



2.3.3 Market Sellers

The following business rules apply to Market Sellers:

- Self-scheduled generation shall submit an hourly MW schedule.
- Generators that are Capacity Resources shall submit offers into the Day-ahead Market, even if they are unavailable due to forced, planned, or maintenance outages.
- Generators that are Capacity Resources and are self-scheduling shall submit offer data in the event that they are called upon during emergency procedures.
- Generation Capacity Resources shall submit a schedule of availability for the next seven days and may submit non-binding offer prices for the days beyond the next Operating Day.
- The set of offer data last submitted for each Generation Capacity Resource shall remain in effect for each day until specifically superseded by subsequent offers.
- If a Generation Capacity Resource is not scheduled in the Day-ahead Market, it may revise its offer and submit into the real-time market or it may self-schedule the resource.
- Generation owners planning to run generation resources scheduled in the Day-ahead Markets are required to call the PJM Control Center at least 20 minutes prior to bringing the unit online. Generation owners of self-scheduled generation resources must also provide at least 20 minutes notice.
- Generation resources that are scheduled in the Day-ahead Market have a financial obligation to sell their output in real-time. Provisions exist in the Tariff that permit make whole payments to be made to those combustion turbines that are scheduled in the Day-ahead Market and then not called on in real-time by PJM that are further defined in PJM Manual M-28.
- When a generation resource is not scheduled in the Day-Ahead Energy Market or the Reserve Adequacy Commitment (RAC) by PJM, the Market Seller may update the cost-based schedule availability hourly three hours prior to the operating hour. The cost-based schedule made available must follow the Generation Owner's fuel cost policy as defined in PJM Manual 15: Cost Development Guidelines. A generation resource may not change schedule availability once it has been committed by PJM for the hours in which it is committed. In order to update cost-based schedule availability, the Generation Owner must select the 'Use Cost Schedule in Real Time' flag in eMKT (New Schedule Availability Update Tab) between 1800-2100 the day prior to the operating day. Selecting this flag will make the price-based schedule unavailable for the operating day selected.
- Generation Capacity Resources that have notification, startup, and minimum run times that exceed 24 hours must submit binding offer prices for the next seven days.
- Generation Capacity Resources that have notification plus startup times that exceed 24 hours and have been called on by PJM dispatch in advance of the close of the Day-ahead Market bid period for the desired Operating Day must modify their notification and startup time prior to the close of the market bid period for that day in order to create the possibility for the unit to be committed in the Day-ahead Market.
- Generation resources that are committed by PJM in advance of the Day-Ahead Energy Market will be offer capped and committed on the available schedule at the time of the



commitment. The cost-based schedule made available must follow the Generation Owner's fuel cost policy as defined in PJM Manual 15: Cost Development Guidelines.

- Each Generation Capacity Resource must make available at least one cost-based schedule and if it falls within the types of generators in the PJM Unit Parameter matrix it must also submit a Price Based Parameter Limited Schedule.
- Generation offers may consist of startup, no-load and incremental energy offer. A Generation Capacity Resource offer may not exceed \$1000/MWh.
- Emergency and Pre-Emergency Demand Resource emergency or pre-emergency offer price may not exceed the following:
 - 30 minute lead time: \$1,000/MWh, plus the applicable Primary Reserve Penalty Factor, minus \$1.00
 - approved 60 minute lead time: \$1,000/MWh, plus [the applicable Primary Reserve Penalty Factor divided by 2]; and
 - approved 120 minute lead time: \$1,100/MWh.
- An economic demand resource offer may not exceed \$1,000/MWh, plus the applicable Primary Reserve Penalty Factor, minus \$1.00
- Energy resources may offer into the Day-ahead Market or Real-time Market.
- If an Energy resource does not submit offer data, then the offer is assumed to be a zero MW quantity.
- Intermittent Generation Resources, that are Capacity Resources, shall meet the must offer requirement by either self-scheduling (Availability = Must Run) or may allow the Day-ahead Market to schedule by offering the unit as a dispatchable resource (Availability = Economic).
- The hourly Day-ahead self-scheduled values for intermittent resources may vary hour to hour from the capacity obligation value,
- Two single price-based schedules may be offered into the Day-ahead Market. One schedule must be a price based parameter limited schedule. The price-based parameter-limited schedule may be unavailable, and if it is, the "use max gen" flag must be set to "yes". The price-based parameter limited schedule will be committed during Maximum Generation Emergency if it is unavailable in the Day Ahead Market and the "use max gen" flag is set to "yes". The second price schedule is a price-based schedule that is not parameter limited. One of these two price schedules must be available in the Day-Ahead Market. In addition to the price-based schedule, one cost-based schedule shall be made available for PJM's use in the event that the resource is used to control a transmission constraint. The cost-based schedule shall be parameter-limited.
- A generator offer that is accepted for the Day-ahead Market automatically carries over into the balancing market.

