge.

Base RTO Unforced Capacity Obligation – determined after the clearing of the BRA and is posted with the BRA results. The Base RTO Unforced Capacity Obligation is equal to the sum of the unforced capacity obligation satisfied through the BRA plus the BRA Short Term Resource Procurement Target. Effective with the 2018/2019 Delivery Year, the Short Term Resource Procurement Target is eliminated.

Base Unforced Capacity Imported into an LDA – is equal to the Base LDA Unforced Capacity Obligation less the LDAs Unforced Capacity cleared in the Base Residual Auction less the LDA Short-Term Resource Procurement Target Allocation (prior to the 2018/2019 Delivery Year). This value is used to determine the maximum total amount of Capacity Transfer Rights that are allocated into an LDA in the Base Residual Auction for the Delivery Year.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Base Zonal RPM Scaling Factor – is determined for each zone and is equal to the [(Preliminary Zonal Peak Load Forecast for the Delivery Year divided by the Zonal Weather Normalized Summer Peak for the summer four years prior to the Delivery Years) * ((RTO Unforced Capacity Obligation Satisfied in Base Residual Auction divided by the (RTO Preliminary Peak Load Forecast * the Forecast Pool Requirement))]. Base Zonal RPM Scaling Factors are posted with the Base Residual Auction results.

Base Zonal Unforced Capacity Obligation – determined for each zone and is equal to the (Zonal Weather Normalized Summer Peak for the summer four years prior to the Delivery Year* Base Zonal RPM Scaling Factor * the Forecast Pool Requirement) + Short Term Resource Procurement Target. Effective with the 2018/2019 Delivery Year, the Short Term Resource Procurement Target is eliminated. Base Zonal Unforced Capacity Obligations are posted with the Base Residual Auction clearing results.

Behind the Meter Generation – a generating unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of Interconnection. Behind the Meter Generation may not include at any time any portion of a generating unit's capacity that is designated as a Capacity Resource or any portion of the output of a generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market at any time.

Bilateral Market – provides LSEs the opportunity to hedge the Locational Reliability Charge determined through the RPM Auctions by purchasing available capacity in the bilateral market to offer into an RPM Auction. The bilateral market also provides resource providers an opportunity to cover any auction commitment shortages.

Bilateral Unit-Specific Transaction – transaction that enables reporting of the transfer of ownership of a specified amount of installed capacity from a specific unit from one party to another.

Capacity Modification (Cap Mod) – transaction that enables generation owners to request the addition of a new unit or the removal of an existing unit from their resource portfolio in eRPM, or to request an MW increase or decrease in the summer or winter installed capacity rating of an existing unit.

Capacity Resources – includes megawatts of (i) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources meeting the requirements of Schedules 9 and 10 of the RAA that are or will be owned by or contracted to a Party and that are or will be committed to satisfy that Party's obligations under the RAA, or to satisfy the reliability requirements of the PJM Region, for a Delivery Year; (ii) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources not owned or contracted for by a Party which are accredited to the PJM Region pursuant to the procedures set forth in Schedules 9 and 10 of the RAA; and (iii) load reduction capability provided by Demand Resources or Energy

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Efficiency Resources that are accredited to the PJM Region pursuant to the procedures set forth in Schedule 6 of the RAA.

Capacity Emergency Transfer Limit (CETL) – the capability of the transmission system to support deliveries of electric energy to a given area experiencing a localized capacity emergency as determined in accordance with the PJM Manuals.

Capacity Emergency Transfer Objective (CETO) – the amount of electric energy that a given area must be able to import in order to remain within a loss of load expectation of one event in 25 years when the area is experiencing a localized capacity emergency.

Capacity Only Option - participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Attachment DD of the Tariff and as applicable, a capacity payment for load reductions during a pre-emergency or emergency event.

Capacity Transfer Rights (CTR) – rights used to allocate the economic value of transmission import capability that exists into a constrained LDA. Serve to offset a portion of the Locational Price Adder charged to load in constrained LDAs.

Control Area – electric power system or combination of electric power systems bounded by interconnection metering and telemetering to which a common generation control scheme is applied in order to:

- Match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s) with the load within the electric power system(s)
- Maintain scheduled interchange with other Control Areas
- Maintain the frequency of the electric power system(s)
- Maintain power flows on transmission facilities within appropriate limits to preserve reliability
- Provide sufficient generating capacity to maintain operating reserves.

Cost of New Entry (CONE) – Levelized annual cost in ICAP $/MW-Day of a reference combustion turbine to be built in a specific location.

CTR Settlement Rate – The CTR Settlement Rate ($/MW-day) is equal to the Economic Value of CTRs allocated to LSEs in a zone as a result of the Base Residual Auction and RPM Incremental Auctions divided by the Total CTR MWs allocated to LSEs in the zone.

Daily Unforced Capacity Obligation - equals the LSE's Obligation Peak Load in the zone/area * the Final Zonal RPM Scaling Factor * the Forecast Pool Requirement for an LSE in a zone/area.

