

## OATT Revisions for Seasonal DR Registration Aggregation Proposal

### OATT Attachment K Appendix

#### 8.1 Emergency Load Response and Pre-Emergency Load Response Program Options

The Emergency Load Response Program and Pre-Emergency Load Response Program are designed to provide a method by which end-use customers may be compensated by PJM for reducing load immediately prior to an anticipated emergency event (“pre-emergency event”) or during an emergency event. As used in the Emergency Load Response Program and Pre-Emergency Load Response Program, the term “end-use customer” refers to an individual location or aggregation of locations that consume electricity as identified by a unique electric distribution company account number. There are two options for participation in the Emergency Load Response Program and Pre-Emergency Load Response Program:

- ◆ Full Program Option

Participants in the Full Program Option receive, 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 the ability to reduce load ~~reductions~~ during a pre-emergency event or emergency event measured as set forth in the Reporting and Compliance provisions below.

- ◆ Energy Only Option

Participants in the Energy Only Option receive only an energy payment for load reductions during an emergency event.

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### 8.5 Pre-Emergency Operations

All participants in the Pre-Emergency Load Response Program shall be subject to the operation procedures herein, unless the participant can demonstrate its Demand Resource Registration: (1) relies on Behind the Meter generation to fulfill its load reduction obligations; (2) the Demand Resource Registration has environmental restrictions imposed on it by Applicable Laws and Regulations that limit the Demand Resource Registration's ability to operate only in emergency conditions; and (3) such limitation exists for any period of time. For the purposes of Section 8, emergency conditions shall be defined either by the express terms of the Applicable Law or Regulation, or if not set forth therein shall be deemed to exist if PJM has declared a NERC Emergency Alert Level 2, as defined in the applicable NERC Standards. If these three criteria are met, the participant shall be subject to the emergency operation procedures contained in Section 8.6. In such case, the Curtailment Service Provider shall submit a request for the relevant Demand Resource Registration(s) to be an emergency (versus pre-emergency) Demand Resource Registration to the Office of the Interconnection, at the time the registration is submitted in applicable PJM system~~Form is submitted~~ in accordance with this Agreement. A Curtailment Service Provider shall not submit a request for an exception unless it has done its due diligence to confirm that the Demand Resource Registration meets the requirements referenced herein and has obtained from the end-use customer documentation supporting the exception request. The Curtailment Service Provider shall provide the Office of the Interconnection with a copy of such supporting documentation within three (3) Business Days of a request therefor. Failure to provide such supporting documentation by the deadline shall result in the Demand Resource Registration being subject to the pre-emergency procedures herein.

PJM will initiate a pre-emergency event prior to the declaration of a Maximum Generation Emergency or an emergency event when practicable. A pre-emergency event is implemented when economic resources are not adequate to serve load and maintain reserves or maintain system reliability, and prior to proceeding into emergency procedures. Understanding the primary responsibility of the Office of the Interconnection to maintain system security, the Office of the Interconnection will strive to exhaust, but it is not obligated to exhaust, all economic resources prior to initiating a pre-emergency event. PJM will initiate an electronic message to Curtailment Service Providers notifying them of the pre-emergency event; Curtailment Service Providers are required to have the capability to retrieve this electronic message as described in the PJM Manuals. Additionally, PJM will post the pre-emergency event information on the PJM website and issue a separate All-Call message.

Following PJM's request to reduce load, (i) participants in the Energy Only Option voluntarily may reduce load; and (ii) participants in the Full Program Option are required to reduce load unless they already have reduced load pursuant to the Economic Load Response Program. PJM will dispatch the resources of all Emergency Load Response Program participants (not already dispatched under the Economic Load Response Program) based on the availability, location, minimum notification time, dispatch price and/or quantity of load reduction needed, subject to transmission constraints in the PJM Region. To give PJM dispatchers the flexibility to address reliability concerns in the most effective and timely manner and invoke the resources that offer the most assurance of effective relief of emergency conditions, the dispatch of Demand Resources Registrations may not be based solely on the least-cost resources since such dispatch

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shall be based not only on price, but also on availability, location, minimum notification time and/or quantity of megawatts of load or load reduction needed.

The dispatch price of Full Program Option ~~resources~~registrations and Energy Only Option ~~resources~~registrations in the ~~d~~ Pre-Emergency Load Response Program are eligible to set the real time Locational Marginal Prices (“LMP”) when the Office of the Interconnection has implemented pre-emergency procedures and such ~~resources~~registrations are required to reduce demand in the PJM Region and as described in Section 2 of Schedule 1 of the PJM Operating Agreement and the parallel provisions of Attachment K-Appendix of the PJM Tariff. Energy Only Option ~~resources~~registrations must also satisfy PJM’s telemetry requirements.

Curtailed Service Providers with ~~resources registered to participate~~Demand Resource Registrations in the Emergency Load Response and Pre-Emergency Load Response Programs must provide real-time operational data regarding the availability and status of their resources to PJM, and comply with operational procedures, as described in detail in the PJM Manuals.

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### 8.6 Emergency Operations

PJM will initiate the notification of a Load Management Event coincident with the declaration of Maximum Generation emergency. (Implementation of the Emergency Load Response Program can be used for regional emergencies.) The minimum duration of a load reduction request is one hour. A Load Management Event is implemented whenever economic generating capacity is not adequate to serve load and maintain reserves or maintain system reliability. PJM will initiate an electronic message to Curtailment Service Providers notifying them of the Load Management Event; Curtailment Service Providers are required to have the capability to retrieve this electronic message as described in the PJM Manuals. Additionally, PJM will post the Load Management Event information on the PJM website and issue a separate All-Call message.

Following PJM's request to reduce load, (i) participants in the Energy Only Option voluntarily may reduce load; and (ii) participants in the Full Program Option are required to reduce load unless they already have reduced load pursuant to the Economic Load Response Program. PJM will dispatch the resources of all Emergency Load Response Program participants (not already dispatched under the Economic Load Response Program) based on the availability, location, minimum notification time, dispatch price and/or quantity of load reduction needed, subject to transmission constraints in the PJM Region. To give PJM dispatchers the flexibility to address reliability concerns in the most effective and timely manner and invoke the resources that offer the most assurance of effective relief of emergency conditions, the dispatch of Demand Resource Registrations may not be based solely on the least-cost resources since such dispatch shall be based not only on price, but also on availability, location, minimum notification time and/or quantity of megawatts of load or load reduction needed.

The dispatch price of Full Program Option ~~resources~~registrations and Energy Only Option ~~resources~~registrations in the Emergency Load Response Program are eligible to set the real time LMP when the Office of the Interconnection has implemented Emergency procedures and such ~~resources~~registrations are required to reduce demand in the PJM Region and as described in Section 2 of Schedule 1 of the PJM Operating Agreement and the parallel provisions of Attachment K-Appendix of the PJM Tariff. Energy Only Option ~~resources~~registrations must also satisfy PJM's telemetry requirements.

Curtailment Service Providers with ~~resources registered to participate~~Demand Resource Registrations in the Emergency Load Response and Pre-Emergency Load Response Programs must provide real-time operational data regarding the availability and status of their resources to PJM, as described in detail in the PJM Manuals. Operational procedures are described in detail in the *PJM Manual for Emergency Operations*.

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### 8.8 Market Settlements

Payment for reducing load is based on the actual kWh relief provided plus the adjustment for losses, subject to the Reporting and Compliance provisions below. The magnitude of capacity relief provided by Full Program Option participants shall be the amount determined in accordance with the Reporting and Compliance provisions below. The magnitude of relief provided by Energy Only Option participants, and the magnitude of energy relief provided by Full Program Option participants, may be less than, equal to, or greater than the kW amount declared on the Emergency ~~Registration Form~~ or Pre-Emergency Registration Form. Compensation will be provided for reductions in energy consumption during emergency events by Full Program Option participants and Energy Only Option participants regardless of whether the participant's load during the event exceeds its peak load contribution for the applicable Delivery Year.

