PJM Manual 10:

Pre-Scheduling Operations

Revision: 47

Effective Date: November 18, 2026

Prepared By
Operations Planning Division

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Approval

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Michael Zhang, Manager

Generation Department

Current Revision

Revision 47 (11/18/2026):

- Cover-to-cover periodic review
- Introduction: About this Manual
  - Updated reference to Table of Contents beginning on Page 1
- Section 2.1: Generation Outage Reporting Overview
  - Added forecasted planned outages to planned outage category for clarity
  - Clarified eDART is the tool PJM members use to request outages
  - Added definition of partial outage
  - Clarified outage classification criteria resulting from transmission or pipeline outages
  - Added reference to offer rules during outages per PJM Manual 11: Energy & Ancillary Services Market Operations
- Section 2.1.1: eDART Generation MW Ticket Procedure
  - Clarified Generation Owners' responsibility to provide detailed generator ticket descriptions
  - Clarified full and partial outage/ derate are subject to eDART ticket reporting requirements
- Section 2.2: Planned Outage
  - Clarified definition of Forecasted Planned Outage
- Section 2.2.1: Planned Outage Request Procedure
  - Clarification of conversion from Forecasted Planned to Planned Outage
- Section 2.2.2: Planned Outage Rules
  - Relocated offer rules based on reference to PJM Manual 11 in Section 2.1
  - Moved criteria for scheduling Planned Outage following an ongoing Unplanned Outage per addition in Section 2.4
- Section 2.3.1: Maintenance Outage General Information
  - Moved criteria for scheduling planned outage following an ongoing unplanned outage per addition in Section 2.4

- Section 2.3.2: Maintenance Outage Rules
  - Relocated offer rules based on reference to PJM Manual 11 in Section 2.1
- Section 2.4: Unplanned (Forced) Outages
  - Relocated offer rules based on reference to PJM Manual 11 in Section 2.1
  - Added clarification of criteria for scheduling Planned Outage following an ongoing Unplanned Outage
- Section 3.1: Reserve Definitions
  - Updated formatting for NERC Performance Standard BAL-002

~~**Administrative Change (Approved by Michael Zhang 02/03/2026):**~~

- ~~Periodic Review completed with no changes.~~

~~**Revision 46 (07/23/2025):**~~

- ~~Section 2.1 Generation Outage Reporting Overview~~
  - ~~Updated eDART Reportable MW table (Exhibit 3) to include the reportable MW value of non-inverter-based components of Hybrid Resources~~

Introduction

Welcome to the ***PJM Manual for Pre-Scheduling Operations.*** In this Introduction, you will find the following information:

- What you can expect from the PJM Manuals in general (see "About PJM Manuals").
- What you can expect from this PJM Manual (see "About This Manual").
- How to use this manual (see "Using This Manual").

About This Manual

The ***PJM Manual for Pre-Scheduling Operations*** is within the PJM Energy Market series. This manual focuses on PJM and PJM Member pre-scheduling activities that set the stage for the scheduling and dispatching phases of the PJM RTO operation.

The ***PJM Manual for Pre-Scheduling Operations*** consists of five sections. These sections are listed in the table of contents beginning on page 12.

Intended Audience

The intended audiences for the PJM Manual for Pre-Scheduling Operations are:

- PJM operations staff
- Transmission Owner operations support staff
- Market Operations Center (MOC) Generation Dispatchers and support staff
- Generation Owners / Operators
- Transmission Service Providers
- PJM Members

References

The References to other documents that provide background or additional detail directly related to the ***PJM Manual for Pre-Scheduling Operations*** are:

- Operating Agreement of PJM Interconnection, L.L.C.
- NERC Reliability Standards
- PJM eDART User Guide
- PJM Manual for Control Center and Data Exchange Requirements (M01)
- PJM Manual for Transmission Operations (M-03)
- PJM Manual for Energy & Ancillary Services Market Operations (M-11)
- PJM Manual for Balancing Operations (M-12)

- PJM Manual for Emergency Operations (M-13)
- PJM Manual for Generator Operational Requirements (M14D)

About PJM Manuals

The PJM Manuals are the instructions, rules, procedures, and guidelines established by PJM for the operation, planning, and accounting requirements of the PJM RTO and the PJM Energy Market. The manuals are grouped under the following categories:

- Transmission
- Energy Market
- Regional Transmission Planning Process
- Reserve
- Accounting and Billing
- Administration
- Miscellaneous

For a complete list of all PJM Manuals, go to the Library section on PJM.com

Using This Manual

We believe that explaining concepts is just as important as presenting the procedures. Therefore, we start each section with an overview. Then, we present details and procedures. This philosophy is reflected in the way we organize the material in this manual. The following paragraphs provide an orientation to the manual's structure

What You Will Find In This Manual

- A table of contents that lists two levels of subheadings within each of the sections
- An approval page that lists the required approvals and a brief outline of the current revision
- Sections containing the specific guidelines, requirements, or procedures including PJM actions and PJM Member actions
- Attachments that include additional supporting documents, forms, or tables in this PJM Manual
- A section at the end detailing all previous revisions of the PJM Manual

Section 1: Pre-Scheduling Overview

Welcome to the *Pre-scheduling Overview* section of the ***PJM Manual for Pre-Scheduling Operations***. In this section you will find the following information:

- A description of the scope and purpose of pre-scheduling (see “Scope & Purpose of Pre-Scheduling”)
- A description of PJM pre-scheduling responsibilities (see “PJM Responsibilities”)
- A description of PJM Members’ pre-scheduling responsibilities (see “PJM Member Responsibilities”)

1.1 Scope & Purpose of Pre-Scheduling

Operation of the PJM RTO involves many activities by different operating and technical personnel. These activities take place in parallel on a continuous basis, 24 hours a day and are grouped into three overlapping time frames:

- Pre-scheduling Operations
- Scheduling Operations
- Dispatching Operations

In this ***PJM Manual for Pre-Scheduling Operations*** we focus mainly on the activities that take place before the PJM Energy Market opens each day. Exhibit 1 depicts the Pre-scheduling activities in the form of a timeline. The reference point for the timeline is the “Operating Day”, recognizing that every new day becomes an Operating Day. This timeline-type of description is used throughout this PJM Manual and the other ***PJM Manuals for*** ***Energy & Ancillary Services Market Operations (M-11)*** ***and*** ***Balancing Operations (M-12)***.

PJM Energy Market bidding is described in the ***PJM Manual for Energy & Ancillary Services Market Operations (M-11)***.