Daily Capacity Resource Deficiency Charge – assessed to party when the Daily RPM Resource Position of its resource is less than the Daily RPM Resource Commitment for such resource on a delivery day. This charge is applicable to generation resource, Demand Resource, Energy Efficiency Resource or Qualified Transmission Upgrade committed to RPM.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Delivery Year – Planning period for which resources are being committed and for which a constant load obligation for the entire PJM region exists. For example, the 2012/2013 Delivery Year corresponds to the June 1, 2012 – May 31, 2013 Planning Period.

Demand Resource – a Limited Demand Resource, Extended Summer Demand Resource, Annual Demand Resource, Base Capacity Demand Resource or Summer-Period Demand Resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of RAA, Schedule 6. ~~a resource with a demonstrated capability to provide a reduction in demand or otherwise control load.~~ A Demand Resource may be an existing or planned resource.

Demand Resource Registration - a registration in the Full Program Option or Capacity Only Option of the Emergency or Pre-Emergency Load Resource Program in accordance with OATT, Attachment K-Appendix, Section 8. A Demand Resource Registration is linked to a Demand Resource.

Demand Resource Factor (DR Factor) – used to determine the reliability benefit of demand resource products and to assign an appropriate value to demand resource products. The DR Factor is calculated by PJM and is approved and posted by February 1 prior to its use in the Base Residual Auction for the Delivery Year. Effective with the 2018/2019 Delivery Year, the DR Factor is no longer used.

Demand Resource Modification (DR Mods) – transaction used by PJM to track an increase or decrease of the nominated value of the Demand Resource in a party's resource portfolio in eRPM. Effective 2015/2016 Delivery Year, DR Modifications are no longer submitted by participants.

Electric Cooperative – an entity owned in cooperative form by its customers that is engaged in the generation, transmission, and/or distribution of electric energy.

Electric Distribution Company (EDC) – PJM Member that owns or leases with rights equivalent to ownership electric distribution facilities that are used to provide electric distribution service to electric load within the PJM Control Area.

Emergency – an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scare fuel; or a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

End Use Customer – a member that is a retail end-user of electricity within the PJM region.

Equivalent Demand Forced Outage Rate (EFORd) – is a measure of the probability that generating unit will not be available due to a forced outages or forced deratings when there is a demand on the unit to generate. See Generator Resource Performance Indices Manual (M-22) for equation.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Equivalent Demand Forced Outage Rate (EFORd-5) – is EFORd determined based on five years of outage data through September 30 prior to the Delivery Year. This is an index similar to EFORd that is the basis for a unit's UCAP value for the Delivery Year, and it does not include the events that are outside management control (OMC events) prior to 2018/2019 Delivery Year. The index is calculated using Generator Availability Data System (GADS) data in PJM. If a generating unit does not have a full 5 years of history, the EFORd-5 will be calculated using class average EFORd and the available history as described in Reliability Assurance Agreement, Schedule 5, Section C. The class average EFORd will be used for a new generating unit. The class average EFORds that are used by PJM to calculate a unit's EFORd-5 are posted to the PJM website by November 30 prior to the Delivery Year.

Effective EFORd – the most recently calculated EFORd that has been bridged to the eRPM system. During the Delivery Year, the Effective EFORd is based on forced outage data from the October through September period prior to the Delivery Year. This is the basis for a unit's UCAP value, and it does not include the events that are outside management control (OMC events) prior to 2018/2019 Delivery Year.

Facilities Study Agreement (FSA) – is the agreement that must be executed by a Generation and/or Transmission Interconnection Customer to authorize PJM to proceed with an Interconnection Facilities Study. Refer to PJM OATT section 36.6 for Generation Interconnection projects and OATT section 41.5 for Transmission Interconnection projects.

FERC – Federal Energy Regulatory Commission or any successor federal agency, commission or department.

Final RTO Unforced Capacity Obligation –The Final RTO Unforced Capacity Obligation is equal to the RTO unforced capacity obligations satisfied through all RPM Auctions for the Delivery Year. The RTO unforced capacity obligation through all RPM Auctions is equal to the total MWS cleared in PJM Buy Bids in RPM Auctions less the total MWs cleared in PJM Sell Offers in RPM Auctions.

Final Zonal Capacity Prices – are the capacity prices assessed to RPM Load Serving Entities through the RPM Locational Reliability Charge. The Final Zonal Capacity Prices are determined by PJM after the Third Incremental Auction. Final Zonal Capacity Prices reflect the final price adjustments that may be necessary to account for any granted requests for relief from Capacity Resource Deficiency Charges due to permanent departure of load or to account for Non-Viable MWs for any transition provisions that are in effect for the Delivery Year.

Final Zonal RPM Scaling Factors – used in determining an LSE's Daily Unforced Capacity Obligation. A Final Zonal RPM Scaling Factor for a zone is equal to the Final Zonal Unforced Capacity Obligation divided by (FPR times the Zonal Weather Normalized Peak for the summer prior to the Delivery Year). The Final Zonal RPM Scaling Factors are posted with the results of the final Incremental Auction.