PJM Settlement pays the applicable LMP to the PJM Member that nominates the load. Payment will be equal to the measured energy load reduction adjusted for losses times the applicable LMP. The measured energy load reduction for locations with approved Economic Load Response registrations prior to a Load Management Event that have an economic CBL different than the maximum base load as defined in the PJM Manuals will use the associated economic CBL to determine the energy load reduction unless the locations on the Emergency Load Response registration are not the same locations as those included on the Economic Load Response registration. If, at the time that a Load Management Event or emergency event is initiated by PJM, an end-use customer is already responding economically (i.e., pursuant to the Economic Load Response rules) and economic CBL is based on Symmetric Additive Adjustment, then the CBL calculated based on the Symmetric Additive Adjustment period prior to the economic event will be used. Locations that do not have an approved Economic Load Response registration prior to a Load Management Event will use the Customer Baseline Load as defined in section 3.3A.2 and associated Symmetric Additive Adjustment as defined in section 3.3A.2.01 of this schedule unless an alternative CBL is approved pursuant to section 3.3A.2.01 of this schedule as the CBL to determine the energy load reduction.

If, however, the sum of the hourly energy payments to a Curtailment Service Provider with a Demand Resource Registration dispatched by PJM for actual, achieved reductions is not greater than or equal to the offer value (i.e. Minimum Dispatch Price and shut down costs) then the Curtailment Service Provider will be made whole up to the offer value for its actual, achieved reductions for the Demand Resource Registration.

Locations on Economic Load Response registrations dispatched in the Real-time Energy Market or cleared in the Day-ahead Energy Market that are also included on an Emergency Load Response and Pre-Emergency Load Response registration as Full Program Option, and that have also been dispatched as part of an emergency event for the same hour (i.e., have an "overlapping dispatch hour") will be compensated for energy based on emergency energy settlement and cost allocation rules as set forth in this section and in the PJM Manuals. Overlapping dispatch hours will use shutdown costs based on what was considered for the economic event, and no balancing Operating Reserve charges will be assessed for deviations from real-time dispatch amounts or from cleared day-ahead commitments. To avoid duplicative energy payments, overlapping dispatch hours for an aggregate registration (i.e., multiple locations on the same registration) or

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dispatch groups where locations on the Emergency Load Response and Pre-Emergency Load Response registration are not the same locations as those on the Economic Load Response registration will have hourly economic energy load reduction and/or hourly emergency energy load reduction prorated based on load reduction capability provided by the Curtailment Service Provider for the locations.

The Curtailment Service Provider will only submit energy settlements for Load Management Events that occur outside of the specific availability period defined in the Reliability Assurance Agreement for each Demand Resource type if the Curtailment Service Provider has confirmed that the customers on the registration did take action to reduce load or the registration reflects the entire group of mass market customers for which an energy settlement will either be submitted for all or none of the mass market customers, as approved by PJM. The Curtailment Service Provider will only submit energy settlements for each registration for Load Management Events that occur during the product specific availability period as defined for each product in the Reliability Assurance Agreement if the Curtailment Service Provider also provides associated load data for each registration in order to calculate that registration's capacity compliance.

Full Program Option participants that fail to provide a load reduction (as measured as set forth in the Reporting and Compliance provisions below) when dispatched by PJM shall be assessed penalties and/or charges as specified in Attachment DD of the PJM Tariff and the Reliability Assurance Agreement, as applicable.

During emergency conditions, costs for emergency purchases in excess of LMP are allocated among PJM Market Buyers in proportion to their increase in net purchases minus real-time dispatch reduction megawatts from the PJM energy market during the hour in the Real-time Energy Market compared to the Day-ahead Energy Market. Consistent with this pricing methodology, all charges under the Emergency Load Response and Pre-Emergency Load Response Programs are allocated to purchasers of energy, in proportion to their increase in net purchases minus real-time dispatch reduction megawatts from the PJM energy market during the hour from day-ahead to real-time.

Emergency Load Response and Pre-Emergency Load Response Program charges and credits will appear on the PJM Members monthly bill, as described in the *PJM Manual for Operating Agreement Accounting and the PJM Manual for Billing*.

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### 8.9 Reporting and Compliance

Actual load reductions of Energy Only Option emergency ~~resources~~registrations will be added back for the purpose of peak load calculations for capacity for the following Delivery Year.

Actual Emergency Load Response, Pre-Emergency Load Response and Economic Load Response load reductions for ~~Load Management resources~~Demand Resource Registrations in the registered as Emergency Load Response or Pre-Emergency Load Response Full Program Option or Capacity Only ~~resources~~Option which occur ~~from June 1 through September 30~~during a registration's product-type required availability window as set forth in PJM Reliability Assurance Agreement, Tariff and Manuals or which occur outside the availability window if such registration received Bonus Performance for Performance Assessment Interval(s) or responded to economic event will be added back for the purpose of calculating peak load for capacity for the following Delivery Year, as set forth in the PJM Manuals and consistent with the load response recognized for capacity compliance as set forth in the Reporting and Compliance provisions below. Capacity Only ~~Option resources~~registrations are Full Program Option ~~resources~~registrations that do not receive an energy payment for load reductions during a pre-emergency or emergency event.

Actual load reductions of ~~Load Management resources registered as~~Demand Resource Registrations in Emergency Load Response or Pre-Emergency Load Response Full Program Option or Capacity Only ~~Option resources~~ used to determine Load Management Event and test capacity compliance for Firm Service Level and Guaranteed Load Drop end-use customers shall be equal to the load reduction provided to the electric distribution company as follows and in accordance with the PJM Manuals:

i) ~~i)~~ Guaranteed Load Drop compliance will be based on:

- a. the lesser of (a) comparison load used to best represent what the load would have been if PJM did not declare a Load Management Event or the CSP did not initiate a test as outlined in the PJM Manuals, minus the Load and then multiplied by the LF, or (b) For a summer event, the PLC minus the Load multiplied by the LF. A summer load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the PLC. For a non-summer event, the WPL multiplied the ZWWAF multiplied by LF, minus the Load multiplied by the LF. A non-summer load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the WPL multiplied by the ZWWAF multiplied by LF. Calculations are represented by:

Summer: Minimum of {(comparison load – Load) \* LF, PLC – (Load \* LF)}

Non-summer: Minimum of {(comparison load – Load) \* LF, (WPL\*ZWWAF\*LF)-(Load\*LF)}

- b. Curtailment Service Providers must submit actual loads and comparison loads for all hours during the day of the Load Management Event or the Load Management

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performance test, and for all hours during any other days as required by the Office of the Interconnection to calculate the load reduction. Comparison loads must be developed from the guidelines in the PJM Manuals, and note which method was employed.

c. Methodologies for establishing comparison load for Guaranteed Load Drop end-use customers include the following:

- ◆ Comparable Day
- ◆ Same Day
- ◆ Customer Baseline
- ◆ Regression Analysis
- ◆ Generation

Methodologies for establishing comparison load for Guaranteed Load Drop end-use customers are described in greater detail in Manual M-19, PJM Manual for Load Forecasting and Analysis, at Attachment A: Load Drop Estimate Guidelines.

~~For Guaranteed Load Drop end-use customers, the lesser of (a) comparison load used to best represent what the load would have been if the Office of the Interconnection did not declare a Load Management Event or the CSP did not initiate a test as outlined in the PJM Manuals, minus the metered load (“Load”) and then multiplied by the loss factor (“LF”) or (b) the current Delivery Year peak load contribution (“PLC”) minus the metered load multiplied by the loss factor (“LF”). A load reduction will only be recognized for capacity compliance if the metered load multiplied by the loss factor is less than the current Delivery Year peak load contribution. The calculation is represented by:~~

~~Minimum of {(comparison load — Load) \* LF, PLC — (Load \* LF)}~~

~~Methodologies for establishing comparison load for Guaranteed Load Drop end-use customers include the following:~~

- ~~◆ Comparable Day~~
- ~~◆ Same Day~~
- ~~◆ Customer Baseline~~
- ~~◆ Regression Analysis~~
- ~~◆ Generation~~



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~~Each of these methodologies is described in greater detail in Manual M-19, *PJM Manual for Load Forecasting and Analysis*, at Attachment A: Load Drop Estimate Guidelines.~~

- ii) Compliance for FSL will be based on:

~~For Firm Service Level end use customers the current Delivery Year PLC minus the Load multiplied by the LF. The calculation is represented by:~~

$$\text{PLC} - (\text{Load} * \text{LF})$$

Summer (June through October and the following May of a Delivery Year) - End use customer's current Delivery Year peak load contribution ("PLC") minus the metered load ("Load") multiplied by the loss factor ("LF"). The calculation is represented by:

$$(\text{PLC}) - (\text{Load} * \text{LF})$$

Winter (November through April of a Delivery Year) - End use customer's Winter Peak Load ("WPL") multiplied by Zonal Winter Weather Adjustment Factor ("ZWWAF") multiplied by LF, minus the metered load ("Load") multiplied by the LF. The calculation is represented by:

$$(\text{WPL} * \text{ZWWAF} * \text{LF}) - (\text{Load} * \text{LF})$$

The capacity compliance of ~~Load Management resources~~ Demand Resource Registrations that are registered as in the Emergency Load Response and Pre-Emergency Load Response Full Program Option, as determined in accordance with these Reporting and Compliance provisions, shall not affect energy payments to such resources for load reductions during an emergency event, as provided in the Market Settlements provisions above and Attachment DD of the Tariff.