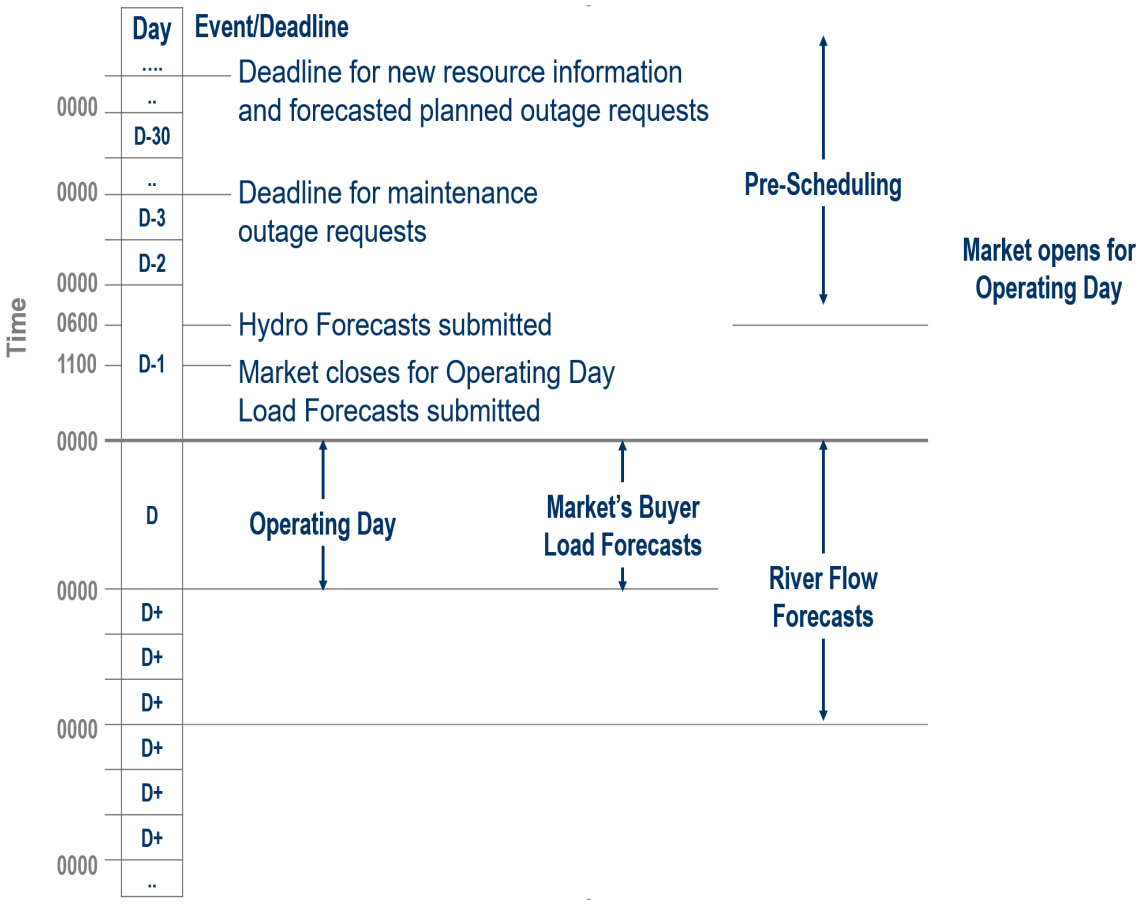

Exhibit 1: Pre-Scheduling, Scheduling and Dispatching Timeline

The following notation is used in the timeline:

- D represents the Operating Day
- D-30 represents 30 days before the Operating Day
- D+6 represents 6 days after the Operating Day

In this manual we make no special distinction between the terms “price” and “cost”. PJM Members submit their bids according to either actual cost or offer price as designated by PJM for each generation resource. For specific information as to the use of price and cost, refer to ***PJM Manual for Energy & Ancillary Services Market Operations (M-11)***.

1.2 PJM Responsibilities

PJM responsibilities to support pre-scheduling are to:

- maintain data and information relating to generation and transmission facilities in the PJM RTO, as may be necessary or appropriate to conduct the scheduling and dispatch of the PJM Energy Market and PJM RTO
- maintain data and information relating to generation and transmission facilities external to the PJM RTO, as may be necessary or appropriate to conduct the scheduling and dispatch of the PJM Energy Market and PJM RTO with respect to Non-Metered PJM Members
- process and respond to requests for Generation Capacity and Energy resource outages, which are referred to collectively in this manual as generation resources
- perform seasonal operating studies to assess the forecasted adequacy of generating reserves and of the transmission system

Note:
PJM reviews this manual annually, with periodic updates as required. PJM coordinates identified issues with PJM TOs, PJM GOs and neighboring RCs. As PJM and neighboring Reliability Coordinators deem necessary, PJM will facilitate conference calls that include neighboring Reliability Coordinators, neighboring Transmission Operators, neighboring Balancing Authorities, PJM TOs and PJM GOs.

1.3 PJM Member Responsibilities

Exhibit 2 shows the general structure of the PJM Energy Market according to participation.

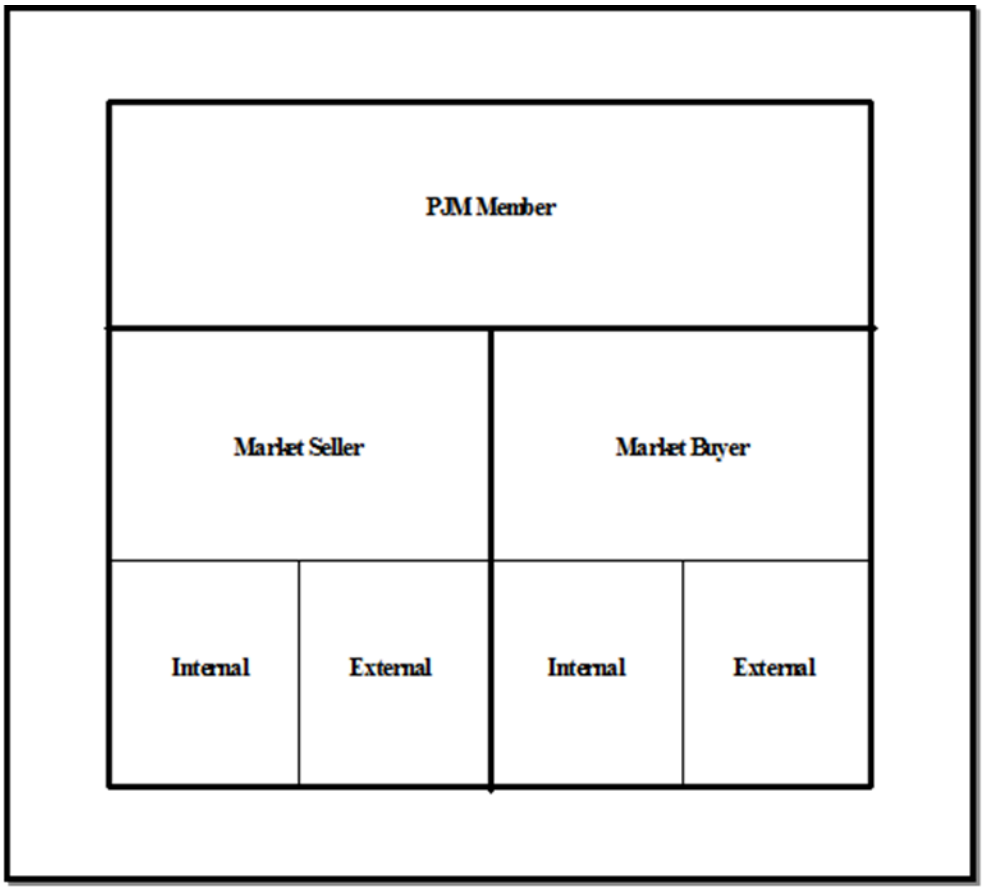

Exhibit 2: PJM Energy Market Structure

PJM Member pre-scheduling responsibilities are to:

- report to PJM all bilateral transactions that extend beyond the next Operating Day

The Market Seller pre-scheduling responsibilities are to:

- furnish to PJM the information specified in the Offer Data for new generation resources
- furnish to PJM start-up and no-load fees for each resource as specified by Section 1.9.7 of Schedule 1 to the Operating Agreement of PJM Interconnection, L.L.C.
- request approval from PJM for generation resource outages within the PJM RTO

1.4 Unit Startup Notification

The purpose of the Unit Startup Notification procedure is to place units in a state of readiness so they can be brought online within 48 hours for an anticipated shortage of operating capacity, stability issues or constrained operations for future periods. Alerted unit(s) must be in the state

of readiness (i.e. able to be online within 48 hours) in the lesser of (submitted notification time + startup time or 6 days) minus 48 hours. After reaching the state of readiness, if PJM subsequently calls the unit(s) to come online, the unit must be online within 48 hours. Failure to do so will result in a forced outage. PJM will evaluate system conditions daily to determine when to release unit(s) from the state of readiness or call units to come online. PJM will schedule an amount of long lead time generation anticipated to be needed for the operating day(s) in economic order respecting unit operating parameters. Once a generator is scheduled its offer price is locked for the operating day. Refer to Manual 13, Emergency Procedures for additional information.

1.4.1 Peak Period Months (Jan, Feb, Jun, July and Aug)

Unit total time to start (submitted notification time + startup time) is limited to 6 days. Unit(s) with greater than 6 days total time to start will be in a forced outage until it can be within the 6 day limit. Units that fail to meet their scheduled online target will be considered to be on a forced outage at that time.