Final Zonal Unforced Capacity Obligation – The Final Zonal Unforced Capacity Obligation is equal to the zonal allocation of the Final RTO Unforced Capacity Obligation and is allocated to the zones on a pro-rata basis based on the Final Zonal Peak Load Forecasts. The Final Zonal UCAP

Obligations are determined after the clearing of the final Incremental Auction for the Delivery Year.

Firm Transmission Service – transmission service that is intended to be available at all times to the maximum extent practicable, subject to an emergency, and unanticipated failure of a facility, or other event beyond the control of the owner or operator of the facility, or other event beyond the control of the owner or operator of the facility or the Office of the Interconnection.

Fixed Resource Requirement (FRR) – an alternative method for a Party to satisfy its obligation to provide Unforced Capacity. Allows an LSE to avoid direct participation in the RPM Auctions by meeting their fixed capacity resource requirement using internally owned capacity resources.

Flexible Self-Scheduled Resources – are resources specified by an LSE in the Base Residual Auction to provide a mechanism to manage quantity uncertainty related to the Variable Resource Requirement. For each resource-specific sell offer, the LSE must designate a flexible self-scheduling flag as well as an offer price that will be utilized in the market clearing in the event the resource is not needed to cover a specified percentage of the LSE's capacity obligation. Flexible self-scheduled resources will automatically clear the auction if they are needed to supply the LSE's resulting capacity obligation.

Forecast Pool Requirement (FPR) – the amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region.

FRR Capacity Plan – a long-term plan for the commitment of Capacity Resources to satisfy the capacity obligations of a Party that has elected the FRR alternative.

FRR Service Area – the service territory of an IOU as recognized by state law, rule, or order; the service area of a Public Power Entity or Electric Cooperative as recognized by franchise or other state law, rule, or order; or a separately identifiable geographic area that is bounded by wholesale metering, or similar appropriate multi-site aggregate metering, that is visible to and regularly reported to the Office of Interconnection or an EDC who agrees to aggregate the meters' load data for the FRR Service Area and regularly report the information to the Office of Interconnection or for which the FRR Entity has or assumes the obligation to provide capacity for all load (including load growth) within the area excluding the load of Single-Customer LSEs that are FRR Entities. In the event that the service obligations of an Electric Cooperative or Public Power Entity are not defined by geographic boundaries but by physical connections to a defined set of customers, the FRR Service Areas is defined as all customers physically connected to transmission or distribution facilities of the Electric Cooperative or Public Power Entity within an area bounded by appropriate wholesale aggregate metering as described above.

Full Program Option - participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Attachment DD of the Tariff and as applicable, (i) an energy payment for load reductions during a pre-emergency or emergency event, and (ii) a capacity payment for load reductions during a pre-emergency or emergency event.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Full Requirements Service – wholesale service to supply all of the power needs of a LSE to serve end-users within the PJM Region that are not satisfied by its own generation facilities.

Generation Capacity Resource – a generation unit, or the right to capacity from a specified generation unit, that meets the requirements of the Reliability Assurance Agreement. A generation resource may be an existing or planned Generation Resource.

Generation Owner – a Member that owns or leases with rights equivalent to ownership facilities for the generation of electric energy that are located within the PJM Region. Purchasing all or a portion of the output of a generation facility is not sufficient to qualify a Member as a Generation Owner.

Generator Forced Outage – an immediate reduction in output or capacity or removal from service of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions does not constitute a Generator Forced Outage.

Generator Maintenance Outage – the scheduled removal from service of a generating unit in order to perform repairs on specific components of the facility, if removal of the facility qualifies as a maintenance outage.

Generator Planned Outage – the scheduled removal from service of a generating unit for inspection, maintenance or repair with the approval of the office of the Interconnection.

Incremental Auctions – Allow for an incremental procurement/release of resource commitments to satisfy an increase/decrease in the RTO/LDA Reliability Requirements through PJM Buy Bids/Sell Offers. Allows a resource provider to submit a Sell Offer to procure replacement capacity to cover commitment shortfalls due to a resource cancellation, delay, derating, EFORd increase, or decrease in the unforced capacity value of a Demand Resource or Energy Efficiency Resource.

Incremental Capacity Transfer Rights – allocated to transmission expansion projects associated with new generation interconnection that were required to meet PJM Deliverability requirements and to Merchant Transmission Expansion projects and are applicable to all such projects that have gone through the PJM interconnection process since the beginning of the PJM RTEPP in 1999. Such incremental Capacity Transfer Rights allocation is based on the incremental increase in import capability across a Locational Constraint that is caused by the transmission facility upgrade. Incremental capacity transfer rights associated with Incremental Rights-Eligible Required Transmission Enhancements are allocated. Incremental Rights-Eligible Required Transmission Enhancements may include Regional Facilities and Necessary Lower Voltage Facilities, and Lower Voltage Facilities.