PJM will submit any required reports to FERC on behalf of the Emergency Load Response and Pre-Emergency Load Response Program participants. PJM will also post this document, as well as any other program-related documentation on the PJM website.

PJM will post on its website a report of demand response activity, and will provide a summary thereof to the PJM Markets and Reliability Committee on an annual basis.

As PJM receives evidence from the electric distribution companies pursuant to section 1.5A.3 of PJM's Economic Load Response Program, PJM will post on its website a list of those Relevant Electric Retail Regulatory Authorities that the electric distribution companies assert prohibit or condition retail participation in PJM's Emergency Load Response and Pre-Emergency Load Response Program together with a corresponding reference to the Relevant Electric Retail Regulatory Authority evidence that is provided to PJM by the electric distribution companies.

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### Attachment DD, Section 11

#### 11. DEMAND RESOURCE COMPLIANCE PENALTY CHARGE

The provisions of this section 11 do not apply to Demand Resources committed as Capacity Performance Resources or Base Capacity Demand Resources. All references to Demand Resources in this section specifically exclude Demand Resources committed as Capacity Performance Resources or Base Capacity Demand Resources.

(a) The Office of the Interconnection shall separately evaluate compliance of each Demand Resource committed for a Delivery Year, in accordance with procedures set forth in the PJM Manuals ~~Manuals~~ and, for Delivery Years through May 31, 2018~~9~~, shall assess a Demand Resource Compliance Penalty Charge on Capacity Market Sellers that committed Demand Resources and Locational UCAP Sellers that sold Demand Resources that cannot demonstrate the hourly performance of such resource in real-time. The compliance is evaluated separately by Load Management Event in each CAA for Demand Resources Registrations dispatched by the Office of Interconnection. ~~The Demand Resource Compliance Penalty Charges will not be assessed to resources that are dispatched on a subzonal basis for the 2012/2013 and 2013/2014 Delivery Years. For the 2014/2015 Delivery Year, t~~The Demand Resource Compliance Penalty Charge will not be assessed to Demand #Resources Registrations that are dispatched on a subzonal basis unless such subzone is defined and publically posted the day before the Load Management Event as set forth in the PJM Manuals. To the extent a Demand Resource Registration cannot respond, another Demand Resource Registration in the same geographic location defined by the PJM dispatch instruction with the same designated lead time and comparable capacity commitment may be substituted. Any Demand Resource Registration used as a substitute during a Load Management Event will have the same obligation to respond to future Load Management Event(s) as if it did not respond to such Load Management Event. Capacity Market Sellers that committed Demand Resources and Locational UCAP Sellers that sold Demand Resources that cannot demonstrate the hourly performance of such Demand #Resource Registration in real-time based on the capacity commitment shall be assessed a Demand Resource Compliance Penalty Charge; provided, however, that such under compliance shall be determined on an aggregate basis for all dispatched Demand Resources Registrations committed by the same Capacity Market Seller or same Locational UCAP Seller in a CAA.

(b) The Demand Resource Compliance Penalty Charge for a Capacity Market Seller in a CAA for the on-peak period, which includes all hours specified in the Reliability Assurance Agreement definition of the Limited Demand Resource, shall equal the lesser of (1/the number of Load Management Events during the on-peak period for which such Demand Resources Registration werewas dispatched, or 0.50) times the weighted daily revenue rate for such seller's ~~resources~~ dispatched registration, multiplied by the net under-compliance for such registration in such on-peak period, if any, for such seller resulting from all dispatched ~~resources~~registrations it has committed for such Delivery Year for such CAA for each Load Management Event called by the Office of the Interconnection. Net CAA under compliance for the Load Management Event will be prorated to individual under compliant registrations in the CAA based on performance of each registration in order to determine net under compliance(s) for each Demand Resource Registration dispatched. The Demand Resource Compliance Penalty Charge for a Capacity

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Market Seller in a CAA for the off-peak period, which includes all hours specified in the Reliability Assurance Agreement definitions of Extended Summer Demand Resource or Annual Demand Resource, but does not include all hours in the on-peak period, shall equal 1/52 times the weighted daily revenue rate for ~~such Demand #R~~resources Registration dispatched for such seller, multiplied by the net undercompliance for such registration in such off-peak period, if any, for such seller resulting from all dispatched ~~resources-registrations~~ it has committed for such Delivery Year for such CAA for each Load Management Event called by the Office of the Interconnection. If a Load Management Event is comprised of both an on-peak period and an off-peak period then such Demand Resource Compliance Penalty Charge will be the higher of the charges calculated under the prior two sentences. The total Compliance Penalty Charges for the Delivery Year is not to exceed the annual revenue received for such Capacity Market Seller's Demand #Rresources. The net CAA undercompliance for each such Load Management Event shall be the following megawatt quantity, converted to an Unforced Capacity basis using the applicable DR Factor and Forecast Pool Requirement: (i) the megawatts of load reduction capability committed by such seller on the day of the Load Management Event for all dispatched resources minus (ii) the megawatts of load reduction actually provided by all such dispatched Demand Resources during such Load Management Event. A seller's net undercompliance in a CAA shall be reduced by the seller's total amount of Capacity Resource deficiency shortfalls on the day of the Load Management Event, determined pursuant to section 8 of Attachment DD of this Tariff, in a CAA for the seller's committed Demand Resources that are the same product(s) dispatched. The daily revenue rate for a Demand Resource Registration shall be based on the Resource Clearing Price(s) that the ~~Demand #Resource, for which such registration is linked,~~ received in the auction(s) in which ~~it~~the Demand Resource cleared, ~~including any adjustment pursuant to Attachment DD-1, section C of this Tariff.~~ The weighted daily revenue rate for a Capacity Market Seller's Demand Resource registration shall be the average rate for ~~at~~the cleared Demand Resources for which such registration is linked, weighted by the megawatts cleared at each price. The total charge per megawatt that may be assessed on a Capacity Market Seller's Demand Resource Registration in a Delivery Year shall be capped at the weighted daily revenue rate the Capacity Market Seller's Demand Resource Registration would receive in the Delivery Year.

The Demand Resource Compliance Penalty Charges for a Load Management Event for Limited Demand Resources are assessed daily and initially billed by the later of the month of October during such Delivery Year or the third billing month following the Load Management Event that gave rise to such charge. The initial billing for a Load Management Event for Limited Demand Resources will reflect the amounts due from the start of the Delivery Year to the last day that is reflected in the initial billing. The remaining charges for such Load Management Event will be assessed daily and billed monthly through the remainder of the Delivery Year. The Demand Resource Compliance Penalty Charges for a Load Management Event for Annual or Extended Summer Demand Resources are assessed daily and billed by the later of the month of June following such Delivery Year or the third billing month following the Load Management Event that gave rise to such charge. The billing for the Load Management Event for Annual or Extended Summer Demand Resources will be in a lump sum and reflect the accrued charges for the entire Delivery Year.

c) Daily revenues from assessment of a Demand Resource Compliance Penalty Charge shall be distributed on a pro-rata basis to Demand Resource Providers and Locational

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UCAP Sellers that provided load reductions in excess of the amount such dispatched Demand Resources Registrations were committed to provide. Such revenue distribution, however, shall not exceed for any Capacity Market Seller's dispatched Demand Resource Registration the quantity of excess megawatts provided by such Capacity Market Seller during a single Load Management Event times 0.20 times the weighted daily revenue rate for such Capacity Market Seller's ~~resources~~ dispatched Demand Resource Registration. To the extent any such revenues remain after such distribution, the remaining revenues shall be distributed to LSEs based on each LSE's Daily Unforced Capacity Obligation.