1.4.2 Off-peak Period Months (Mar, Apr, May, Sep, Oct, Nov, Dec)

Unit notification time may be extended as long as those times accurately reflect the physical time to bring the unit to the beginning of the unit start up sequence. However, if PJM has a need to call the unit(s) with extended notification times, the unit must respond to the call at the lesser of the submitted notification time + startup time or 6 days. Units that fail to meet their scheduled online target will be considered to be on a forced outage at that time.

Section 2: Generation Outage Reporting

Welcome to the *Outage Reporting* section of the ***PJM Manual for Pre-Scheduling Operations***. In this section you will find the following information:

What you can expect from the Outage Reporting section in general (see "*Outage Reporting Overview*").

- A description of Planned Outages (see "Planned Outages")
- A description of Maintenance Outages (see "Maintenance Outages")
- A description of Unplanned Outages (see "Unplanned Outages")

2.1 Generation Outage Reporting Overview

PJM is responsible for coordinating and approving requests for outages of generation and transmission facilities, as necessary, for the reliable operation of the PJM RTO. PJM maintains records of outages and outage requests for these facilities. In this PJM Manual we only consider those outages that are associated with generation. See the PJM Manual for Transmission Operations (M-03) for the treatment of transmission facility outages.

Generation outages fall into the following three categories:

- Forecasted Planned / Planned
- Maintenance
- Unplanned (Forced)

PJM Members can request outages via the Gen. Ticket eDART tool.~~The general procedure begins with the PJM Members requesting outages via the eDART tool.~~ PJM may either accept or reject a specific outage request. The eDART tool is an operational tool and is intended to be real-time and forward-looking. Data in eDART may or may not exactly align with GADS which is a backward-looking historical application. The GADS reporting rules are governed by NERC GADS Data Reporting Instruction. The eDART User Guide located at https://www.pjm.com/~/media/etools/edart/edart-user-guide.ashx contains detailed instructions on how information is entered and updated in eDART.

It is important to emphasize that PJM does not "schedule" when generation outages should take place. PJM only accepts/rejects the requests for outages. PJM only rejects outage requests when they affect the reliability of the PJM RTO. It is the responsibility of each PJM Member to determine its own best schedule of outages. Forecasted Planned, Planned, and Maintenance generation outage requests are generally prioritized by PJM based on the order in which they were submitted via eDART, with the earlier submissions having a higher priority.

All generation resources shall provide outage schedule information to PJM via eDART per the timelines established in Sections 2.2, 2.3 and 2.4 of this manual to support PJM's obligations as a Reliability Coordinator and Transmission Operator under several NERC Standards including IRO-002, IRO-008, IRO-017, TOP-001, TOP-002, and TOP-003. Outages on synchronous condensers must also be reported to PJM via eDART and shall be coordinated with the TO to allow the TO to submit corresponding outage requests to PJM.

Any time a generation resource has a limitation preventing the unit from achieving eDART Reportable MW, an eDART ticket is required. The eDART Reportable MW is the MW value that is the basis for outage reporting in eDART. It varies by resource type and is not to be confused with RPM committed MW value. All outages, partial or full shall be reported, including during periods when the unit is not online or not scheduled economically. Partial outages are outages where a unit is still available but for less than its full ICAP. Partial outages can be Planned, Maintenance or Unplanned. All rules and regulations for partial outages are the same as those for corresponding full outages.

For generation resources that do not have a day-ahead must offer requirement, and reflect unit status in Markets Gateway as "Unavailable," an eDART ticket is not required as long as the resource can generate the full eDART reportable MW if called upon by PJM. If the resource is called and does not come online, or comes online at less than eDART reportable then a Forced Outage ticket is required.

The eDART Reportable MW is defined as follows:

Resource Type	eDART Reportable MW
For Capacity Resources (except those resource types specifically listed below in this table)	Total RPM (Owned) ICAP (Committed + Available) MW
For Energy Resources, Energy Storage Resources, wind and solar units	Based on the lesser of full nameplate rating or Maximum Facility Output (MFO) unless physically derated
For units that are dynamically transferred into PJM, including pseudo-tied, dynamically scheduled, and block scheduled units	Committed ICAP MWs if unit has capacity commitment, otherwise no reporting required
For those units inside PJM and dynamically transferred out of PJM	Based on full nameplate rating unless physically derated
For microgrids and units that are partially behind the meter (load offset)	Based on full nameplate rating minus the maximum load the unit expects to serve (year round), unless physically derated

Resource Type	eDART Reportable MW
For the inverter-based component of Hybrid Resource	Based on nameplate MW rating of the component unless physically derated
For the non-inverter-based component of Hybrid Resource	Total RPM (Owned) iCAP (Committed + Available) MW

Exhibit 3: Basis for eDART Reportable MW

For reductions driven solely by ambient conditions, an Unplanned eDART "Ambient Air" ticket must be submitted as soon as the reduction in capability is recognized, including during analysis done to support day-ahead offers. For projected reductions, the eDART ticket should reflect the most restrictive limitation anticipated for the day. Ambient Air tickets are not intended to address loss of capability, which should be communicated to PJM Capacity Market Operations via a capacity modification (Cap Mod).

A Maintenance "Ambient Air" ticket, with a negative reduction amount, should be submitted to indicate when generation resources are, or are expected to exceed eDART Reportable MW A negative ambient ticket cannot be in effect simultaneously with a positive (reduction) eDART ticket.

The reduction amount on "Ambient Air" tickets should be updated periodically, especially when approaching the peak hour, particularly for Unplanned Outages.

Note:
Ambient air tickets do not get tracked in GADS in accordance with NERC GADS reporting requirements.

For Generator Planned Outages that require multiple days/weeks for ramp down, a Maintenance Outage should be submitted to account for the ramping period. The initial reduction amount must reflect the expected reduction on day one, with periodic updates being made to reduction amount periodically via eDART revisions as the unit ramps down.

Likewise, for Generator Planned Outages that require multiple days for ramp back to full load, periodic updates should be made to reduction amount periodically via eDART revisions as the unit ramps back to full load.

PJM uses Gen Checkout functionality in eDART for operational purposes to compare Markets Gateway data with eDART tickets to identify any significant differences in unit availability. This tool is not intended to validate that generation resources are meeting their RPM Must Offer requirement. See eDART User Guide for further details on use of Gen Checkout tool.
https://www.pjm.com/~/media/etools/edart/edart-user-guide.ashx

If all or a portion of a generation resource is made unavailable due to a scheduled or anticipated transmission facility or pipeline outage, the Generation Owner shall submit an outage request corresponding to the timeframe that the generation resource will be made unavailable due to the transmission facility or pipeline outage. A generation outage resulting solely from a transmission facility or pipeline outage shall not be classified as a Planned or Maintenance Outage unless the Generation Owner is concurrently performing eligible work on the affected generation equipment and requirements of M-10, Sections 2.2 or 2.3, are satisfied. ~~The outage may be classified as a Planned / Maintenance Outage only if it is submitted in accordance with submittal rules for Planned / Maintenance Outages outlined in M-10, Sections 2.2 or 2.3.~~ If the transmission facility or pipeline outage is unplanned or emergent, then the Generation Resource is required to submit an Unplanned Outage.

Generation Owners shall notify PJM verbally and via eDART of any scheduled or emergent conditions on common internal plant equipment or external generator-owned switchyard equipment, which results in a single contingency that would cause an outage of multiple generation resources within a minute of each other. Examples of common mode conditions include, but are not limited to, station service transformer outages and switchyard configuration changes that result in multiple generation resources sharing one critical piece of equipment.

An “Informational” (zero-reduction) Maintenance eDART ticket should be submitted to provide PJM dispatch with information pertinent to a generation resource’s operations that do not result in curtailed MW output. Examples include, but are not limited to, common mode equipment conditions, alternate fuel not available at dual-fueled unit, and abnormal off-site power configurations at nuclear facilities.

PJM Members shall submit offers into the Day-Ahead Market for any Capacity Resource with an RPM or FRR commitment for the next Operating day, even if the generation resource is on outage, as specified in Manual 11, Section 2.3.3.1.