Installed Capacity (ICAP) – value based on the summer net dependable rating of the unit as determined in accordance with PJM's Rules and Procedures of the Determination of Generating Capacity.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Installed Reserve Margin (IRM) – used to establish the level of installed capacity resources that will provide an acceptable level of reliability consistent with the Reliability Principles and Standards. The IRM is determined by PJM in accordance with the PJM Reserve Requirements Manual (M-20). The IRM is approved and posted prior to its use in an RPM Auction for the Delivery Year.

Interconnection Service Agreement (ISA) – an agreement among the Transmission Provider, an Interconnection Customer and an Interconnected Transmission Owner regarding interconnection.

Investor Owned Utility (IOU) – an entity with substantial business interest in owning and/or operating electric facilities in any two or more of the following three asset categories: generation, transmission, distribution.

Load Management – is the ability to reduce metered load, either manually or automatically by the customer, after a request from the resource provider which holds the Load management rights or its agent. ~~(for Contractually Interruptible), or automatically in response to a communication signal from the resource provider which holds the Load management rights or its agent (for Legacy Direct Load Control).~~

Load Serving Entity (LSE) – any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer that (a) serves end-users within the PJM Control Area, and (b) is granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Control Area.

Locational Constraints – localized capacity import capability limitations that are caused by transmission facility limitations, voltage limitations or stability limitations that are identified for a Delivery Year in the PJM Regional Transmission Expansion Planning Process (RTEPP) prior to each Base Residual Auction. Such Locational Constraints are included in the RPM to recognize and to quantify the locational value of capacity.

Locational Deliverability Area (LDA) – sub-regions used to evaluate locational constraints. LDAs include EDC zones, sub-zones, and combination of zones.

Locational Price Adder – an addition to the marginal value of unforced capacity within an LDA as necessary to reflect the price of resources required to relieve the applicable binding locational constraints.

Locational Reliability Charge – Fee applied to each LSE that serves load in PJM during the delivery year. Equal to the LSEs Daily Unforced Capacity Obligation multiplied by the applicable Final Zonal Capacity Price.

Nested LDAs – when an aggregate of Zones, a Zone and its sub-zones are constrained LDAs, the LDAs are referred to as “Nested”. When LDAs are nested, the Zonal CTR calculations include allocation of CTRs from RTO to aggregate of Zones as well as CTRs from aggregate of Zones to the Zone.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Net Energy & Ancillary Services (E&AS) Offset – is used to offset the value of Cost of New Entry (CONE) to determine the net value of CONE. This value is calculated using the historical averages of energy revenue data for a reference combustion turbine and an assumed value for ancillary services revenues as set forth in OATT. The energy revenues are calculated using a historical average of the three most recent calendar years preceding the Base Residual Auction.

New Entry Pricing – is an incentive provided to a Planned Generation Resource where the size of the new entry is significant relative to the size of the LDA and there is a potential for the clearing price to drop when all offer prices including that of the new entry are capped. This allows Planned Generation Resources to recover the amount of its cost of entry-based offer for up to two additional consecutive years, under certain conditions, and to set the clearing price of all resources within that LDA for all three years.

Nominated DR Value – the nominated value of a Demand Resource is the value of the maximum load reduction and the process to determine this value is consistent with the process for the determination of the capacity obligation for the customer. Effective with the 2017/2018 Delivery Year, the maximum load reduction for Capacity Performance registration also takes into consideration the Winter Peak Load for the customer. The maximum load reduction for each resource is adjusted to include system losses.

Non-Retail Behind the Meter Generation – Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, and electric distribution companies to serve load.

Non-Zone Load – the load that is located outside of the PJM Region served by a PJM Load Serving Entity using PJM internal resources. Non-Zone Load is included in the load of the Zone from which the load is served.

Obligation Peak Load – the summation of the weather normalized coincident summer peaks for the previous summer of the end-users for which the Party was responsible on that billing day.

Office of the Interconnection – the employees and agents of PJM Interconnection, L.L.C., subject to the supervision and oversight of the PJM board.

Partial Requirements Service – wholesale service to supply a specified portion, but not all, of the power needs of a LSE to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

Peak Period Capacity Available (PCAP) – Total Unit ICAP Commitment Amount of the generating unit times (1.0 – EFORp).

Peak-Period Equivalent Forced Outage Rate Peak (EFORp) – is a measure of the probability that a generating unit will not be available due to forced outages or forced deratings when there is a demand on the unit to generate during seasonal peak periods. Currently there are two sets of seasonal peak periods. The Summer peak period is defined as June through August non-holiday weekdays from 1400 to 1900. The Winter peak period is defined as January through February non-holiday weekdays from 0700 to 0900 and 1800 to 2000.

Percentage Internal Resources Required – for purposes of an FRR Capacity Plan, the percentage of the LDA Reliability Requirement for an LDA that must be satisfied with Capacity Resources located in that LDA.