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### ATTACHMENT DD-1

Preface: The provisions of this Attachment incorporate into the Tariff for ease of reference the provisions of Schedule 6 of the Reliability Assurance Agreement among Load Serving Entities in the PJM Region. As a result, this Attachment will be modified, subject to FERC approval, so that the terms and conditions set forth herein remain consistent with the corresponding terms and conditions of Schedule 6 of the RAA. Capitalized terms used herein that are not otherwise defined in Attachment DD or elsewhere in this Tariff have the meaning set forth in the RAA.

#### PROCEDURES FOR DEMAND RESOURCES AND ENERGY EFFICIENCY

A. Parties can partially or wholly offset the amounts payable for the Locational Reliability Charge with Demand Resources that are operated under the direction of the Office of the Interconnection. FRR Entities may reduce their capacity obligations with Demand Resources that are operated under the direction of the Office of the Interconnection and detailed in such entity's FRR Capacity Plan. Demand Resources qualifying under the criteria set forth below may be offered for sale or designated as Self-Supply in the Base Residual Auction, included in an FRR Capacity Plan, or offered for sale in any Incremental Auction, for any Delivery Year for which such resource qualifies. Qualified Demand Resources generally fall in one of ~~three~~two categories, i.e., Guaranteed Load Drop, or Firm Service Level, ~~or Legacy Direct Load Control (prior to June 1, 2016)~~, as further specified in section G below and the PJM Manuals. Qualified Demand Resources may be provided by a Curtailment Service Provider, notwithstanding that such Curtailment Service Provider is not a Party to this Agreement. Such Curtailment Service Providers must satisfy the requirements hereof and the PJM Manuals.

1. A Party must formally notify, in accordance with the requirements of the PJM Manuals and section F hereof, as applicable, the Office of the Interconnection of the Demand Resource Registration that it is placing under the direction of the Office of the Interconnection. A Party must further notify the Office of the Interconnection whether the ~~resource~~Demand Resource Registration is linked to a Limited Demand Resource, an Extended Summer Demand Resource, a Base Capacity Demand Resource, a Summer-Period Demand Resource or an Annual Demand Resource.

~~2. A Demand Resource Registration~~ must achieve its full load reduction within the following time period:

~~(a) For the 2014/2015 Delivery Year, Curtailment Service Providers may elect a notification time period from the Office of the Interconnection of 30, 60 or 120 minutes prior to their Demand Resources being required to fully respond to a Load Management Event.~~

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(b) For the 2015/2016 Delivery Year and subsequent Delivery Years, a Demand Resource Registration must be able to fully respond to a Load Management Event within 30 minutes of notification from the Office of the Interconnection. This default 30 minute prior notification shall apply unless a Curtailment Service Provider obtains an exception from the Office of the Interconnection due to physical operational limitations that prevent the Demand Resource Registration from reducing load within that timeframe. In such case, the Curtailment Service Provider shall submit a request for an exception to the 30 minute prior notification requirement to the Office of the Interconnection, at the time the Registration Form for that Demand Resource Registration is submitted in accordance with Tariff, Attachment K-Appendix. The only alternative notification times that the Office of Interconnection will permit, upon approval of an exception request, are 60 minutes and 120 minutes prior to a Load Management Event. The Curtailment Service Provider shall indicate in writing, in the appropriate application, that it seeks an exception to permit a prior notification time of 60 minutes or 120 minutes, and the reason(s) for the requested exception. A Curtailment Service Provider shall not submit a request for an exception to the default 30 minute notification period unless it has done its due diligence to confirm that the Demand Resource Registration is physically incapable of responding within that timeframe based on one or more of the reasons set forth below and as may be further defined in the PJM Manuals and has obtained detailed data and documentation to support this determination.

In order to establish that a Demand Resource Registration is reasonably expected to be physically unable to reduce load in that timeframe, the Curtailment Service Provider that ~~submitted the Demand Resource Registration~~ ~~registered the resource~~ must demonstrate that:

- (i) 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;
- (ii) Transfer of load to back-up generation requires time-intensive manual process taking more than 30 minutes;
- (iii) On-site safety concerns prevent location from implementing reduction plan in less than 30 minutes; or,
- (iv) The Demand Resource Registration is comprised of mass market residential customers or 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 Office of the Interconnection may request data and documentation from the Curtailment Service Provider and such Curtailment Service Provider shall provide to the Office of the Interconnection within three (3) Business Days of a request therefor, a copy of all of the data

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and documentation supporting the exception request. Failure to provide a timely response to such request shall cause the exception to terminate the following Operating Day.

At its sole option and discretion, the Office of the Interconnection may review the data and documentation provided by the Curtailment Service Provider to determine if the Demand Resource Registration has met one or more of the criteria above. The Office of the Interconnection will notify the Curtailment Service Provider in writing of its determination by no later than ten (10) Business Days after receipt of the data and documentation.

The Curtailment Service Provider shall provide written notification to the Office of the Interconnection of a material change to the facts that supported its exception request within three (3) Business Days of becoming aware of such material change in facts, and, if the Office of Interconnection determines that the physical limitation criteria above are no longer being met, the Demand Resource Registration shall be subject to the default notification period of 30 minutes immediately upon such determination.

3. The initiation of load reduction, upon the request of the Office of the Interconnection, must be within the authority of the dispatchers of the Party. No additional approvals should be required.

4. The initiation of load reduction upon the request of the Office of the Interconnection is considered a pre-emergency or emergency action and must be implementable prior to a voltage reduction.

5. A Curtailment Service Provider intending to offer for sale or designate for self-supply, a Demand Resource in any RPM Auction, or intending to include a Demand Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide a reduction in demand, or otherwise control load, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such Curtailment Service Provider shall submit a Demand Resource Sell Offer Plan in accordance with the standards and procedures set forth in RAA, Schedule 6, section A-1; RAA, Schedule 8.1 (as to FRR Capacity Plans) and the PJM Manuals, no later than 15 Business Days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included. PJM may verify the Curtailment Service Provider's adherence to the Demand Resource Sell Offer Plan at any time. A Curtailment Service Provider with a PJM-approved Demand Resource Sell Offer Plan will be permitted to offer up to the approved Demand Resource quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.

~~6. Selection of a Demand Resource in an RPM Auction results in commitment of capacity to the PJM Region. Demand Resources that are so committed must be linked to registrations registered to participate in the Full Program Option or as a Capacity Only resource Option of the Emergency Load Response and Pre-Emergency Load Response Program and thus available for dispatch during PJM-declared pre-emergency events and emergency events.~~

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A-1. A Demand Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a Demand Resource Officer Certification Form signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification. The Demand Resource Sell Offer Plan must provide information that supports the Demand Resource Provider's intended Demand Resource Sell Offers and demonstrates that the Demand Resources are being offered with the intention that the MW quantity that clears the auction is reasonably expected to be physically delivered through Demand Resource registrations for the relevant Delivery Year. The Demand Resource Sell Offer Plan shall include all Existing Demand Resources and all Planned Demand Resources that the Demand Resource Provider intends to offer into an RPM Auction or include in an FRR Capacity Plan.