Accurate generation availability projections are needed to ensure adequate reserves are maintained during evaluation of outage requests. For units that have submitted a deactivation notice in accordance with requirements in PJM Manual 14-D, Section 9, unless PJM has identified a reliability or market power issue, within 7 days of submitting a deactivation request, the Generation Owner (or PJM) shall

- Cancel all approved eDART tickets scheduled after deactivation date
- Change the end date on all active eDART tickets to be no later than deactivation date.

2.1.1 eDART Generation MW Ticket Procedure

The lifecycle of an eDART ticket is shown in Exhibit 4 below. The eDART reporting requirements are intended to be future-looking and real time, 24 X 7 X365, and not after the fact as in the case with GADS data submission:



Exhibit 4: eDART Ticket Procedure

As noted in Exhibit 4 above, the process begins with a Generation Owner submitting an eDART ticket.

- The Generation Owner shall document the scope of work in the eDART ticket description including impacted systems, criticality, and other relevant details. This information should be updated as needed and will be used to evaluate outage and extension requests.
- Prior to the start of the full or partial outage/~~ or~~ derate, the Generation Owner can modify start and end dates/times and MW reduction amount in accordance with requirements for Planned, Maintenance and Unplanned defined in sections 2.2, 2.3, and 2.4
- Within one hour after the Estimated Start Date/Time, the Generation Owner shall Activate (Start) the eDART ticket by entering a Switch Start Date/Time into eDART.
- Once an eDART ticket is Active, it is the responsibility of the Generation Owner to update, in eDART, any changes in reduction amount or estimated return date/time in accordance with requirements for Planned, Maintenance and Unplanned defined in sections 2.2, 2.3, and 2.4. In some cases, such as extending the end date/time of a Planned Outage, PJM Dispatch shall be contacted by phone to make changes to Active tickets.
- Once the work is completed, within one hour of Actual End Date/Time, the Generation Owner is responsible for completing the ticket by entering a Switch End Date/Time into eDART.

Any generator full or partial outage/~~ or~~ derate that has started and been completed, but not scheduled and approved in advance in accordance Section 2.2 or 2.3, cannot be entered retroactively.

The reduction amount on an eDART ticket cannot be adjusted retroactively for a completed eDART ticket. Potential discrepancies can be resolved when GADS data is submitted. It is the responsibility of the eGADS user to add these events to the PJM eGADS system.

2.2 Planned Outages

A Generator Planned Outage is the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of PJM. Planned Outages are scheduled by the PJM Members well in advance and are of a predetermined

duration. If the Planned Outage start date is greater than 31 days in the future, it is classified in eDART as a Forecasted Planned Outage. Outages due to start in less than 31 days will automatically change status from Forecasted Planned Outage to Planned Outage in the eDART system. Turbine and boiler overhauls or inspections, testing, nuclear re-fuelings and installation of environmental control systems are typical Planned Outages. Characteristically, Planned Outages usually occur during those seasons of the year when the peak demand on the power system is lowest. Planned Outages have flexible start dates, have a predetermined duration, last for several weeks, and occur only once or twice a year. Planned Outages on generation resources may not be scheduled during the PJM Peak Period Maintenance Season, which is defined as those weeks containing the 24th through 36th Wednesday of the calendar year. Each week shall begin on Monday at 0000 hours and end on the following Sunday at 2359 hours except for the week containing the 36th Wednesday, which shall end on the following Friday at 2359 hours.

A Generator Planned Outage cannot be revised to extend into the PJM Peak Period Maintenance Season. Any extension of planned outage work that spans into the Peak Period shall be treated as a Forced Outage.

Peak Period Maintenance Seasons are listed in the file linked below: www.pjm.com/~/media/markets-ops/rpm/2016-2057-peak-period-maintenance-seasons.ashx

2.2.1 Planned Outage Request Procedure

Refer to the Pre-scheduling Timeline shown in Exhibit 1 as we describe the process for a Planned Outage request.

- ~~I~~T~~n order t~~o be classified as a Planned Outage, the PJM Member must submit~~s~~ the initial outage request to PJM through eDART no later than 30 days prior to the Operating Day in which the Planned Outage is to begin. These outages are initially submitted through eDART as Forecasted Planned O~~o~~utages and are~~will~~ automatically converted ~~change~~ to Planned Outages 30 days prior to the estimated start date.
- Upon receipt of the initial Forecasted Planned Outage request, PJM executes the validation process and notifies the PJM Member if the Forecasted Planned Outage request is approved or placed in the pending evaluation category.
- In the event that the Forecasted Planned Outage request is denied following PJM's evaluation, the PJM Member re-evaluates its Planned Outage schedule and submits a new outage request. This process is repeated until the PJM Member submits an outage request that is acceptable. The PJM Member may contact PJM to assist in determining when the outage may be scheduled.
- PJM maintains a record of the approved Forecasted Planned O~~o~~utage requests so that the validation process is kept up to date.

2.2.2 Planned Outage Rules

1. PJM may withdraw its approval for a Planned Outage by notifying the PJM Member owning or controlling the generation resource in advance of the planned commencement of the outage, in accordance with deadlines for such notice as specified by PJM. Currently the deadline is at least 24 hours in advance. Approval of ~~for~~ a Planned Outage is withdrawn only as necessary to ensure the adequacy of reserves or the reliability of the PJM RTO in connection with anticipated implementation or avoidance of emergency procedures.
2. ~~A PJM Member is not expected to submit offers for the sale of energy or other services or to satisfy delivery obligations from all or part of a generation resource undergoing an approved Planned Outage.~~
3. The PJM Member shall provide PJM with an estimate of the amount of time it needs to return to service any Generation Capacity Resource on a Generator Planned Outage. This estimated “early return time” should be a reasonable estimate of the time it would take to return the unit or a portion of the unit to service that is currently in a Planned Outage. This early return time is intended to be informational and allow the planned scope of work to be completed. The submission of an “early return time” will not affect the Planned Outage estimated end date. PJM may request an update to this time during potential PJM Emergency conditions such as Hot Weather Alerts, Cold Weather Alerts, Maximum Emergency Generation Alerts, etc. The request to update the “early return time” and the expected response time to this request will be via PJM Dispatch communications.
4. PJM will coordinate any delays or withdraws of approval of a Planned Outage of a generation resource. PJM will coordinate with the Member to reschedule the Generator Planned Outage of the resource at the earliest practical time. PJM will, if possible, propose alternative schedules with the intent of minimizing the economic impact on the impacted resource.
5. ~~If a generation resource is in an Unplanned (Forced) Outage before a scheduled Planned Outage (PO), then the Forced Outage repair must be completed before the unit can be changed from an Unplanned Outage to a Planned Outage. The generation resource can start the PO work, but it will not be tracked as a PO until the work resulting in an Unplanned Outage is complete.~~

2.2.3 Planned Outage Extension

A Planned Outage may be extended beyond its originally estimated completion date in those instances when the original scope of work requires more time to complete than originally scheduled. The outage extension is not used for those instances when unexpected problems or delays are encountered to render the generation resource in question, out of service past the expected date of the Planned Outage.

The request for a Planned Outage Extension must be submitted via eDART at least 48 hours before the end date of the outage, and cannot extend into Peak Period. Failure to provide notice to PJM 48 hours in advance may result in the extension of the outage being categorized as an

Unplanned Outage, with a “Forced Date” being applied by PJM in eDART, depending on system conditions.

2.3 Maintenance Outages

A Generator Maintenance Outage is the scheduled removal from service, in whole or in part, of a generating unit in order to perform necessary repairs on specific components of the facility with the approval of PJM. Maintenance Outages can be deferred beyond the next weekend but require that the generation resource be removed from service before the next Planned Outage. Characteristically, Maintenance Outages may occur throughout the year, have flexible start dates, are much shorter than Planned Outages, and have a predetermined duration established at the start of the outage. Tube leak repairs, maintenance on mills or pulverizes, testing, and valve repairs are examples of Maintenance Outages.