2.3.4 Minimum Generator Operating Parameters – Parameter Limited Schedules

Below is the list of business rules to require units to submit schedules that meet minimum accepted parameters.



- Pre-determined limits on non-price offer parameters for all generation resources will define limits on generation resources' non-price offer parameters under the following circumstances:
 - If the three pivotal supplier test for the operating reserve market defined by transmission constraint(s) is failed, generation resources will be committed on their Parameter-Limited Schedule, as defined below.
- The Parameter-Limited Schedule that is utilized shall be the less limiting of the defined Parameter-Limited Schedules or the submitted offer parameters.
- In the event that PJM: (i) declares a Maximum Generation Emergency; (ii) issues an alert that a Maximum Generation Emergency may be declared ("Maximum Generation Emergency Alert"); or (iii) schedules units based on the anticipation of a Maximum Generation Emergency or a Maximum Generation Emergency Alert for all or any part of such Operating Day, generation resources will be committed on their Parameter-Limited Schedule.
- On an annual basis, PJM will define a list of minimum acceptable operating parameters, based on an analysis of historically submitted offers, for each unit class for the following parameters¹:
 - Turn Down Ratio
 - Minimum Down Time
 - Minimum Run Time
 - Maximum Daily Starts
 - Maximum Weekly Starts
- The following parameters² will be reviewed on an ongoing basis, via a stakeholder process, and may, at some future date, define limitations for:
 - Hot Start Notification Time
 - Warm Start Notification Time
 - Cold Start Notification Time
- Turn Down Ratio is defined as the ratio of economic maximum MW to economic minimum MW.
- Market Sellers with price based generation resources will be required to submit three schedules, per Section 2.3.3 of this Manual, as follows: (1) a cost based parameter limited schedule, (2) a price based schedule, and (3) a price based parameter limited schedule. Only the cost based parameter limited schedule and the price based

² As defined in the PJM Manuals and Markets Database Dictionary.



parameter limited schedule must follow the predefined parameters in the Parameter Limited Schedule Matrix or approved parameter exceptions.

The default values set forth in the Parameter Limited Schedule Matrix shall apply unless a generation resource is operating pursuant to an exception from the default values due to physical operational limitations that prevent the resource from meeting the minimum parameters. The Parameter Limited Schedule Matrix is found in Section 6.6(c) of Attachment K-Appendix of the Tariff and the parallel provision of Schedule 1 of the Operating Agreement found at: <http://www.pjm.com/documents/agreements.aspx>