Planned Demand Resource – a Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is scheduled to be capable of providing a reduction or control on or before the start of the Delivery Year for which the resource is to be committed.

Planned Generation Capacity Resource – a Generation Capacity Resource participating in the generation interconnection process for which Interconnection Service is scheduled to commence on or before the first day of the Delivery Year for which the resource is to be committed. A Facilities Study Agreement (FSA) must be executed prior to the BRA for the corresponding Delivery Year for generation resources greater than 20 MWs. An Impact Study Agreement must be executed prior to the BRA for the corresponding Delivery Year for generation resources less than or equal to 20 MWs. Interconnection Service Agreement (ISA) or Wholesale Market Participant Agreement (WMPA)must be executed prior to any Incremental Auctions for the corresponding Delivery Year.

Planning Year – Annual period from June 1 to May 31 (also may be referred to as Planning Period).

Pool-Wide Average EFORd – average of the forced outage rates, weighted for unit capability and expected time in service, attributable to all units that are planned to be in service during the delivery year. Determined by PJM and is approved and posted by February 1 prior to its use in the Base Residual Auction for the Delivery Year. Prior to the 2018/2019 Delivery Year, the OMC events are not considered in the EFORd values used to calculate Pool-Wide Average EFORd.

Public Power Entity – any agency, authority, or instrumentality of a state or of a political subdivision of a state, or any corporation wholly owned by any one or more of the above, that is engaged in the generation, transmission, and/or distribution of electric energy.

Qualifying Transmission Upgrade (QTU) – a proposed enhancement or addition to the Transmission System that will increase the Capacity Emergency Transfer Limit (CETL) into an LDA by a megawatt quantity certified by PJM. A Qualified Transmission Upgrade is scheduled to be in service on or before the commencement of the first Delivery Year for which such upgrade is the subject of a Sell Offer in the Base Residual Auction. Prior to the conduct of the Base Residual Auction for such Delivery Year, a Facilities Study Agreement (FSA) must be executed.

Regional Transmission Expansion Planning Process (RTEPP) – is PJM's comprehensive annual process that examines the three interrelated components of electric power system reliability: load, generation, and transmission. The RTEP Process employs a range of planning study tools and methodologies to analyze and assess each component to ensure that reliability remains firm. The

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

RTEP Process is designed to meet established reliability criteria, keep markets robust and competitive, and ensure stable operations.

Regional Transmission Owner (RTO) – Each entity that owns, leases, or otherwise has a possessory interest in facilities used for the transmission of electric energy in interstate commerce or that provides Transmission that is a party to the PJM Transmission Owners Agreement and PJM Operating Agreement

Reliability Pricing Model (RPM) – is PJM's resource adequacy construct. The purpose of RPM is to develop a long term pricing signal for capacity resources and LSE obligations that is consistent with the PJM Regional Transmission Expansion Planning Process (RTEPP). RPM adds stability and a locational nature to the pricing signal for capacity.

Resource Clearing Price – is the clearing price in the Base Residual Auction or Incremental Auctions as determined by optimization algorithm for each auction. The Resource Clearing Price within an LDA is equal to the sum of (1) the marginal value of system capacity; and (2) the Locational Price Adder, if any, for the LDA; and (3) product-specific price adder/decrement, if any, for the LDA.. Effective with the 2018/2019 Delivery Year, the Resource Clearing Price for Capacity Performance Resources in the Unconstrained Market Area is the marginal value of system capacity. PJM posts the Resource Clearing Prices for all resources that clear in the Base Residual Auction and all Buy Bids and Sell Offers that clear in the Incremental Auctions.

RPM Resource Commitment – MWs committed from a Capacity Resource to RPM as a result of such Capacity Resource clearing or receiving make-whole MWs in a Delivery Year RPM Auction(s), being specified as a replacement resource in a Replacement Capacity transaction(s), or being specified as the source of a Locational UCAP transaction(s).

RTO Unforced Capacity Obligation – established in the BRA and is used to determine the Base Zonal RPM Scaling Factors to use in determining Base Zonal Unforced Capacity Obligation.

RTO Weather Normalized Summer Peak – the sum of the Zonal Weather Normalized Summer Coincident Peaks.

Self-Scheduled Resources – are resources specified by a resource provider in the Base Residual Auction to provide a mechanism to guarantee that the resource will clear in the Base Residual Auction. For each resource-specific sell offer, if a resource is designated as self-scheduled by the resource provider, the minimum and maximum MW amounts specified must be equal and the sell offer price will be set to zero. Self-Scheduled resources will be cleared first in the Base Residual Auction, and cannot set the clearing price as the marginal resource, since these resources lack flexibility.

Steady State Period – period of time where the auction schedule follows the proposed three year forward planning dates. The steady-state condition of RPM begins with the 2011/12 Delivery Year.

Target Unforced Capacity (TCAP) – the "target" to measure the peak period availability of capacity from the generator in the Delivery Year and it may be different from the Delivery Year

UCAP value of such generator. The TCAP for a unit is calculated as the Total Unit ICAP Commitment Amount times (1 – EFORd-5).