The duration of a Maintenance Outage is generally limited to a maximum duration of 9 consecutive days (5 days plus the included weekends with the weekend period being defined as starting Friday at 2200 hours and ending Monday at 0800 hours) during the PJM Peak Period Maintenance Season, which is defined as those weeks containing the 24th through 36th Wednesday of the calendar year with each week beginning on a Monday at 0000 hours and ending on the following Sunday at 2359 hours (except for the week containing the 36th Wednesday, which shall end on the following Friday at 2359 hours). The definition of Weekend and Weekday Periods are shown in Exhibit 5. Sequential back-to-back Maintenance Outages for the same work are not permitted if the cumulative outage duration exceeds 9 consecutive days during Peak Period. Also, Maintenance Outages cannot be used to extend a Planned Outage beyond approved end date.

Peak Period Maintenance Seasons are listed in the file linked below: www.pjm.com/~/media/markets-ops/rpm/2016-2057-peak-period-maintenance-seasons.ashx

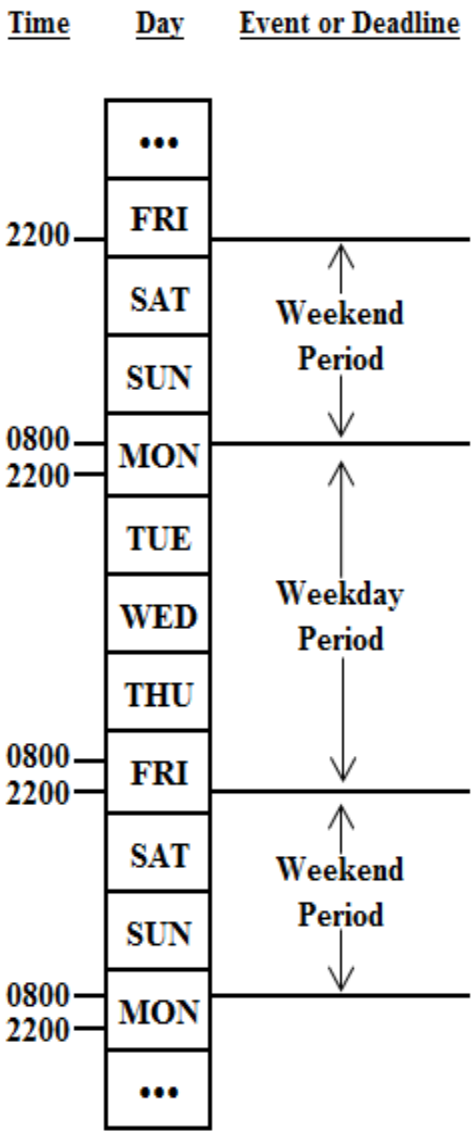

Exhibit 5: Maintenance Outage Timeline

If a Maintenance Outage request is submitted for a generator outside the Peak Period Maintenance Season and an extended outage poses potential reliability concerns, then the outage duration can be limited to 9 days, same as during the Peak Period Maintenance Season. Examples of reliability concerns include:

- The unit is a critical blackstart unit and another blackstart unit in the area is already on Planned Outage.
- The unit is critical for scheduled transmission work.

- There is a reserve shortage in the area.

2.3.1 Maintenance Outage General Information

Refer to the Pre-scheduling Timeline shown in Exhibit 1 and the Maintenance Outage Timeline shown in Exhibit 5 as the Maintenance Outage process is described.

Upon receipt of the initial Maintenance Outage request, PJM executes the validation process and notifies the PJM Member if the Maintenance Outage request is approved or placed in the pending evaluation category via eDART. In the event that the Maintenance Outage request is denied following PJM's evaluation, the PJM Member re-evaluates its Maintenance Outage request and submits a new outage request. The PJM Member may contact PJM to assist in determining when the outage may be scheduled.

The Weekend Period is defined from Friday at 2200 to Monday at 0800. Therefore, during the week, an outage is considered a Maintenance Outage if, at the time of the request to the PJM dispatcher, the generation resource can carry load at its present capacity beyond the next Monday morning at 0800. If a generation resource requests an outage during the weekend, the outage is considered a Maintenance Outage if, at the time of the request to the PJM dispatcher, the generation resource can carry load at its present capacity beyond Monday morning, 0800 of the following weekend.

~~A generation resource that incurs a forced outage or derate prior to the scheduled start time of an approved Maintenance Outage will be on an Unplanned (Forced) Outage until the failed component(s) is/are repaired.~~

2.3.2 Maintenance Outage Rules

1. Approval of a Generator Maintenance Outage of a generation resource shall be withheld or withdrawn only as necessary to ensure the adequacy of reserves or the reliability of the PJM Region. In addition, if PJM determines that it must rescind its approval of a Generator Maintenance Outage of a Generation Capacity Resource that is already underway in order to preserve the reliable operation of the PJM Region, PJM will provide the Member at least 72 hours advance notice and enter a Recall Date into eDART. If ticket is not completed by Recall Date, a Forced Date will be added to the ticket, and the field label will change to Forced Date. The Member shall be required to make the Generation Capacity Resource available for normal operation within 72 hours and if the generator is not made available for normal operation by 72 hours after the notice of the rescission of the approval of the Generator Maintenance Outage, the remaining time the resource continues on the outage it shall be deemed to have experienced a Generator Forced Outage as set forth in OATT, Attachment K-Appendix, section 1.9.3 (see also OATT, Attachment K-Appendix, section 1.9.4). If PJM withholds, withdraws or rescinds approval of a Generator Maintenance Outage, it shall coordinate with the Member to reschedule the Generator Maintenance Outage at the earliest practical time. PJM shall, if possible, propose alternative schedules with the intent of minimizing the economic impact on the Member.
    a. If the Maintenance Oo~~o~~utage eDART ticket has not been closed by the recall time, a Forced Outage date and time will be added to the existing Maintenance Outage and the outage will be treated as a Forced Outage, with a Forced Date added to the Maintenance ticket. These Forced Outages may be converted back to Maintenance Outages after the recall period has ended.
    b. Once PJM notifies the members that Maintenance Outages have been cancelled or withdrawn, this status will remain in effect until PJM notifies the Members that Maintenance Outages may be approved.
    c. To enhance reliability during the on-peak hours when Maintenance Outages have been recalled, short duration Maintenance Outage or reduction requests over off-peak hours, for items such as boiler deslags, valve tests, inspections, etc., may be approved.
2. Maintenance Outages should be submitted no later than three days prior to the operating day in which the Maintenance Outage is scheduled to begin. Under certain conditions, ~~m~~MMaintenance Oo~~o~~utages submitted greater than three days in advance may be approved automatically following a programmatic reliability analysis considering the reserve maintenance margin and local reliability issues. Maintenance Outages submitted with less than three days' notice will not be automatically approved and will initially be designated as "Pending Evaluation." Pending Evaluation outages will be approved or denied based on a manual review of reserve maintenance margins and local reliability issues
3. ~~A PJM Member is not expected to submit offers for the sale of energy or other services or to satisfy delivery obligations, from a part of the generation resource undergoing an approved full or partial Maintenance Outage.~~

2.3.3 Maintenance Outage Extension

A Maintenance Outage may be extended beyond its originally estimated completion date in those instances when the original scope of work requires more time to complete than originally scheduled. The outage extension is not used for those instances when unexpected problems or delays are encountered to render the generation resource in question, out of service past the expected date of the Maintenance Outage.

The request for a Maintenance Outage extension must be submitted before the last approved end date/time. Failure to provide notice to PJM in advance will result in the extension of the outage being categorized as an Unplanned Outage, with a “Forced Date” being applied by PJM in eDART.

2.4 Unplanned (Forced) Outages

A Generator Unplanned (Forced) Outage is an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility. If the Generator has any advanced knowledge of an imminent Uunplanned Ooutage, the Generator shall notify PJM with as much lead-time as practicable, but within one hour. Members that own or control a generation resource are expected to:

- Inform PJM of the Unplanned Outage as promptly as possible.
- Submit an Unplanned Outage ticket via eDART, using “unknown” as the return time if necessary.
- As soon as possible following the start of the outage:
- Provide PJM with the expected date and time that the generation resource will be made available
- Provide PJM the reason for the outage

PJM acknowledges the Unplanned Outage and records the outage via eDART. A PJM Member is not expected to submit offers for the sale of energy or other services or to satisfy delivery obligations, from a part of the generation resource undergoing an approved full or partial Unplanned Outage.