- There are three different types of exceptions to the Parameter Limited Schedule Matrix default values:
 - **Temporary Exception** – is a one-time exception lasting for 30 days or less during the twelve month period from June 1 to May 31.
 - **Period Exception** – is an exception lasting for at least 31 days but no more than one year during the twelve month period from June 1 to May 31.
 - **Persistent Exception** – is an exception lasting for at least one year.
- The MMU shall review the Parameter Limited Schedule Matrix, included in Section 6.6(c) of Schedule 1 of the Operating Agreement, annually, and, in the event it determines that revision is appropriate, shall provide a revised matrix to PJM by no later than December 31. Pursuant to section II.B of Attachment M – Appendix of the Tariff, period and persistent exception requests must be received by the MMU and PJM by no later than February 28 immediately preceding the twelve month period from June 1 to May 31 during which the exception is requested to commence. All market sellers that wish to submit a Parameter-Limited Schedule for units with physical operational limitations that prevent the units from meeting the minimum parameters may submit a request for a new exception via eMKT for evaluation. Each market seller seeking an exception must supply the required historical unit operating data in support of the period or persistent exception and if the exception requested is based on new physical operational limits for the resource for which historical operating data is unavailable, the generation resource may also submit technical information about the physical operational limits for period exceptions of the resource to support the requested parameters.
- Physical operational limitations for period or persistent exceptions may include but are not limited to, metallurgical restrictions due to age and long term degradation; physical design modifications; operating permit limitations; operating limits imposed by federal, state or local regulatory requirements or insurance carrier requirements; consent decrees; manufacturer technical bulletins; or environmental permit limitations under non-emergency conditions. Each market seller requesting a period or persistent exception based on new physical operational limitations for a unit may submit the technical information, required due to the unavailability of historical operating data, supporting the requested parameters, which must be based on the definition of physical operational limitations for period or persistent exceptions of the unit. Each temporary, period or persistent exception request will indicate the expected duration of the requested exception including the date on which the requested exception period will end. If physical conditions at the unit change such that the exception is no longer required, the market



seller is obligated to inform PJM and the MMU and the exception will be reviewed to determine if the exception continues to be appropriate.

- If a request for a period or persistent exception is received by February 28, the MMU will review the exception and provide the Market Seller and PJM with a determination in writing whether the request raises market power concerns by April 1, and PJM shall provide its determination whether the request is approved or denied by no later than April 15. Should PJM require additional technical expertise in order to evaluate the exception request, PJM will engage the services of a consultant with the required expertise. A generation resource shall notify the MMU and PJM when the temporary exception commences and terminates and provide to the MMU and PJM within three days following such commencement documentation explaining in detail the reasons for the temporary exception, that includes:
 - Unit Name
 - Parameter Limit Requested
 - Reason for Temporary Exception Request
 - eDart ticket
 - Justification for Temporary Exception Request, including required unit operating data in support of the exception
 - Date on which the exception period will end.
- If PJM does not receive a complete exception request, and the unit did not clear in the DAM, the unit schedule will returned to its previous parameter limits.
- Physical operational limitations for temporary exceptions may include, but are not limited to, short term equipment failures, short term fuel quality problems such as excessive moisture in coal fired units, or environmental permit limitations under non-emergency conditions.
- Market Sellers may use exceptions to reflect physical operational limitations (e.g., operational flow orders) on natural gas pipelines and local natural gas distribution companies (LDC) that require generators to consume the same amount of fuel for every hour (hourly ratable take) for a predefined number of hours. These exceptions will be reviewed and approved by PJM and the MMU, and approved by PJM, in accordance with the applicable provisions of the Tariff and Operating Agreement.
- In addition, physical operational limitations for temporary exceptions may include any physical operational limitation for period exceptions that arises during the annual period from June 1 to May 31 to which period exceptions apply.
- For steam units, regardless of fuel type, the average historical values for any of the parameters as offered by the owners for the calendar year 2006 may be used in place of the values in the parameter-limited schedule matrix. For steam units, regardless of fuel type, the historical averages are calculated from the market based offers for market based units and from cost-based offers for units that made only cost-based offers.
- For combined cycle units:

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- If the 2006 average historical market-based offer parameters are within the limits in the parameter matrix, the unit will be limited to that 2006 historical average. If not then ii) applies;
- If the unit was offered with market-based offer parameters for 10% or more of the days (36 days minimum) at a level at or more flexible than parameters in matrix, the unit will be limited at that level. If not the iii) applies
- If the 2006 average historical market based offer parameters exceed the limits in the matrix (less flexible than the parameters in the matrix) then the unit will be limited to the level at which the market-based parameter was bid to the most flexible level for 10% or more of the days (36 days minimum) at that level.
- If physical conditions at the unit change such that the exception is no longer required, the market seller is obligated to inform PJM and the MMU and the exception will be terminated.
- Market sellers may indicate to PJM and the MMU those units with the ability to operate on multiple fuels. Multiple-fuel units may submit a parameter-limited schedule associated with each fuel type. All Parameter-Limited Schedules must be submitted via eMKT seven days prior to the beginning of each period beginning June 1. The market seller will be required to indicate to PJM which of the parameter-limited schedules are available each day by using the eMKT use max gen flag. Any exceptions required for any of the parameter-limited schedules submitted for multiple-fuel units will be required to be submitted and approved via the exception process.
- Nuclear Units are excluded from eligibility for Operating Reserve payments except in cases where PJM requests that nuclear units reduces output at PJM's direction or where a physical problem at a nuclear unit requires a risk premium and that risk premium is submitted to and accepted by the MMU. Other specific circumstances will be evaluated on a case-by-case basis by PJM and the MMU.
- Market Sellers shall notify in writing the MMU and the PJM of a material change to the facts relied upon by the MMU and/or the PJM to support a temporary, period or persistent exception.

The following business rules apply to Transmission Customers:

- Transmission customers may submit external bilateral transaction schedules and may indicate willingness to pay congestion charges into either the Day-ahead Market or balancing market. In the Day-ahead Market, a transaction shall indicate willingness to pay congestion charges by submitting the transaction as an 'up to' congestion bid.
- 'Up to' congestion bids shall be no greater than \$50/MWh, and no less than -\$50/MWh. Any 'up to' congestion transaction that bids higher than \$50/MWh or less than -\$50/MWh will be rejected.
- PJM will maintain an up-to date list of source/sink combinations that will be available for 'Up to' congestion bidding on the PJM OASIS.
- Internal bilateral transactions may be designated as day-ahead or balancing market in PJM InSchedule.



Attachment C: PJM Procedure for Cost ~~Adjustments~~Reimbursement

This ~~procedure~~section addresses ~~participant reimbursement concerns regarding limited fuel situations~~the procedures by which Market Sellers may report differences between cost-based offers and actually incurred costs for resettlement. These differences may result in a settlement credit adjustment if a generation resource's costs were underestimated or overestimated at the time the offer was selected and cleared. This section also addresses the procedures by which Market Sellers may request reimbursement for~~and~~ manning units above normal station manning levels at the direction of PJM. The aim of the procedure is to:

- Enable ~~generation resources~~units that are requested to ~~operate~~remain online by PJM System Operations ~~past their initial outside of a~~ day-ahead commitment and ~~cannot accurately estimate intraday costs as described in the Generation Owner's fuel cost policy in order to do so are forced to procure fuel at a higher cost than that on which their day-ahead or the Reliability Assessment (Rebid Period) offer was based, to better manage the risk associated with the additional costs associated with that operation. This procedure is not intended to guarantee cost recovery nor is it intended to address lost opportunity, profit maximization, or normal Operating Reserves make-whole payments where no change in fuel cost was experienced.~~and
- Explain the process for the recovery of costs to staff the station above normal station manning levels at the direction of PJM ("manning costs") that cannot be submitted in the cost-based startup, because they are unknown at the time of the offer submittal. These manning costs are considered to be "start cost" as defined in PJM Manual 15: Cost Development Guidelines. This procedure is not intended to guarantee cost recovery nor is it intended to address compensation of units for normal manning costs.