1. Demand Resource Sell Offer Plan Template. The Demand Resource Sell Offer Plan template, in the form provided on the PJM website, shall require the Demand Resource Provider to provide the following information and such other information as specified in the PJM Manuals:

(a) Summary Information. The completed template shall include the Demand Resource Provider's company name, contact information, and the Nominated DR Value in ICAP MWs by Zone/sub-Zone that the Demand Resource Provider intends to offer, stated separately for Existing Demand Resources and Planned Demand Resources. The total Nominated DR Value in MWs for each Zone/sub-Zone shall be the sum of the Nominated DR Value of Existing Demand Resources and the Nominated DR Value of Planned Demand Resources, and shall be the maximum MW amount the Provider intends to offer in the RPM Auction for the indicated Zone/sub-Zone, provided that nothing herein shall preclude the Demand Resource Provider from offering in the auction a lesser amount than the total Nominated DR Value shown in its Demand Resource Sell Offer Plan.

(b) Existing Demand Resources. The Demand Resource Provider shall identify all Existing Demand Resources by identifying end-use customer sites that are currently registered with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the auction Delivery Year.

(c) Planned Demand Resources. The Demand Resource Provider shall provide the details of, and key assumptions underlying, the Planned Demand Resource quantities (i.e., all Demand Resource quantities in excess of Existing Demand Resource quantities) contained in the Demand Resource Sell Offer Plan, including:



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(i) key program attributes and assumptions used to develop the Planned Demand Resource quantities, including, but 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 Demand Resource customers within this market and the potential for other Demand Resource Providers targeting the same customers;
- assumptions regarding regulatory approval of program(s), if applicable; and
- ~~Prior to June 1, 2016: if applicable, Legacy Direct Load Control (LDLC) program details such as: a description of the cycling control strategy, any assumptions regarding switch operability rate, and a list (and copy) of all load research studies used to develop the estimated nominated ICAP value per customer (i.e., the per participant impact).~~

(ii) Zone/sub-Zone information by end-use customer segment for all Nominated DR Values for which an end-use customer site is not identified, to include the number in each segment of end-use customers expected to be registered for the subject Delivery Year, the average Peak Load Contribution per end-use customer for such segment, and the average Nominated DR Value per customer for such segment. End-use customer segments may include residential, commercial, small industrial, medium industrial, and large industrial, as identified and defined in the PJM Manuals, provided that nothing herein or in the Manuals shall preclude the Provider from identifying more specific customer segments within the commercial and industrial categories, if known.

(iii) Information by end-use customer site to the extent required by subsection A-1(1)(c)(iv) or, if not required by such subsection, to the extent known at the time of the submittal of the Demand Resource Sell Offer Plan, to include: customer EDC account number (if known), customer name, customer premise address, Zone/sub-Zone in which the customer is located, end-use customer segment, current Peak Load Contribution value (or an estimate if actual value not known) and an estimate of expected Peak Load Contribution for the subject Delivery Year, and an estimated Nominated DR Value.

(iv) End-use customer site-specific information shall be required for any Zones or sub-Zones identified by PJM pursuant to this subsection for the portion, if any, of a Demand Resource Provider's intended offer in

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such Zones or sub-Zones that exceeds a Sell Offer threshold determined pursuant to this subsection, as any such excess quantity under such conditions should reflect Planned Demand Resources from end-use customer sites that the Provider has a high degree of certainty it will physically deliver for the subject Delivery Year. In accordance with the procedures in subsection A-1(3) below, PJM shall identify, as requiring site-specific information, all Zones and sub-Zones that comprise any LDA group (from a list of LDA groups stated in the PJM Manuals) in which [the quantity of cleared Demand Resources from the most recent Base Residual Auction] plus [the quantity of Demand Resources included in FRR Capacity Plans for the Delivery Year addressed by the most recent Base Residual Auction] in any Zone or sub-Zone of such LDA group exceeds the greater of:

- the maximum Demand Resources quantity registered with PJM for such Zone for any Delivery Year from the current (at time of plan submission) Delivery Year and the two preceding Delivery Years; and
- the potential Demand Resource quantity for such Zone estimated by PJM based on an independent published assessment of demand response potential that is reasonably applicable to such Zone, as identified in the PJM Manuals.

For each such Zone and sub-Zone, the Sell Offer threshold for each Demand Resource Provider shall be the higher of:

- the Demand Resource Provider's maximum Demand Resource quantity registered with PJM for such Zone/sub-Zone over the current Delivery Year (at the time of plan submission) and two preceding Delivery Years;
- the Demand Resource Provider's maximum for any single Delivery Year of [such provider's cleared Demand Resource quantity] plus [such provider's quantity of Demand Resources included in FRR Capacity Plans] from the three forward Delivery Years addressed by the three most recent Base Residual Auctions for such Zone/sub-Zone; and
- 10 MW.

(d) Schedule. The Demand Resource Provider shall provide an approximate timeline for procuring end-use customer sites as needed to physically deliver the total Nominated DR Value (for both Existing Demand Resources and Planned Demand Resources) by Zone/sub-Zone in the Demand Resource Sell Offer Plan. The Demand Resource Provider

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must specify the cumulative number of customers and the cumulative Nominated DR Value associated with each end-use customer segment within each Zone/sub-Zone that the Demand Resource Provider expects (at the time of plan submission) to have under contract as of June 1 each year between the time of the auction and the subject Delivery Year.

2. Demand Resource Officer Certification Form. Each Demand Resource Sell Offer Plan must include a Demand Resource Officer Certification, signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:

(a) that the signing officer has reviewed the Demand Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and

(b) that the Demand Resource Provider is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through Demand Resource registrations by the specified Delivery Year.

As set forth in the form provided in the PJM Manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement and/or RAA, or the Demand Resource Provider's rights and obligations thereunder, including the Demand Resource Provider's ability to adjust capacity obligations through participation in PJM incremental auctions and bilateral transactions.

3. Procedures. No later than December 1 prior to the Base Residual Auction for a Delivery Year, PJM shall post to the PJM website a list of Zones and sub-Zones, if any, for which end-use customer site-specific information shall be required under the conditions specified in subsection A-1(1)(c)(iv) above for all RPM Auctions conducted for such Delivery Year. Once so identified, a Zone or sub-Zone shall remain on the list for future Delivery Years until the threshold determined under subsection A-1(1)(c)(iv) above is not exceeded for three consecutive Delivery Years. No later than 15 Business Days prior to the RPM Auction in which a Demand Resource Provider intends to offer a Demand Resource, the Demand Resource Provider shall submit to PJM a completed Demand Resource Sell Offer Plan template and a Demand Resource Officer Certification Form signed by a duly authorized officer of the Provider. PJM will review all submitted DR Sell Offer Plans. No later than 10 Business Days prior to the subject RPM Auction, PJM shall notify any Demand Resource Providers that have identified the same end-use customer site(s) in their respective DR Sell Offer Plans for the same Delivery Year. In such event, the MWs associated with such site(s) will not be approved for inclusion in a Sell Offer in an RPM Auction by any of the Demand Resource Providers, unless a Demand Resource Provider provides a letter of support from the end-use customer indicating that it is likely to execute a contract with that Demand Resource Provider for the relevant Delivery

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Year, or provides other comparable evidence of likely commitment. Such letter of support or other supporting evidence must be provided to PJM no later than 7 Business Days prior to the subject RPM Auction. If an end-use customer provides letters of support for the same site for the same Delivery Year to multiple Demand Resource Providers, the MWs associated with such end-use customer site shall not be approved as a Demand Resource for any of the Demand Resource Providers. No later than 5 Business Days prior to the subject RPM Auction, PJM will notify each Demand Resource Provider of the approved Demand Resource quantity, by Zone/sub-Zone, that such Demand Resource Provider is permitted to offer into such RPM Auction.

- B. The Unforced Capacity value of a Demand Resource will be determined as:

for the Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the product of the Nominated Value of the Demand Resource, times the DR Factor, times the Forecast Pool Requirement, and for the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans for the 2019/2020 Delivery Year and subsequent Delivery Years, the product of the Nominated Value of the Demand Resource times the Forecast Pool Requirement. Nominated Values shall be determined and reviewed in accordance with sections I and J, respectively, and the PJM Manuals. The DR Factor is a factor established by the PJM Board with the advice of the Members Committee to reflect the increase in the peak load carrying capability in the PJM Region due to Demand Resources. Peak load carrying capability is defined to be the peak load that the PJM Region is able to serve at the loss of load expectation defined in the Reliability Principles and Standards. The DR Factor is the increase in the peak load carrying capability in the PJM Region due to Demand Resources, divided by the total Nominated Value of Demand Resources in the PJM Region. The DR Factor will be determined using an analytical program that uses a probabilistic approach to determine reliability. The determination of the DR Factor will consider the reliability of Demand Resources, the number of interruptions, and the total amount of load reduction.