A Generation Resource in a full or partial Unplanned (Forced) Outage cannot transition to a Maintenance Outage or Planned Outage until the Unplanned Outage work is complete. Maintenance Outage or Planned Outage work may begin during the Unplanned Outage, but the affected capacity will remain classified as Unplanned until the work is completed. For a partial Unplanned Outage, only the impacted capacity must remain classified as Unplanned. At no time can the total reduction of multiple concurrent outage types be more that the ICAP of the Generation Resource.

2.5 Outage Reporting for Facilities Providing PJM Black Start Service

2.5.1 Outage Restrictions for Black Start Units

A Black Start Unit is a generating unit that has equipment enabling it to start without an outside electrical supply or a generating unit with a high operating factor (subject to Transmission Provider concurrence) with the demonstrated ability to automatically remain operating, at reduced levels, when disconnected from the grid. A Black Start Unit shall be considered capable of providing Black Start Service only when it meets the criteria set forth in the PJM manuals. Black Start Units selected to provide Black Start Service shall be eligible to receive compensation pursuant to Tariff, Schedule 6A.

In order to ensure adequate black start capability is available in case of a system restoration, no more than one unit at a black start plant with multiple black start units may be on Generator Planned Outage or a Generator Maintenance Outage at any one time (excluding outages on common plant equipment which may make all units unavailable) without written approval of the Transmission Provider and the Transmission Owner in the Zone receiving Black Start Service from the Black Start Plant. The Generation Owner must request permission from the Transmission Owner in the zone receiving the Black Start Service via email and provide to PJM prior to ticket approval.

In addition, concurrent Planned Outages at multiple Black Start Plants within a zone may be restricted based on Transmission Owner requirements for black start availability. These restrictions have been predefined, approved by PJM and will be incorporated into the eDART tool. If submission of an outage on a Black Start unit triggers one of these scenarios, the ticket will be placed in “Pending Evaluation” status. In this situation, the Generation Owner must request permission from the Transmission Owner in the zone receiving the Black Start Service via email and provide to PJM prior to ticket approval.

A Generation Owner may substitute another black start capable unit with a valid black start test within the last 13 months at the same plant, to allow a Planned Outage or Maintenance Outage of another critical Black Start Unit at the plant to begin. Black Start Unit substitutions must abide by PJM’s Black Start Substitution rules in OATT Schedule 6A Paragraph 10 and PJM Manual M12 Section 4.5.16.

2.5.2 Outage Reporting for Cranking Diesels and Auxiliary Equipment

All units providing PJM Black Start Service shall report outages on cranking diesel generators or any other station auxiliary equipment that will affect the ability of the unit to provide Black Start Service. The outages shall be reported via eDART as “Informational” for the main Black Start Unit with a zero MW reduction (assuming that the work will not be restricting the normal operation of the unit) and in the description area of the eDART ticket the work being done that restricts the black start capability should be included. If the cause is work on the cranking diesel generator(s), the outage cause “cranking diesel” shall be entered in eDART. If the work is on any other station auxiliary equipment that renders the Black Start Service unavailable, the

outage cause “black start auxiliary equipment” shall be used. These outages shall be reported on a prospective basis whenever possible.

Units performing black start testing shall submit an eDART ticket as follows:

- If the unit is offered as unavailable in Markets Gateway, or if unit could not be online in accordance with startup and notification parameters in Markets Gateway, then an eDART ticket reflecting a full reduction should be submitted.
- If the unit is offered as available in Markets Gateway, and unit could be online in accordance with startup and notification parameters in Markets Gateway, then an eDART “Informational” ticket, with a 0 MW reduction should be submitted.

If the unit decides to cancel or end the test early and make the unit available to PJM, contact PJM Dispatch and/or update Markets Gateway and eDART ticket accordingly.

2.6 Ending Outages in eDART

The end of a MW outage or MW reduction in eDART should be recorded as follows:

1. If the unit (or the portion of the unit that is reduced) is scheduled to operate by PJM (day ahead or real-time) or self scheduled by the unit owner/operator, the outage should end when the work is complete and the unit synchronizes to the grid.
2. If the unit is not scheduled by PJM or not self scheduled by the unit owner/operator, the outage should end when the work is complete and the unit is available to start up if required.
3. For outages where major work was performed, such as unit overhauls, nuclear refueling outages, etc., the unit owner/operator may, if approved by PJM, keep the outage active as a partial reduction and change the reduction as the unit increases output to full load.

Section 3: Reserve Requirements

Welcome to the *Reserve Requirements* section of the ***PJM Manual for Pre-Scheduling Operations***. In this section you will find the following information:

- A description of each type of Reserve (see “Reserve Definitions”).
- How Reserve Requirements are determined (see “Requirement Determination”).
- A description of the PJM Reserve Requirements (see “PJM Operating Reserves”).

3.1 Reserve Definitions

Reserves represent the generating capability that is “standing by” ready for service in the event that something happens on the power system, such as the loss of a large generator. (Reference NERC Performance Standard BAL-002-~~1~~, Disturbance Control Performance, and PJM Manual 12, Attachment D). The severity of the event determines how quickly the reserves have to be picked up. Exhibit 6 illustrates how PJM classifies the different types of reserve services.



Exhibit 6: Graphic Representation of Reserves

3.1.1 Day-ahead and Real-Time Reserves

PJM procures resources to meet the required Reserve Services in the Day-Ahead and Real-Time Reserve Markets:

- Synchronized Reserve Service: can only be satisfied by online resources that are able to respond in 10 minutes or less.
- Contingency (Primary) Reserve Service: can be satisfied by online or offline resources that are able to respond in 10 minutes or less. **Note**: NERC utilizes the term Contingency Reserves, which are on/off-line reserves available within 15 minutes. PJM criteria require response within 10 minutes. For the purposes of this manual, Contingency and Primary

reserves are interchangeable. Contingency (Primary) Reserve is reserve capability that can be converted fully into energy or load that can be removed from the system within 10 minutes of the request from the PJM dispatcher.

- 30-Minute Reserve Service: can be satisfied by online or offline resources that are able to respond in 30 minutes or less.

The reserve services described above are satisfied on a day-ahead and real-time basis using the following products:

Synchronized Reserve

Synchronized Reserve is reserve capability that can be converted fully into energy or load that can be removed from the system within 10 minutes of the request from the PJM dispatcher and must be provided by equipment electrically synchronized to the system. Resources committed to the Synchronized Reserve product can meet the Synchronized Reserve, Contingency (Primary) Reserve Service and the 30-Minute Reserve Service simultaneously.

Non-Synchronized Reserve

Non-Synchronized Reserve is reserve capability of a resource that can be fully converted into energy within 10 minutes of the request from the PJM dispatcher and is provided by equipment not electrically synchronized to the system. Included as Non-Synchronized Reserve is the maximum output energy level of a resource which can be attained within 10 minutes from the PJM dispatcher's request to initiate the starting sequence. Resources committed to the Non-Synchronized Reserve product can meet the Contingency (Primary) Reserve Service and the 30-Minute Reserve Service simultaneously.

Secondary Reserve

Secondary Reserve is reserve capability that can be fully converted into energy or load that can be removed from the system within a 10-to-30 minute interval following the request of the PJM dispatcher. Resources providing Secondary Reserve need not be electrically synchronized to the system. Resources committed to the Secondary Reserve product meet only the 30-Minute Reserve Service.

More information on the Day-ahead and Real-time Reserve Market mechanics is found in the PJM Manual for Energy & Ancillary Services Market Operations (M-11).

3.1.2 Requirement Determination

In the daily operation of the PJM RTO, the requirement is to operate generating capability and/or equivalent generating capability as required to carry the load reliably and economically by providing reasonable protection against instantaneous load variations in excess of the hourly integrated values, load forecasting error, and loss of system capability due to generation equipment failure or malfunction and by providing reasonable capability for frequency regulation

and area protection. The amount of reserve capability necessary to obtain this requirement is established and reviewed periodically by PJM.