Eligibility

Generation resources must meet the following criteria in order to be compensated for differences between cost-based offers and actually incurred costs for resettlement using this procedure:

- The generation resource must have a fuel cost policy approved by the MMU that has been submitted to the MMU as described in PJM Manual 15: Cost Development Guidelines.
- The generation resource has ~~specified~~ documented in the generation resource's fuel cost policy and the MMU has approved the conditions under which the resource cannot accurately estimate intraday costs and therefore will be allowed to be compensated using this procedure. For example, if there is no publicly traded commodity or index that could be used to reflect the generation resource's fuel cost and the fuel cost is only known at the time of purchase.

Offers

~~In order to be eligible for reimbursement for higher cost fuel as a result of complying with a PJM dispatch request, participants will be required to enter a range of estimated costs to operate utilizing the higher priced fuel into one or more additional cost schedules (#1-69, #80-89) and~~



~~make this information available prior to the Day-Ahead Market (“DAM”) or the Reliability Assessment (if the unit was not taken in the DAM) on the Schedule Selection page of the Market User Interface (“MUI”). The range of estimated costs should cover the range of costs that participants believe they could face during the PJM operating day. Market Sellers who elect to make their market-based schedules unavailable should make their most applicable cost-based schedule available.~~ In every case, the submitted costs must follow the current PJM Manual 15: Cost Development Guidelines. Participants will be required to provide fuel cost documentation as documented in Section 1.8: Cost Methodology and Approval Process in PJM Manual 15: Cost Development Guidelines for the basis for the estimated fuel cost(s) and associated operating cost(s). ~~Participants will also be required to provide documentation during the PJM operating day of the actual fuel costs incurred and the actual associated operating cost(s). Review of these costs will be conducted according to the process documented in PJM Manual M-15. If review shows that the new schedule regularly exceeds the actual costs incurred during the extended operating hours, the participant will be notified that the method for estimate calculations needs to be modified to more accurately reflect actual costs. If review shows that the new schedule continues to exceed actual costs, the participant will not be permitted to utilize this procedure for making intra-day cost-based offers.~~

Operations

~~If a generation resource unit has been asked to extend its hours of operation by PJM System Operations to operate and has no prior commitment, the Market Seller must~~ may elect to make its market-based schedule unavailable and update their cost-based schedule availability in real time ~~and the unit has a limited fuel supply and must utilize higher priced fuel to remain online, the participant. If the Market Seller elects to do this, the Market Seller must inform the PJM system operator of the fuel cost~~ update the availability of their submitted schedules ~~change by requesting the real time offer to be switched to one of the additional and make the applicable cost-based schedule available in eMKT schedules. The Market Seller~~ participant must to ensure ~~verify that the new that the current available schedule is the most reflective of their actual cost is reflected. All schedules submitted must be expected fuel costs based on a verifiable methodology documented in the generation resource’s fuel cost policy. one reflecting fuel costs closest to those that will be actually paid to operate for the extended hours requested.~~ The PJM operator will evaluate whether the ~~higher-specified cost-based~~ schedule is economic and if so, will log and dispatch the unit on the ~~applicable new~~ schedule.

If a station is directed by PJM to be manned beyond normal and required operating hours, the unit may submit the additional costs – manning costs – as defined below. Participants choosing to self schedule a unit after PJM has directed the station to be manned above normal station manning levels are not eligible for recovery of manning costs.

