Proposed Revisions To Incorporate Soak Time Parameter
10/27/2016 Markets and Reliability Committee Meeting

Tariff, Section 1 and Operating Agreement, Section 1 (New Definitions)

Minimum Run Time:

For all generating units that are not combined cycle units, "Minimum Run Time" shall mean the minimum number of hours a unit must run, in real-time operations, from the time after the generating unit is dispatchable ~~generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero,~~ to the time of generator breaker opening, as measured by PJM's State Estimator. For combined cycle units, "Minimum Run Time" shall mean the time period after the generating unit is dispatchable to the time of ~~the first combustion turbine generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero, and~~ the last generator breaker opening, as measured by PJM's State Estimator.

Cold/Warm/Hot Soak Time
For all generating units that are not combined cycle units, "Cold/Warm/Hot Soak Time" shall mean the minimum number of hours a generating unit must run in its cold/warm/hot temperature state during real-time operations, from the time after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero, to the time the unit is dispatchable. For combined cycle units, "Cold/Warm/Hot Soak Time" shall mean the minimum number of hours in its cold/warm/hot temperature state from the time immediately after the first combustion turbine generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero, and the time the unit is dispatchable.

Tariff, Attachment K-Appendix and Operating Agreement, Schedule 1

1.10.1A Day-ahead Energy Market Scheduling.

(d)

The foregoing offers:

i) Shall specify the Generation Capacity Resource or Demand Resource and energy or demand reduction amount, respectively, for each *clock* hour in the offer period, and the Soak Time and ~~minimum~~ Minimum ~~run~~ Run ~~time~~ Time for generation resources and minimum down time for Demand Resources;

3.2.3 Operating Reserves

(e) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller that operates as requested by the Office of the Interconnection. For each calendar day, pool-scheduled resources in the Real-time Energy Market shall be made whole for each of the following Segments: 1) the greater of their day-ahead schedules or scheduled Soak Time plus ~~minimum~~ Minimum ~~run~~ Run ~~time~~ Time (minimum down time for Demand Resources); and 2) any block of hours the resource operates at PJM's direction in excess of the greater of its day-ahead schedule or scheduled Soak time plus M~~m~~inimum ~~run~~ Run ~~time~~ Time (minimum down time for Demand Resources). For each calendar day, and for each synchronized start of a generation resource or PJM-dispatched economic load reduction, there will be a maximum of two Segments for each resource. Segment 1 will be the greater of the day-ahead schedule and scheduled Soak Time plus ~~minimum~~ Minimum ~~run~~ Run ~~time~~ Time (minimum down time for Demand Resources) and Segment 2 will include the remainder of the contiguous hours when the resource is operating at the direction of the Office of the Interconnection, provided that a segment is limited to the Operating Day in which it commenced and cannot include any part of the following Operating Day.

. . . .

(m) For the Real-time Energy Market, if the Effective Offer Price (as defined below) for a market-based offer is greater than $1,000/MWh *and greater than the Market Seller's lowest available and applicable cost-based offer*, the Market Seller shall not receive any credit for Operating Reserves. For purposes of this subsection (m), the Effective Offer Price shall be the amount that, absent subsections (l) and (m), would have been credited for Operating Reserves for such Operating Day pursuant to Section 3.2.3(e) plus the Real-time Energy Market revenues for the hours that the offer is economic divided by the megawatt hours of energy provided during the hours that the offer is economic. The hours that the offer is economic shall be: (i) the hours that the offer price for energy is less than or equal to the Real-time Price for the relevant generation bus, (ii) the hours in which the offer for energy is greater than Locational Marginal Price and the unit is operated at the direction of the Office of the Interconnection that are in addition to any hours required due to the scheduled Soak Time and ~~minimum~~ Minimum ~~run~~ Run ~~time~~ Time or other operating constraint of the unit, and (iii) for any unit with a scheduled Soak Time plus ~~minimum~~ Minimum ~~run~~ Run ~~time~~ Time of one hour or less and with more than one start available per day, any hours the unit operated at the direction of the Office of the Interconnection.

6.6 Minimum Generator Operating Parameters – Parameter Limited Schedules.

(b) For the 2014/2015 through 2017/2018 Delivery Years, parameter limited schedules shall be defined for the following parameters:

(i) Turn Down Ratio;

(ii) Minimum Down Time;

(iii) Minimum Run Time;

(iv) Maximum Daily Starts;

(v) Maximum Weekly Starts.

For the 2018/2019 and 2019/2020 Delivery Years for Base Capacity Resources during Hot Weather Alerts, Emergency Actions during hot weather operations, and when the resource is offer capped to maintain system reliability as a result of limits on transmission capability per Section 6.4 hereof, and for the 2016/2017 Delivery Year and subsequent Delivery Years for Capacity Performance Resources during Hot Weather Alerts, Cold Weather Alerts, Emergency Actions, and when the resource is offer capped to maintain system reliability as a result of limits on transmission capability per Section 6.4 hereof, the Office of the Interconnection shall determine the unit-specific achievable operating parameters for each individual resource on the basis of its operating design characteristics and other constraints, recognizing that remedial and ongoing investment and maintenance may be required to perform on the basis of those characteristics, for the following parameters:

(i) Turn Down Ratio;

(ii) Minimum Down Time;

(iii) Minimum Run Time;

(iv) Maximum Daily Starts;

(v) Maximum Weekly Starts;

(vi) Maximum Run Time;

(vii) Start-up Time; ~~and~~

(viii) Notification Time and

(ix) Soak Time.

Tariff, Schedule 6A

Testing

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13. Compensation for energy output delivered to the Transmission System during the annual test shall be provided for the Black Start Unit's Soak Time (if applicable) and M~~m~~inimum R~~r~~un T~~t~~ime at the higher of the unit's cost-capped offer or real-time Locational Marginal Price plus start-up and no-load costs for up to two start attempts, if necessary. For Black Start Units that are generating units with a high operating factor (subject to Transmission Provider's concurrence) with the ability to automatically remain operating at reduced levels when disconnected from the grid, an opportunity cost will be provided to compensate the unit for lost revenues during testing.