Note:
PJM Emergency Operations Manual (M-13), Section 2: Capacity Emergencies, Part 2.2, Reserve Requirements, provides a table which illustrates Reserve Requirements for the PJM RTO.

Section 4: Regulation Requirements

Welcome to the *Regulation Requirements* section of the ***PJM Manual for Pre-Scheduling Operations***. In this section, you will find the following information:

- A description of Regulation (see “PJM Regulation Service”)
- A description of Regulating Resource Availability (see “Regulating Resource Availability”)
- A description of Regulating Resources (see “Regulating Resource Characteristics”)

4.1 PJM Regulation Service

The FERC Order 888 requires that the Transmission Service Providers within the PJM RTO provide the Ancillary Services for Regulation and frequency response. Since PJM is operating the PJM RTO, the Regulation and frequency response Ancillary Service is being coordinated by PJM.

NERC requires that the PJM RTO maintain regulating capability in order to match short-term deviations in system load. Regulation refers to the control action that is performed to correct for load changes that may cause the power system to operate above or below 60 Hz. To correct for these deviations from 60 Hz, PJM assigns the load changes to its faster responding resources, called regulating resources. By assigning regulation, PJM is better able to control the performance of the power system. Regulation is also referred to as regulation action or regulation response.

Regulation for the PJM RTO is supplied by resources that are located within the metered electrical boundaries of the PJM RTO. Regulation is scheduled in the following ways:

- Self-Scheduled Resources
- PJM RTO Regulation Market

Refer to the PJM Manual for ***Energy & Ancillary Services Market Operations (M-11)*** and the ***PJM Manual for Balancing Operations (M-12)*** for additional details regarding regulation requirements and regulation resource edibility and characteristics.

Section 5: Maintaining Market Information

Welcome to the *Maintaining Market Information* section of the ***PJM Manual for Pre-Scheduling Operations***. In this section, you will find the following information:

- A description of the Markets database (see “Markets Database”).
- A description of the Market Sellers’ inputs (see “Market Seller Inputs”).
- A description of Bilateral Transaction inputs (see “Bilateral Transaction Inputs”).

5.1 Markets Database

One of the principal purposes of the pre-scheduling activities is to establish and maintain a current database to be used for PJM scheduling and dispatching. This database is referred to as the Markets Database and contains the information described in detail in **Markets Database Dictionary**.

- Market Seller Inputs
- Design data for new generation resources are required by PJM at least 30 days prior to commercial operation. This information is submitted by the PJM Member to PJM following specifications outlined in the Markets Database Dictionary. The PJM Manual for Energy & Ancillary Services Market Operations (M-11) describes the PJM Member bidding information that is required.
- Bilateral Transaction Inputs
- PJM Members are expected to keep PJM informed of all Bilateral Transactions that involve the use of generation or transmission facilities in the PJM RTO. Each PJM Member involved in a Bilateral Transaction covering a period greater than the following Operating Day furnishes the required information to PJM. The PJM Manual for Energy & Ancillary Services Market Operations (M-11) describes the required Bilateral Transaction data that must be submitted and the rules pertaining to Bilateral Transactions.
- The proper unit status shall be reflected in Markets Gateway by the PJM Member when a generation resource is partially or totally unavailable due to a Planned, Maintenance or Forced outage.

Revision History

Administrative Change (Approved by Michael Zhang 02/03/2026):

- Periodic Review completed with no changes.

Revision 46 (07/23/2025):

- Section 2.1 Generation Outage Reporting Overview
  - Updated eDART Reportable MW table (Exhibit 3) to include the reportable MW value of non-inverter-based components of Hybrid Resources

Revision 45 (11/21/2024):

- Periodic cover-to-cover review
- Section 1.1: Pre-scheduling Overview
  - Corrected the closing time of the day ahead market in Exhibit 1 Pre-scheduling, Scheduling, and Dispatching Timeline
- Section 2.1: Generation Outage Reporting Overview
  - Added clarifying language around eDART Reportable MW for inverter based resources
- Section 2.2.2.5: Planned Outage Rules
  - Added clarifying language to ensure consistency with NERC GADS Data Reporting Instructions

Revision 44 (11/15/2023):

- Periodic cover-to-cover review
- Section 2.1 – Clarified eDART Reportable MW requirements in Exhibit 3
- Section 3.1.1 "Day-ahead" Reserves
  - Added "Real-Time" to section title
  - Added "and real-time" to anywhere after day-ahead appears in this section
- Labeled Basis for eDART Reportable MW as Exhibit 3
  - Renumbered subsequent exhibits

Administrative Change (Approved by Michael Zhang 05/09/2023):

- Fixed Section 2.1 table so that the final row properly reflects the endorsed language

Administrative Change (Approved by Michael Zhang 02/2/2023):

- Fixed spelling error and incorrect reference in Section 2.5.1

- Fixed incorrect reference in Revision 43

Revision 43 (12/21/2022):

- Periodic Cover to Cover Review
- Section 2.1 Generation Outage Reporting Overview
  - Updated timeframe in which eDART tickets must be revised following the submission of a generator deactivation request
  - Clarified basis for outage reporting on microgrid generators
  - Clarified outage reporting requirements when generation resource is offline
- Section 2.1.1 eDART Generation MW Ticket Procedure
  - Added section clarifying eDART ticket management procedure
- Section 2.4 Unplanned (Forced) Outages
  - Clarified expected time for submitting an Unplanned Outage
- Section 2.5.1 Outage Restrictions for Black Start Units
  - Clarified PJM's black start substitution rules and added references to substitution rules in OATT Schedule 6A and PJM M12 Section 4.5.16
- Various spelling and grammatical changes throughout
- Manual ownership changed from David Schweizer to Michael Zhang.

Revision 42 (10/01/2022):

- Section 2.1 Generation Outage Reporting Overview
  - Updated eDART Reportable MW table for Hybrid Resources

Revision 41 (9/21/2022):

- Conforming changes to Section 3: Reserve Requirements to account for Reserve Price Formation implementation to take effect 10/1/2022 (FERC Dockets: EL19-58-000 and ER19-1486-000).

Revision 40 (12/15/2021):

Periodic Cover to Cover Review

Section 2.1 Generation Outage Reporting Overview

- Clarified eDART ticket requirements for units that do not have a day-ahead must offer requirement
- Corrected use of eDART Reportable MW

Section 2.2 Planned Outages

- Clarified the language defining the Peak Period Maintenance Season

Section 2.2.4 Planned Outage Restrictions for Black Start Units

- Moved to new Section 2.5.1 Outage Restrictions for Black Start Units

Section 2.3 Maintenance Outages

- Clarified the language defining the Peak Period Maintenance Season

Section 2.3.1 Maintenance Outage General Information

- Removed examples and clarified language when a generation resource fails prior to the scheduled start time of an outage.

Section 2.5.1 Outage Restrictions for Black Start Units

- Moved from Section 2.2.4 and expanded to include both Planned Outages and Maintenance Outages in accordance with updated OATT language.
- Clarified Black Start Unit substitution rules.

Section 2.5.2 Outage Reporting for Cranking Diesels and Auxiliary Equipment

- Moved existing manual language to new section under Section 2.5 Outage Reporting for Facilities Providing PJM Black Start Service

Revision 39 (11/19/2020):

- Periodic review
- Section 2.1 Generation Outage Reporting Overview
    - Added “disclaimer” explaining the difference between eDART and GADS
    - When an eDART ticket is required by unit type/status and the VARIOUS definitions of ieDART Reportable MW
    - Added ambient air ticket guidance
    - Added description of Gen Checkout and reference to User Guide
    - Clarified when a Maintenance / Planned outage may be appropriate if coordinated with transmission or pipeline outage.
    - Added guidance on the use of “Info Only” eDART tickets
    - Added clarification for reporting of reduction amounts during protracted ramps over multiple days
- Section 2.2 Planned Outages
    - Clarified that Planned Outages cannot be extended into the Peak Period.
- Section 2.2.1 Planned Outage Request Procedure
    - Clarified timeline for submission of Forecasted Planned Outages
- Section 2.2.3 Planned Outage Extension
    - Clarified what happens if an outage extension is not requested more than 48 hours in advance.