Settlements



~~Participants who have been asked~~ Generation owners of resources committed by PJM that meet the eligibility criteria to be compensated using this procedure to extend a unit's run time and in order to comply with that request procured higher cost fuel have until 12:00 noon on the ~~following~~ business day following the operating day to submit an e-mail to market_bids@pjm.com with the following information:

- Unit Name
- Date of operation
- Applicable Time of extended operation
- ~~• ID number of new schedule~~
- ~~• Name of new Schedule~~
- Contact information (name of sender, phone, e-mail)
- Date and time of PJM Dispatch contact to generator
- Actual marginal cost of unit considering the Invoice with actual fuel cost. The invoice must include of the fuel procured to continue operating:
 - Fuel cost in dollars per unit of volume (e.g. \$/bbl, \$/ccf) and heat content in MMBTU per unit of volume (e.g. MMBTU/bbl, MMBTU/ccf) or fuel cost in dollars per MMBTU.
 - Actual fuel consumed for power generation.
- Revised cost-based schedule using actual fuel costs and actual fuel consumption. The revised cost-based schedule should include startup cost, no load cost and incremental offer curve. Because Market Sellers will be compensated based on actual costs, Market Sellers shall not be allowed to include the 10 percent adder defined in Section 6.4 of PJM Tariff Attachment K - Appendix in their revised cost-based schedule.

The information shall be reviewed by PJM and the MMU. PJM Market Operations personnel will confirm with PJM System Operations the operation of the unit. The MMU shall inform PJM if it considers the information to be accurate or not after discussion with the participant. If PJM approves the submitted information, the revised cost-based schedule. The information will be forwarded to the PJM the Market Settlements Operations department for the settlement credit adjustment compensation. In the event that this occurrence PJM, the MMU and the Market Seller cannot come to agreement regarding the revised cost-based schedule be confirmed, the generation resource unit will be paid on the original schedule logged by the system operators based on the cost-based schedule determined by PJM. The Market Seller shall have the option to request a determination by FERC at its discretion. The MMU shall have the option to request a determination by FERC at its discretion.

If a unit uses a cost-based start-up and is manned above normal station manning levels at the direction of PJM and all units at the station do not run during the operating day, written confirmation of actual costs incurred due to such manning requirements can be submitted to PJM as cancellation fees per Section 1.10.2 of Schedule 1 of the PJM Operating Agreement and the parallel provisions of Attachment K Appendix of the PJM Tariff. Submittal should follow the "Credits for Canceled Pool-Scheduled Resources" timelines in Manual 28 (to be received



within 45 days of date invoice was received by participant for the month in question). Request should include the normal station manning hours, the hours outside of normal station manning levels in which the unit was requested to be manned by PJM and the actual costs incurred for manning above normal station manning levels. The Balancing Operating Reserve credit for manning costs equals the actual costs incurred less any CT Lost Opportunity Credit in excess of day-ahead scheduled MW times the difference in real-time and day-ahead LMPs.

If a unit uses a price based start-up and is manned above normal station manning levels at the direction of PJM and all units at the station do not run during the operating day, written confirmation of actual costs incurred due to such manning requirements can be submitted to PJM as cancellation fees per Section 1.10.2 of Schedule 1 of the PJM Operating Agreement and the parallel provisions of Attachment K Appendix of the PJM Tariff. Submittal should follow the "Credits for Canceled Pool-Scheduled Resources" timelines in Manual 28 (to be received within 45 days of date invoice was received by participant for the month in question). Requests should include the normal station manning hours, the hours outside of normal station manning levels in which the unit was requested to be manned by PJM and the actual costs incurred for manning above normal station manning levels. The Balancing Operating Reserve credit for manning costs equals the actual costs incurred less any CT Lost Opportunity Credit in excess of day-ahead scheduled MW times the difference in real-time and day-ahead LMPs, capped at the appropriate price based start cost as specified in the generating resource's offer data.

If a unit uses a cost-based start-up and is manned above normal station manning levels at the direction of PJM and any unit at the station does run during the operating day, the manning costs that are not included in their cost-based start recovered through normal operations may be submitted to the PJM Market Settlements Department (mrkt_settlement_ops@pjm.com). Requests should include the normal station manning hours, the hours outside of normal staffing hours in which the resource was requested to be manned by PJM and the additional actual costs incurred for manning that is not included in the cost-based start. These manning costs will be added to startup costs and will be evaluated with Balancing Operating Reserve credits for the unit