- C. Demand Resources offered and cleared in a Base Residual or Incremental Auction shall receive the corresponding Capacity Resource Clearing Price as determined in such auction, in accordance with Tariff, Attachment DD. For Delivery Years beginning with the Delivery Year that commences on June 1, 2013, any Demand Resources located in a Zone with multiple LDAs shall receive the Capacity Resource Clearing Price applicable to the location of such resource within such Zone, as identified in such resource's offer. Further, the Curtailment Service Provider shall register its resource in the same location within the Zone as specified in its cleared sell offer, and shall be subject to deficiency charges under Tariff, Attachment DD to the extent it fails to provide the resource in such location consistent with its cleared offer. ~~For either of the Delivery Year commencing on June 1, 2010 or commencing on June 1, 2012, if the location of a Demand Resource is not specified by a Seller in the Sell Offer on an individual LDA basis in a Zone with multiple LDAs, then Demand Resources cleared by such Seller will be paid a DR Weighted Zonal Resource Clearing Price, determined as follows: (i) for a Zone that includes non-overlapping LDAs, calculated as the weighted average of the Resource~~

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~~Clearing Prices for such LDAs, weighted by the cleared Demand Resources registered by such Seller in each such LDA; or (ii) for a Zone that contains a smaller LDA within a larger LDA, calculated treating the smaller LDA and the remaining portion of the larger LDA as if they were separate LDAs, and weight averaging in the same manner as (i) above.~~

- D. The Party, Electric Distributor, or Curtailment Service Provider that establishes a contractual relationship (by contract or tariff rate) with a customer for load reductions is entitled to receive the compensation specified in section C for a committed Demand Resource, notwithstanding that such provider is not the customer's energy supplier.
- E. Any Party hereto shall demonstrate that its Demand Resources performed during periods when load management procedures were invoked by the Office of the Interconnection. The Office of the Interconnection shall adopt and maintain rules and procedures for verifying the performance of such resources, as set forth in section K hereof and the PJM Manuals. In addition, committed Demand Resources that do not comply with the directions of the Office of the Interconnection to reduce load during an emergency shall be subject to the penalty charge set forth in Tariff, Attachment DD.
- F. Parties may elect to place Demand Resources associated with Behind The Meter Generation under the direction of the Office of the Interconnection for a Delivery Year by submitting a Sell Offer for such resource (as Self Supply, or with an offer price) in the Base Residual Auction for such Delivery Year. This election shall remain in effect for the entirety of such Delivery Year. In the event such an election is made, such Behind The Meter Generation will not be netted from load for the purposes of calculating the Daily Unforced Capacity Obligations under this Agreement.
- G. PJM measures Demand Resources Registrations in the following ways:

~~Prior to June 1, 2016: Legacy Direct Load Control (LDLC) – Load management that is initiated directly by the Curtailment Service Provider's market operations center or its agent, employing a communication signal to cycle equipment (typically water heaters or central air conditioners). DLC programs are qualified based on load research and customer subscription data. Curtailment Service Providers may rely on the results of load research studies identified in the PJM Manuals to set the per participant load reduction for LDLC programs. Each Curtailment Service Provider relying on DLC load management must periodically update its LDLC switch operability rates, in accordance with the PJM Manuals.~~

Firm Service Level (FSL) – Load management achieved by an end-use customer reducing its load to a pre-determined level (the Firm Service Level), upon notification from the Curtailment Service Provider's market operations center or its agent.

Guaranteed Load Drop (GLD) – Load management achieved by an end-use customer reducing its load by a pre-determined amount (the Guaranteed Load Drop), upon notification from the Curtailment Service Provider's market operations center or its

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agent. Typically, the load reduction is achieved through running customer-owned backup generators, or by shutting down process equipment.

H. Each Curtailment Service Provider must satisfy (or contract with another LSE, Curtailment Service Provider, or electric distribution company to provide) the following requirements:

- A point of contact with appropriate backup to ensure single call notification from PJM and timely execution of the notification process;
- Supplemental status reports, detailing Demand Resources available, as requested by PJM;
- Entry of customer-specific Demand Resource ~~credit~~ Registration information, for planning and verification purposes, into the designated PJM electronic system.
- Customer-specific compliance and verification information for each PJM-initiated Demand Resource event or Provider initiated test event, as well as aggregated Provider load drop data for Provider-initiated events, in accordance with established reporting guidelines.
- Load drop estimates for all ~~Demand Resource~~ Load Management events and test events, prepared in accordance with the PJM Manuals.

I. The Nominated Values (summer, winter or annual) ~~of~~ for each Demand Resource Registration shall be determined consistent with the process ~~for determination of the capacity obligation for the customer~~ described below.

The summer Nominated Value for ~~a~~ Firm Service Level customer(s) on a registration will be based on the peak load contribution for the customer(s), as typically determined by the 5CP methodology utilized by the electric distribution company to determine ICAP obligation values. The summer Nominated Value for a registration ~~Annual Demand Resources with a Capacity Performance commitment~~ shall equal the ~~lessor of i)~~ total peak load contribution for the customers on the registration minus the ~~nominated~~ summer Firm Service Level multiplied by the loss factor. The winter Nominated Value for Firm Service Level customer(s) on a registration shall equal the ~~and ii)~~ total Winter Peak Load for customers on the registration multiplied by Zonal Winter Weather Adjustment Factor minus winter Firm Service level and then the result is multiplied by the loss factor. The annual Nominated Value for or Firm Service Level customer(s) on a registration shall equal the lesser of i) summer Nominated Value or ii) winter Nominated Value. Effective with the 2019/2020 Delivery Year, an annual Nominated Value for a registration is no longer calculated. ~~The Nominated Value for Limited Demand Resources, Extended Summer Demand Resources, Base Capacity Demand Resources, Summer Period Demand Resources, and Annual Demand Resources without a Capacity Performance Commitment shall be total peak load contribution for the customers on the registration minus the nominated summer Firm Service Level multiplied by the loss factor.~~

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The summer Nominated Value for a Guaranteed Load Drop customer ~~on a registration for Annual Demand Resources with a Capacity Performance commitment will be the lesser of the~~ shall equal the summer ~~and winter~~ guaranteed load drop amount, adjusted for system losses and shall not exceed the customer's Peak Load Contribution, as established by the customer's contract with the Curtailment Service Provider. The winter Nominated Value for a Guaranteed Load Drop customer ~~on a registration for Limited Demand Resources, Extended Summer Demand Resources, Base Capacity Demand Resources, Summer Period Demand Resources, and Annual Demand Resources without a Capacity Performance Commitment will~~ shall be the ~~summer~~ winter guaranteed load drop amount, adjusted for system losses, and shall not exceed the customer's Winter Peak Load multiplied by Zonal Winter Weather Adjustment Factor multiplied by the loss factor, as established by the customer's contract with the Curtailment Service Provider. The annual Nominated Value for a Guaranteed Load Drop customer on a registration shall be the lesser of the i) summer Nominated Value or ii) winter Nominated Value. The maximum value nominated for any Demand Resource shall not exceed the customer's Peak Load Contribution. Effective with the 2019/2020 Delivery Year, an annual Nominated Value for a registration is no longer calculated.

~~Prior to June 1, 2016, the Nominated Value for a Legacy Direct Load Control program will be based on load research and customer subscription. The maximum value of the program is equal to the approved per participant load reduction multiplied by the number of active participants, adjusted for system losses. The per participant impact is to be estimated at long term average local weather conditions at the time of the summer peak.~~

Customer-specific Demand Resource Registration information (EDC account number, peak load contribution, Winter Peak Load, notification period, etc.) will be entered into the designated PJM electronic system to establish nominated values. Each Demand Resource Registration should be linked to a Demand Resource. Additional data may be required, as defined in sections J and K and the PJM Manuals.