Transmission Facilities – facilities within the PJM Region that have been approved by or meet the definition of transmission facilities established by FERC; or have been demonstrated to the satisfaction of the Office of Interconnection to be integrated with the PJM Region transmission system and integrated into the planning and operation of the PJM Region to serve all of the power and transmission customers within the PJM Region.

Transmission Owner – a Member that owns or leases, with rights equivalent to ownership, Transmission Facilities. Taking transmission service is not sufficient to qualify a Member as a Transmission Owner.

Unforced Capacity (UCAP) – installed capacity rated at summer conditions that are not on average experiencing a forced outage or forced derating, calculated for each generation Capacity Resource based on EFORd data for the 12-month period from October to September without regard to the ownership of or the contractual rights to the capacity of the unit.

Variable Resource Requirement Curve (VRR) – defines the maximum price for a given level of Capacity Resource commitment relative to the applicable reliability requirement. VRR Curves are defined for the PJM Region and each of the constrained LDAs within the PJM region.

Weighted Average Resource Clearing Price – the average of the Resource Clearing Prices that result in all the auctions for a specific Capacity Resource, weighted by the Unforced Capacity cleared for that particular resource. This value is used to determine the Daily Peak-Hour Period Availability Charge Rate for an individual resource.

Zonal Capacity Price – the price of UCAP in a Zone that an LSE that has not elected the FRR Alternative is obligated to pay for a Delivery Year. Zonal capacity prices are calculated as a result of the clearing of all RPM Auctions for the Delivery Year. A zonal capacity price consists of the following price components: (1) the marginal value of system capacity for the PJM Region; (2) the Locational Price Adder, if any, for such zones in a constrained Locational Deliverability Area (LDA); (3) an adjustment in the Zone, if required, to account for any resource make-whole payments; and (4) an adjustment, if required, to account for price adders/decrements paid to product-specific resources *Preliminary Zonal Capacity Prices* are the result of the clearing of the Base Residual Auction. *Adjusted Zonal Capacity Prices* are the result of the clearing of the Base Residual Auction and any Incremental Auction(s). *Final Zonal Capacity Prices* are determined after the Final Incremental Auction for the Delivery Year.

Zonal CTR Credit Rate (Base and Final) – the rate calculated as a ratio of economic value of CTRs to zonal unforced capacity obligation. These rates are calculated as the Base Zonal CTR Credit Rate after the Base Residual Auction and as the Final CTR Credit Rate adjusted for the results of all RPM Auctions. Zonal CTR Credit Rate is subtracted from Zonal Capacity Price to estimate Net Load Price.

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

Zonal CTR Settlement Rate – a rate calculated as a ratio of economic value of CTRs to total CTRs allocated to LSEs in a zone. This rate is used to settle CTRs by calculating credit for CTRs owned.

Zone – an area within the PJM Region or such areas that may be combined as a result of mergers and acquisitions; or added as a result of the expansion of the boundaries of the PJM Region. A Zone will include any Non-Zone Network Load located outside the PJM Region that is served from inside a particular Zone.

Attachment C: Demand Resource Sell Offer Plan

The Demand Resource Sell Offer Plan (DR Sell Offer Plan) is a PJM template document, requiring the information set forth below, together with an accompanying signed PJM Demand Resource Officer Certification Form (DR Officer Certification Form). A completed DR Sell Offer Plan (including a signed DR Officer Certification Form) must be submitted to PJM no later than 15 business days prior to the relevant RPM Auction by Curtailment Service Providers (CSPs) that intend to offer Demand Resources (DR) in RPM Auctions. The DR Sell Offer Plan must provide information that supports the CSP's intended DR Sell Offers and demonstrates that the DR is being offered with the intention that the MW quantity that clears the auction is reasonably expected to be physically delivered through Demand Resource ~~r~~Registrations for the relevant Delivery Year.

The DR Sell Offer Plan encompasses both existing DR and Planned DR. Existing DR is identified as end-use customer sites that the CSP has under contract for the current Delivery Year (i.e. end-use customer sites registered in the PJM DR Hub system for the current Delivery Year)[9] and that the CSP intends to have under contract for the auction Delivery Year. Planned DR is that quantity of the CSP's intended total DR Sell Offer in excess of the CSP's existing DR and is subject to an RPM Credit Requirement.

Both the signed DR Officer Certification Form and the completed DR Sell Offer template must be submitted to PJM via email to rpm_hotline@pjm.com no later than 15 business days prior to the relevant RPM auction. PJM will review the DR Sell Offer Plan and notify the CSP via email no later than 10 business days prior to the RPM Auction if another CSP has identified the same end-use customer site(s) in their DR Sell Offer Plan and request supporting documentation, such as a letter of support from the end-use customer indicating that the end-use customer and CSP are likely to execute a contract for the auction Delivery Year. Supporting documentation must be submitted via email to the rpm_hotline@pjm.com no later than 7 business days prior to the RPM Auction. PJM will notify all CSPs via the eRPM system of the approved DR MW quantity by zone/sub-zone that the CSP is permitted to offer into the RPM Auction no later than 5 business days prior to the RPM Auction.

