

Operating Agreement, Schedule 1

Tariff, Attachment K-Appendix

Section: 1.10.1A Day-ahead and Real-time Energy Market Scheduling.

j) (i) Offers to Supply Synchronized and Non-Synchronized Reserves By Generation Resources in the Day-ahead and Real-time Reserve Markets

(1) Market Sellers owning or controlling the output of a Generation Capacity Resource that was committed in an FRR Capacity Plan, self-supplied, offered and cleared in a Base Residual Auction or Incremental Auction, or designated as replacement capacity, as specified in Tariff, Attachment DD, is capable of providing Synchronized Reserve or Non-Synchronized Reserve as specified in section 1.7.19A(a), in section 1.7.19A.01(a) and in the PJM Manuals, and has not been rendered unavailable by a Generator Planned Outage, a Generator Maintenance Outage, or a Generator Forced Outage, shall submit offers or otherwise make their 10-minute reserve capability available to supply Synchronized Reserve or, as applicable, Non-Synchronized Reserve, including any portion that is self-scheduled by the Generating Market Buyer, in an amount equal to the available 10-minute reserve capability of such Generation Capacity Resource. Market Sellers of Generation Capacity Resources subject to this must-offer requirement that do not make the reserve capability of such resources available when such resource is able to operate with a dispatchable range (e.g. through offering a fixed output) will be in violation of this provision. Notwithstanding the foregoing, a resource owner/operator that purchased gas in advance of a Day-ahead Energy Market commitment during a Cold Weather Alert would meet the reserve must offer requirement so long as such resource is self-scheduled and produces energy at or above the installed capacity equivalent of the resources' committed Accredited UCAP capacity minus any MW quantity that is offered to provide reserves.

(2) Market Sellers of all other generation resources that (A) are capable of providing Synchronized Reserve or Non-Synchronized Reserve, as specified in section 1.7.19A(a), in section 1.7.19A.01(a) and in the PJM Manuals, (B) are located within the metered boundaries of the PJM Region, and (C) have submitted offers for the supply of energy into the Day-ahead Energy Market and/or Real-time Energy Market shall be deemed to have made their reserve capability available to provide Synchronized Reserve or Non-Synchronized Reserve in the Day-ahead Energy Market and/or Real-time Energy Market for each clock hour for which the Market Seller submits an available offer to supply energy; provided, however that hydroelectric generation resources, Hybrid Resources, and Energy Storage Resources are not automatically deemed available to provide

reserves based on the submission of an available energy offer but may submit offers to supply Synchronized Reserve and Non-Synchronized Reserve, as applicable.

(m) (i) Offers to Supply Secondary Reserve By Generation Resources

(1) Market Sellers owning or controlling the output of a Generation Capacity Resource that was committed in an FRR Capacity Plan, self-supplied, offered and cleared in a Base Residual Auction or Incremental Auction, or designated as replacement capacity, as specified in Tariff, Attachment DD, that is available for energy, is capable of providing Secondary Reserve, as specified in section 1.7.19A.02(a) and in the PJM Manuals, and has not been rendered unavailable by a Generator Planned Outage, a Generator Maintenance Outage, or a Generator Forced Outage shall submit offers to supply Secondary Reserve, or otherwise make their Secondary Reserve capability available. Such offers shall be for an amount equal to the resource's available energy output achievable within thirty minutes (less its energy output achievable within ten minutes) from a request of the Office of the Interconnection. Market Sellers of Generation Capacity Resources subject to this must-offer requirement that do not make the reserve capability of such resources available when such resource is able to operate with a dispatchable range (e.g. through offering a fixed output) will be in violation of this provision.

Notwithstanding the foregoing, a resource owner/operator that purchased gas in advance of a Day-ahead Energy Market commitment during a Cold Weather Alert would meet the reserve must offer requirement so long as such resource is self-scheduled and produces energy at or above the installed capacity equivalent of the resources' committed Accredited UCAP capacity minus any MW quantity that is offered to provide reserves.

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Section 4: Overview of the PJM Reserve Market

4.2.2 Reserve Resource Offer Requirements

- Any generator that is a PJM generation capacity resource that has a Reliability Pricing Model (RPM) or Fixed Resource Requirement (FRR) commitment that is eligible to provide Reserves must offer their 10-minute and 30-min reserve capability up to its ICAP equivalent of the resource's UCAP capacity commitment, unless the unit is unavailable due to an approved planned outage, maintenance outage or forced outage.

- If a resource that has a reserve must offer requirement chooses to not make its reserve capability available, for example through self-scheduling or

offering a fixed output, when the resource is otherwise able to operate with a dispatchable range, the resource is defined to be violating the reserve must offer requirement. Notwithstanding the foregoing, a resource owner/operator that purchased gas in advance of a Day-ahead Energy Market commitment during a Cold Weather Alert would meet the reserve must offer requirement so long as such resource is self-scheduled and produces energy at or above the ICAP equivalent of the resources' committed UCAP capacity minus any MW quantity that is offered to provide reserves.

4.2.3 Reserve Market Resource Offer Structure

- Resources are able to self-schedule into the Synchronized Reserve Market only.
 - Eligible ESR, Hybrid Resources, Hydroelectric, and Economic Load Response resources that choose to self-schedule will use their submitted Offer MW quantity as the self-schedule Reserve Offer MW.
 - A resource's choice to self-schedule for Energy or provide fixed output does not alter its capability to provide reserves. Self-scheduled units must provide reserves like all other online generating resources. Notwithstanding the foregoing, a resource owner/operator that purchased gas in advance of a Day-ahead Energy Market commitment during a Cold Weather Alert would meet the reserve must offer requirement so long as such resource is self-scheduled and produces energy at or above the ICAP equivalent of the resources' committed UCAP capacity minus any MW quantity that is offered to provide reserves.