- J. Nominated Values shall be reviewed based on documentation of customer-specific data and Demand Resource Registration information, to verify the amount of load management available and to set a ~~maximum allowable~~ summer, winter, or annual Nominated Value. Data is provided by both the zone EDC and the Curtailment Service Provider ~~in the designated PJM electronic system on templates supplied by PJM~~, and must include the EDC meter number or other unique customer identifier, Peak Load Contribution (5CP), Winter Peak Load, contract firm service level or guaranteed load drop values, applicable loss factor, zone/area location of the load drop, number of active participants, etc. Such data must be uploaded and approved prior to the first day of the Delivery Year for which such Demand Resource Registration is effective ~~such resource as a Demand Resource~~. Curtailment Service Providers must provide this information concurrently to host EDCs.

For Firm Service Level and Guaranteed Load Drop customers, the 5CP values, for the zone and affected customers, will be adjusted to reflect an "unrestricted" peak for a zone,

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based on information provided by the Curtailment Service Provider. Load drop levels shall be estimated in accordance with guidelines in the PJM Manuals.

~~Prior to June 1, 2016, for Legacy Direct Load Control programs, the Curtailment Service Provider must provide information detailing the number of active participants in each program. Other information on approved LDLC programs will be provided by PJM. The daily Nominated Value for the Delivery Year for a Limited Demand Resource, Extended Summer Demand Resource, Base Capacity Demand Resource, and Annual Demand Resource without a Capacity Performance commitment shall equal the sum of the summer Nominated Values of the registrations linked to such Demand Resource. For the 2017/2018 and 2018/2019 Delivery Years, the daily Nominated Value for the Delivery Year for an Annual Demand Resource with a Capacity Performance commitment shall equal the sum of the annual Nominated Values of the registrations linked to such Demand Resource. For the 2019/2020 Delivery Year, the daily Nominated Value for the Delivery Year for an Annual Demand Resource with a Capacity Performance commitment shall equal the lesser of (i) the sum of the summer Nominated Values of the registrations linked to such Demand Resource or (ii) the sum of the winter Nominated Values of the registrations linked to such Demand Resource. Effective with the 2020/2021 Delivery Year, the daily Nominated Value of a Demand Resource with a Capacity Performance commitment (which may consist of an Annual Demand Resource with a Capacity Performance commitment and/or Summer Period Demand Resource with a Capacity Performance commitment) shall equal the sum of the summer Nominated Values of the registrations linked to such Demand Resource for the summer period of June through October and May of the Delivery Year, and shall equal the lesser of (i) the sum of the summer Nominated Values of the registrations linked to such Demand Resource or (ii) the sum of the winter Nominated Values of the registrations linked to such Demand Resource for the non-summer period of November through April of the Delivery Year.~~

- K. Compliance is the process utilized to review Provider performance during PJM-initiated ~~Demand Resource~~Load Management events and Curtailment Service Provider initiated tests. Compliance will be established for each Provider on an event specific basis for the Curtailment Service Provider's Demand Resources Registrations dispatched by the Office of the Interconnection during such event. 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. Curtailment Service Providers are responsible for the submittal of compliance information to PJM for each PJM-initiated event and Curtailment Service Provider initiated test during the compliance period.

Compliance is measured for Market Participant Bonus Performance, as applicable, and Non-Performance Charges. Non-Performance Charges are assessed for the defined obligation period of each Demand Resource as defined in RAA, Article 1, subject to the following requirements:



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~~Prior to June 1, 2016, compliance for Legacy Direct Load Control programs will consider only the transmission of the control signal. Curtailment Service Providers are required to report the time period (during the Demand Resource event) that the control signal was actually sent.~~

Compliance is checked on an individual customer basis for Firm Service Level, by comparing actual load during the event to the firm service level. Current load for a statistical sample of end-use customers may be used for compliance for residential non-interval metered registrations in accordance with the PJM Manuals and subject to PJM approval. Curtailment Service Providers must submit actual customer load levels (for the event period) for the compliance report. Compliance for FSL will be based on:

Summer (June through October and the following May of a Delivery Year)- End use customer's current Delivery Year peak load contribution ("PLC") minus the metered load ("Load") multiplied by the loss factor ("LF"). The calculation is represented by:

$$(PLC) - (Load * LF)$$

Winter (November through April of a Delivery Year)- End use customer's Winter Peak Load ("WPL") multiplied by Zonal Winter Weather Adjustment Factor ("ZWWAF") multiplied by LF, minus the metered load ("Load") multiplied by the LF. The calculation is represented by:

$$(WPL * ZWWAF * LF) - (Load * LF)$$

Compliance is checked on an individual customer basis for Guaranteed Load Drop. Current load for a statistical sample of end-use customers may be used for compliance for residential non-interval metered registrations in accordance with the PJM Manuals and subject to PJM approval. Guaranteed Load Drop compliance will be based on:

- (i) the lesser of (a) comparison load used to best represent what the load would have been if PJM did not declare a Load Management Event or the CSP did not initiate a test as outlined in the PJM Manuals, minus the Load and then multiplied by the LF, or (b) For a summer event, the PLC minus the Load multiplied by the LF. A summer load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the PLC. For a non-summer event, the WPL multiplied the ZWWAF multiplied by LF, minus the Load multiplied by the LF. A non-summer load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the WPL multiplied by the ZWWAF multiplied by LF.
- (ii) Curtailment Service Providers must submit actual loads and comparison loads for all hours during the day of the Load Management Event or the Load Management performance test, and for all hours during any other days as required by the Office of the Interconnection to calculate the load reduction. Comparison loads must be

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developed from the guidelines in the PJM Manuals, and note which method was employed.

- (iii) Methodologies for establishing comparison load for Guaranteed Load Drop end-use customers are described in greater detail in Manual M-19, PJM Manual for Load Forecasting and Analysis, at Attachment A: Load Drop Estimate Guidelines.

Compliance is averaged over the Load Management Event for non-interval metered LDLC programs, prior to June 1, 2016. Load reduction cCompliance is averaged over the Load Management Event for a Demand Resource Registration linked to a Limited Demand Resource, Extended Summer Demand Resource, or Annual Demand Resource without a Capacity Performance commitment or determined on an hourly basis for a Demand Resources Registration linked to with a Base Capacity Demand Resource or Annual Demand Resource with a Capacity Performance commitment, for each FSL and GLD customer dispatched by the Office of the Interconnection for at least 30 minutes of the clock hour (i.e., "partial dispatch compliance hour"). The registered capacity commitment for a Demand Resource Registration without a Base or Capacity Performance commitment for the partial dispatch compliance hour will be prorated based on the number of minutes dispatched during the clock hour and as defined in the Manuals. 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. The registered capacity commitment for a Demand Resource Registration with a Base or Capacity Performance commitment is not prorated based on the number of minutes dispatched during the clock hours. The actual hourly load reduction for the hour ending that includes a Performance Assessment Interval(s) is flat-profiled over the set of dispatch intervals in the hour in accordance with the PJM Manuals.

### For all Delivery Years:

A Demand Resources Registration may not reduce their load below zero (i.e., export energy into the system). No compliance credit will be given for an incremental load drop below zero.

Compliance will be totaled over all dispatched registrations for FSL and GLD customers and LDLC programs (prior to June 1, 2016) linked to a committed Limited Demand Resource, Extended Summer Demand Resource, and Annual Demand Resource without a Capacity Performance commitment to determine a net compliance position for the event for each Provider by Zone Compliance Aggregation Area and such net compliance position shall be allocated to the underlying registrations, for all Demand Resources committed by such Provider in accordance with PJM Manuals and dispatched by the Office of the Interconnection in the zone. Load Management Even D deficiencies shall be as further determined in accordance with Tariff, Schedule Attachment DD, section 11 and PJM Manuals.

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For a Performance Assessment Interval, compliance will be totaled over all dispatched registrations for FSL and GLD customers linked to a Provider's Base Capacity Demand Resource or to an Annual Demand Resource with a Capacity Performance commitment to determine the Actual Performance for such Demand Resource in accordance with Tariff, Attachment DD, section 10A, and PJM Manuals. The Expected Performance for such Demand Resource shall be equal to the Provider's committed capacity on the Demand Resource, adjusted to account for any linked registrations that were not dispatched by PJM. A Provider's Demand Resources' initial Performance Shortfalls shall be netted for all the seller's Demand Resources in the Emergency Action Area to determine a net Emergency Action Area Performance Shortfall which is then allocated to the Capacity Market Seller's Demand Resources in accordance with Tariff, Attachment DD, section 10A, and PJM Manuals.