I. PJM Demand Resource Officer Certification Form

A DR Officer Certification Form is located in Attachment D of Manual 18 and is posted on the PJM web site. A signed DR Officer Certification Form must accompany the DR Sell Offer Plan. The DR Officer Certification Form specifies that the signing officer has reviewed the DR Sell Offer Plan,

[9]For a Base Residual Auction and a Third Incremental Auction, end-use customer sites registered in the PJM eLRS system for the subsequent Delivery Year may also be considered as existing DR provided the Demand Resource ~~r~~Registrations are in "Confirmed" status by specified deadlines established by PJM and communicated to CSPs in advance of the DR Sell Offer Plan submittal deadline.

that the information provided therein is true and correct, and that the MW quantity that clears the auction is reasonably expected to be physically delivered through Demand Resource ~~r~~Registrations for the relevant Delivery Year.

II. DR Sell Offer Plan Template

A DR Sell Offer Plan template (in Excel format) is provided on the PJM web site, and consists of the following three sections:

A. DR Sell Offer Plan Summary

B. Planned DR Details

C. Schedule

A. DR Sell Offer Plan Summary

The DR Sell Offer Plan requires the following information to be provided:

- Company name
- Contact information (name, phone number and email address of submitter)
- Existing Nominated DR Value in ICAP MWs by zone/subzone that CSP intends to offer
- Planned Nominated DR Value in ICAP MWs by zone/subzone that CSP intends to offer

Existing DR is identified by the CSP as end-use customer sites that the CSP has under contract and registered in the PJM eLRS/DR Hub System for the current Delivery Year and that the CSP also intends to have under contract for the auction Delivery Year. Planned DR is identified by the CSP as described in the Planned DR Details section of the DR Sell Offer Plan template. Based on the information provided above, a total Nominated DR Value in MWs will be calculated for each zone/sub-zone as the addition of the Nominated DR Value of existing DR plus the Nominated DR Value of Planned DR. The total Nominated DR Value represents the maximum MW amount that the CSP intends to offer for the zone/sub-zone. Effective with the 2020/2021 Delivery Year, a CSP must apportion the total Nominated DR Value for the zone/sub-zone into the quantity that the CSP intends to offer into the auction as Annual Capacity Performance , the quantity that the CSP intends to offer into the auction as Summer-Period Capacity Performance, and the quantity that the CSP intends to offer into the auction as part of an Aggregate Resource, such that, the sum of such quantities must equal the total Nominated DR Value The actual MW value(s) submitted by a CSP in their Sell Offer(s) for a zone/sub-zone during the auction bidding window may be less than the total Nominated DR Value in their DR Sell Offer Plan Summary.

Certain zones/sub-zones will be pre-identified by PJM as zones for which DR Sell Offers may require additional information to support the plan. Additional information may be required to support DR Sell Offer Plans for zones/sub-zones for which the quantity of cleared zonal/sub-zonal DR from the last BRA exceeds a threshold determined for the applicable LDA group (EMAAC, SWMAAC, Rest of MAAC, or Rest of RTO) as the higher of the maximum DR/ILR quantity registered in eLRS/DR Hub over the past three Delivery Years for the zones in the LDA group or the zonal DR potential quantity for the zones in the LDA group estimated based on a June 2009

M-18 Revisions for Seasonal DR Registration Aggregation Proposal

FERC Staff Report on “A National Assessment of Demand Response Potential”, where DR quantities are expressed in all cases as a percent of the forecasted zonal peak load. This determination of the identified zones is made each year prior to each BRA and is applicable to all auctions conducted for that Delivery Year. Zones or sub-zones remain on the identified list unless the threshold is not exceeded for three consecutive years. Identified zones for a Delivery Year will be posted by PJM to the pjm website no later than December 1 prior to the Base Residual Auction for such Delivery Year. Updates, if any, made to the 2009 FERC Staff Report will be subject to stakeholder review and considered for use in the establishment of thresholds in the future.

For these pre-identified zones/sub-zones, a CSP sell offer threshold is determined for each CSP; and DR sell offer quantities in excess of the CSP sell offer threshold will require site-specific information, as this quantity in excess of the CSP sell offer threshold should reflect Planned DR associated with end-use customer sites that the CSP has a high degree of certainty that it will physically deliver for the Delivery Year. The CSP sell offer threshold is determined as the higher of [(the CSP’s maximum DR quantity registered in eLRS/DR Hub for that zone/sub-zone over the past three Delivery Years) or (the CSP’s maximum cleared DR quantity for the past three BRAs for that zone/sub-zone) or (10 MW)].

B. Planned DR Details

The Planned DR Details section describes the program or strategy for procuring end-use customers and provides the details and key assumptions behind the development of the Planned DR quantities contained in the CSP’s DR Sell Offer Plan. The Planned DR Details section is comprised of three sub-sections.