### L. Energy Efficiency Resources

1. An Energy Efficiency Resource is a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during peak summer and winter periods as described herein) reduction in electric energy consumption at the End-Use Customer's retail site that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.
2. An Energy Efficiency Resource may be offered as a Capacity Resource in the Base Residual or Incremental Auctions for any Delivery Year beginning on or after June 1, 2011. No later than 30 days prior to the auction in which the resource is to be offered, the Capacity Market Seller shall submit to the Office of the Interconnection a notice of intent to offer the resource into such auction and a measurement and verification plan. The notice of intent shall include all pertinent project design data, including but not limited to the peak-load contribution of affected customers, a full description of the equipment, device, system or process intended to achieve the load reduction, the load reduction pattern, the project location, the project development timeline, and any other relevant data. Such notice also shall state the seller's proposed Nominated Energy Efficiency Value.
  - For Delivery Years through May 31, 2018 for all Energy Efficiency Resources not committed as a Capacity Performance Resource, the seller's proposed Nominated Energy Efficiency Value shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday;
  - For the 2018/2019 and 2019/2020 Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Base Capacity Energy Efficiency

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Resource shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday; and

- For the 2018/2019 Delivery Year and subsequent Delivery Years and for any Annual Energy Efficiency Resource committed as a Capacity Performance Resource for the 2016/2017 and 2017/2018 Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Annual Energy Efficiency Resources, shall be the expected average load reduction, for all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 15:00 EPT and the hour ending 18:00 EPT. In addition, the expected average load reduction for all days from January 1 through February 28, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 8:00 EPT and the hour ending 9:00 EPT and between the hour ending 19:00 EPT and the hour ending 20:00 EPT shall not be less than the Nominated Energy Efficiency Value; and
- For the 2020/2021 Delivery Year and subsequent Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Summer-Period Energy Efficiency Resource shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday.

The measurement and verification plan shall describe the methods and procedures, consistent with the PJM Manuals, for determining the amount of the load reduction and confirming that such reduction is achieved. The Office of the Interconnection shall determine, upon review of such notice, the Nominated Energy Efficiency Value that may be offered in the Reliability Pricing Model Auction.

3. An Energy Efficiency Resource may be offered with a price offer or as Self-Supply. If an Energy Efficiency Resource clears the auction, it shall receive the applicable Capacity Resource Clearing Price, subject to section 5 below. A Capacity Market Seller offering an Energy Efficiency Resource must comply with all applicable credit requirements as set forth in Tariff, Attachment Q. For Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency value times the DR Factor and the Forecast Pool Requirement. For the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans for the 2019/2020 Delivery Year and subsequent Delivery Years, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency Value times the Forecast Pool Requirement.

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4. An Energy Efficiency Resource that clears an auction for a Delivery Year may be offered in auctions for up to three additional consecutive Delivery Years, but shall not be assured of clearing in any such auction; provided, however, an Energy Efficiency Resource may not be offered for any Delivery Year in which any part of the peak season is beyond the expected life of the equipment, device, system, or process providing the expected load reduction; and provided further that a Capacity Market Seller that offers and clears an Energy Efficiency Resource in a BRA may elect a New Entry Price Adjustment on the same terms as set forth in Tariff, Attachment DD, section 5.14(c).
5. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than 30 days prior to each Auction an updated project status and measurement and verification plan subject to the criteria set forth in the PJM Manuals.
6. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than the start of such Delivery Year, an updated project status and detailed measurement and verification data meeting the standards for precision and accuracy set forth in the PJM Manuals. The final value of the Energy Efficiency Resource during such Delivery Year shall be as determined by the Office of the Interconnection based on the submitted data.
7. The Office of the Interconnection may audit, at the Capacity Market Seller's expense, any Energy Efficiency Resource committed to the PJM Region. The audit may be conducted any time including the Performance Hours of the Delivery Year.
8. For Incremental Auctions conducted for the 2019/2020 and 2020/2021 Delivery Years, and for RPM Auctions for the 2021/2022 Delivery Year and subsequent Delivery Years, if a Relevant Electric Retail Regulatory Authority receives FERC authorization to qualify or prohibit Energy Efficiency Resource participation in a specific area(s) of the PJM Region, the following process applies:
  - (a) The Office of the Interconnection will publicly post a reference to the FERC authorization of a Relevant Electric Retail Regulatory Authority order, ordinance or resolution that qualifies or prohibits Energy Efficiency Resource participation, the applicable electric distribution company(ies), and the applicable auction(s) and/or Delivery Year(s).
  - (b) A Capacity Market Seller that intends to offer or certify Energy Efficiency Resources must identify and itemize all resources that are located in the jurisdiction of a Relevant Electric Retail Regulatory Authority authorized by FERC to qualify or prohibit Energy Efficiency Resource participation within the

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Zone or LDA, as required, and those outside of the area but within the Zone or LDA, as required.

(c) A Capacity Market Seller that intends to offer or certify Energy Efficiency Resources must identify and itemize all Energy Efficiency Resources to be offered as part of its Energy Efficiency measurement and verification plan and certified post-installation measurement and verification report. The Office of Interconnection will provide a list to the relevant electric distribution company for the specific area(s) to review for compliance with the Relevant Electric Retail Regulatory Authority of Capacity Market Sellers that are:

- (i) offering Energy Efficiency Resources in an RPM Auction within two (2) Business Days after the deadline for submitting an energy efficiency measurement and verification plan for such RPM Auction; and
- (ii) certifying Energy Efficiency Resources with a Delivery Year post-installation measurement and verification report, within two (2) Business Days of receipt of such Delivery Year post-installation measurement and verification report. The relevant electric distribution company for the specific area(s) shall review for compliance with rules from a Relevant Electric Retail Regulatory Authority authorized by FERC to qualify or prohibit Energy Efficiency Resource.

(d) The relevant electric distribution company for the specific area(s) shall review for compliance with rules from a Relevant Electric Retail Regulatory Authority authorized by FERC to qualify or prohibit Energy Efficiency Resource participation and provide a response to the Office of the Interconnection within five (5) Business Days after receiving the list of Capacity Market Sellers offering Energy Efficiency Resources. The Office of the Interconnection will not allow a Capacity Market Seller to offer or certify Energy Efficiency Resources if an electric distribution company denies such Capacity Market Seller to deliver Energy Efficiency Resources in compliance with rules of a Relevant Electric Retail Regulatory Authority authorized by FERC to qualify or prohibit Energy Efficiency Resource participation.

- (9) For Incremental Auctions that will be conducted for the 2019/2020 and 2020/2021 Delivery Years, and for RPM Auctions for the 2021/2022 Delivery Year and subsequent Delivery Years, a Capacity Market Seller of Energy Efficiency Resources that cannot satisfy its RPM obligations in any Delivery Year due to the prohibition of participation by a Relevant Electric Retail Regulatory Authority authorized by FERC to prohibit participation of such resources may be relieved of its Capacity Resource Deficiency Charge by notifying the Office of

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the Interconnection by no later than seven (7) calendar days prior to the posting of the planning parameters for the Third Incremental Auction of that Delivery Year. After providing such notice, the affected Capacity Market Seller may elect to be relieved of its RPM commitment, and shall not be required to obtain replacement capacity for the resource, and no charges shall be assessed by the Office of the Interconnection for the Capacity Market Seller's deficiency in satisfying its RPM obligation for the resource for such Delivery Year. In such case, however, the Capacity Market Seller shall not be entitled to, nor be paid, any RPM revenues for such resource for that Delivery Year. The Office of the Interconnection will apply corresponding adjustments to the quantity of Buy Bids or Sell Offers in the Incremental Auctions for such Delivery Years in accordance with Tariff, Attachment DD, sections 5.12(b)(ii) and 5.12(b)(iii).