1. Description and Key Assumptions of Planned DR

The CSP must describe the program(s) that the CSP plans to employ to achieve the Planned Nominated DR Value indicated on the DR Sell Offer Plan Summary. This section must describe key program attributes and assumptions used to develop the Planned Nominated DR Value. This section must include, but is not limited to, discussion of:

- Method(s) of achieving load reduction at customer site(s)
- Equipment to be controlled or installed at customer site(s), if any
- Plan and ability to acquire customers
- Types of customer targeted
- Support of market potential and market share for the target customer base, with adjustments for existing DR customers within this market and the potential for other CSPs targeting the same customers
- Assumptions regarding regulatory approval of program(s), if applicable
- ~~If offering a Legacy Direct Load Control (LDLC) program[10], the following additional LDLC program details must be provided:~~
    - ~~Description of the cycling control strategy~~

~~[10] LDLC can only be used through May 31, 2016.~~

- ~~A list of all load research studies[11] (with study dates) used to develop the estimated nominated ICAP value (kW) per customer (i.e., the per-participant impact). A copy of all studies must be provided with the DR Sell Offer Plan. If the LDLC program employs a radio signal, the CSP may elect to either submit a load research study to support the estimated nominated ICAP value per customer or utilize the per-participant impacts contained in the "Deemed Savings Estimates for Legacy Air Conditioning and Water Heating Direct Load Control Programs in the PJM Region" Report[12].~~
- ~~Assumptions regarding switch operability rate (%)~~

2. Planned Nominated DR Value by Customer Segment

For those Planned Nominated DR Values for which an end-use customer site is not identified in section 3 of the Planned DR Details, the CSP must identify the Planned Nominated DR values by zone/sub-zone and by end-use customer segment. End-use customer segments include residential, commercial, small industrial (less than 3 MW), medium industrial (between 3 MW and 10 MW) and large industrial (greater than 10 MW). If known, the CSP may identify more specific customer segments within the commercial and industrial category.

By zone/sub-zone and by end-use customer segment, the CSP must provide estimates of the following information regarding the Planned DR component of the DR Sell Offer Plan:

- Number of end-use customers to be registered for auction Delivery Year
- Average Peak Load Contribution (PLC) per end-use customer in kW
- Average Nominated DR Value per customer in kW

Based on the above provided information, a total Planned Nominated DR Value in MW will be calculated for each end-use customer segment and for each zone/sub-zone. The total Planned Nominated DR values identified by customer segment and aggregated for each zone/sub-zone in Section 2 of the Planned DR Details plus the total Planned Nominated DR Values identified by end-use customer site(s) and aggregated for each zone/sub-zone in Section 3 of the Planned DR Details must equal the total Planned Nominated DR Value for each zone-sub-zone as identified in the DR Sell Offer Plan Summary.

3. Planned Nominated DR Value by End-Use Customer Site

This section must be completed by the CSP when the end-use customer is known at the time of the submittal of the DR Sell Offer Plan. This section must also be completed for DR Sell Offer quantities identified in the DR Sell Offer Plan Summary as requiring site-specific information, since this identified quantity should reflect Planned DR associated with specific end-use customer sites

~~[11] Legacy Direct Load Control Research Study Guidelines are provided in PJM Load Forecasting and Analysis Manual, Manual 19, Attachment B.~~
~~[12] "Deemed Savings Estimates for Legacy Air Conditioning and Water Heating Direct Load Control Programs in the PJM Region", Final Report, RLW Analytics, March 2007, is available at http://www.pjm.com/~/media/markets-ops/dsr/deemed-savings-report.ashx.~~

for which the CSP has a high degree of certainty that it will physically deliver for the relevant Delivery Year.

The CSP must provide the following information:

- Customer EDC account number (if known)
- Customer name
- Customer premise address
- Zone/Sub-zone
- Customer segment
- Actual value (if known) or estimate of current PLC and estimate of expected auction Delivery Year PLC in kW
- Estimated Nominated DR Value in kW

In the event that multiple CSPs identify the same end-use customer site, the MWs associated with such site will not be approved for offering into the RPM auction by any of the CSPs, unless it can be supported by evidence, such as a letter of support from the end-use customer indicating that they have been in contact with the CSP and are likely to execute a contract with that CSP for the relevant Delivery Year. In the event that multiple letters of support indicating different CSPs are provided from the end use customer, the MWs associated with the end-use customer site will not be approved for offering into the RPM auction by any of the CSPs.

C. Schedule

The CSP must provide an approximate timeline for procuring end-use customer sites in order to physically deliver the total Nominated DR Value (existing and Planned DR) by zone/sub-zone in the DR Sell Offer Summary. For each zone/sub-zone and for each customer segment, the CSP must specify the cumulative number of customers and the cumulative Nominated DR Value associated with that group of customers that the CSP expects to have under contract by the beginning of each of the full Delivery Years occurring between the time of the auction and the auction Delivery Year.