- Section 2.2.4 Planned Outage Restrictions for Black Start Units
  - Clarified requirement for GO to secure TO approval prior to BS Unit outage approval
- Section 2.3 Maintenance Outages
  - Clarified that back-to-back Maintenance Outages exceeding 9 days are not permitted
  - Clarified that Maintenance Outages cannot be used to extend a planned outage
- Section 2.3.2 Maintenance Outage Rules
  - Added reference to Recall Date and Forced Date
- Section 2.3.3 Maintenance Outage Extension
  - Clarified disposition of Maintenance Outage that is not extended in a timely manner
- Section 2.4 Unplanned (Forced) Outages
  - Added language, similar to Maintenance Outage section that clarifies relationship between outage ticket and delivery obligation.

Revision 38 (08/22/2019):

- Periodic Review – no changes were identified as part of this review
- Section 2.1 - Generation Outage Reporting Overview
  - Added clarification for outage ticket end date as it relates to deactivation date
- Section 2.5 - Outage Reporting for Facilities Providing PJM Black Start Service
  - Clarified requirement for black start test ticket submission

Revision 37 (12/10/2018):

- Cover to Cover Periodic Review
- Section 1.1 – Scope & Purpose of Pre-Scheduling
  - Updated Exhibit 1 to correct typos; no change in content

Replaced reference to Markets Database Dictionary with reference to Manual 11,

Revision 36 (12/21/2017):

- Cover to Cover Periodic Review
- Introduction – changed Market Operations Center (MOC) operations to Generation Dispatchers and added reference to Manual 01
- Section 2.1 – Generation Outage Reporting Overview
  - Updated applicable NERC Reliability Standards
  - Added requirement for Generation Owners to notify PJM of any operating conditions that could potentially result in a single contingency causing an outage of multiple generation resources
- Section 5.1 Markets Database – deleted “by 1030 hours when the PJM day-ahead Energy Market closes” due to implementation of intra-day offers

- Section 5.2 – Generation Transfer Process – relocated to Manual 14D, Generator Operational Requirements

Revision 35 (1/1/2017):

- Periodic Review
- Exhibit 1 and Section 5.1 – administrative changes - updated market deadlines
- Section 2.3 – Maintenance Outages – administrative change - deleted last sentence which is obsolete
- Section 2.3.2.1 – added sub-bullets to clarify steps taken during recall of maintenance outages
- Section 2.6, Ending Outages in eDART – new section listing rules regarding ending outages in eDART
- Section 5.1 – Markets Database – added new bulleted item to reflect the proper status of units in Markets Gateway when reduced or on an outage.
- Section 5.2 – Changed section title from “Change of Generation Ownership Process” to “Generation Transfer Process”. Added new rules for implementation of the Generation Transfer Process.

Revision 34 (07/01/2016):

- Sections 1.2, 2.1, 2.2, & 2.3 - revised to clarify that outage scheduling and approval rules apply to all PJM generation resources, except where explicitly stated for Generation Capacity Resources.
- Section 2.1, Generation Outage Reporting Overview – revised to include that if a generation resource is made unavailable due to a transmission facility outage, the Generation Owner shall submit an outage request.
- Section 2.4, Unplanned Outages - revised to clarify the steps the Member should take with regards to an Unplanned Outage.

Revision 33 (12/22/2015):

- Periodic Review
- Section 2: Outage Reporting – Renamed section to Generation Outage Reporting
- Section 2.1: Outage Reporting Overview – Renamed section to Generation Outage Reporting Overview and revised sentence describing the initial evaluation process
- Section 2.2: Planned Outages – Included definition of Generator Planned Outage and included restriction of scheduling Planned Outages during Peak Period Maintenance Season, added link to a document that lists the Peak Period Maintenance Seasons
- Section 2.2.1: Request Procedure – Renamed section to Planned Outage Request Procedure and documented option to contact PJM after an outage is denied
- Section 2.2.2: Rules & Regulations – Renamed section to Planned Outage Rules and numbered rules

- Section 2.2.3: Planned Outage Extension – Consolidated wording.
- Section 2.3: Maintenance Outages – Included definition of Generator Maintenance Outage, added examples of Maintenance Outages, added link to a document that lists the Peak Period Maintenance Seasons
- Exhibit 3: Maintenance Outage Timeline – replaced with cleaner version, no change in content
- Section 2.3.1: Maintenance Outage General Information – added reference to Exhibit 1 and Exhibit 3 and included additional process information
- Section 2.3.2: Rules & Regulations – Renamed section to Maintenance Outage Rules and numbered rules
- Section 2.3.3: Maintenance Outage Extension - Consolidated wording.
- Section 2.4: Unplanned (Forced) Outages – Included definition of an Unplanned (Forced) Outage and clarified notification requirements
- Section 3.1, Reserve Definition – Corrected description of Non-Synchronized Reserve
- Section 4.1, Regulation Service - eliminated outdated information and included references to current PJM documents
- Section 4.1.1, Regulation Resource Eligibility – deleted – current requirements are in PJM Manuals M11 & M12
- Section 4.1.2, Regulation Resource Characteristics - deleted – current requirements are in PJM Manuals M11 & M12
- Section 5, Maintaining Market Information – eliminated outdated information and included references to current PJM documents and processes

Revision 32 (10/01/2015):

- Exhibit 1: Pre-Scheduling, Scheduling, and Dispatching Timeline – Removed reference to Planned Outage tickets at D-3
- Section 2.2.2 – (Planned Outage) Rules and Regulations – Added Note 1 referencing the requirement for a PJM Member to provide an estimated “early return time” for informational purposes for Planned Outages. (EL15-29-000 filing associated with CP)
- Section 2.2.2 – (Planned Outage) Rules and Regulations – Added Note 2 referencing PJM will coordinate any delays or withdraws of approval of a Generator Planned Outage and will also coordinate rescheduling the outage. (EL15-29-000 filing associated with CP)
- Section 2.3.2 – (Maintenance Outage) Rules and Regulations – Added Note 1 referencing the authority of PJM to withhold or withdraw approval, or rescind approval of an already underway Generator Maintenance Outage of a Generation Capacity Resource with at least 72 hours advance notice only as necessary to ensure the adequacy of reserves or the reliability of the PJM Region (EL15-29-000 filing associated with CP)
- Section 2.3.2 – (Maintenance Outage) Rules and Regulations – Added Note 2 referencing the requirement for Maintenance Outages to be submitted no later than three days prior to

the operating day in which the Maintenance Outage is scheduled to begin. If submitted with less than three days' notice the outage will initially be designated as "Pending Evaluation."

Revision 31 (12/22/2014):

- Annual Review for 2014
- Introduction – changed Local Control Center to Transmission Owner
- Section 2.5 Outage Reporting for Facilities Providing PJM Black Start Service – new section added to clarify outage reporting requirements for facilities providing PJM Black Start Service

Revision 30 (04/11/2014):

- Two of the eSuite Applications have been renamed. Moving forward EES will be known as ExSchedule and eMTR will be known as Power Meter.

Revision 29 (11/01/2013):

- Annual Review for 2013
- Multiple Sections - minor edits to update references and add clarity
- Exhibit 1 – Added reference to Forecasted Planned outages
- Section 2.1 – Added reference to reporting outages on synchronous condensers
- Section 2.2.1 – Added references to Forecasted Planned outages
- Section 3 – deleted Sections 3.1.3 and 3.1.4, Reserve Requirements details. Current Reserve Requirements are in the PJM Manual for Emergency Operations (M-13).
- Section 4.1.1 - deleted Regulating Resource details. Current Regulation details are in the PJM Manual for Energy & Ancillary Services Market Operations (M-11).

Revision 28 (09/26/2013):

- Section 1.4 – Removed note at top of the section that referenced a delay in implementation of the Unit Startup Notification process until PJM tools and software are in place.

Revision 27 (2/28/2013):

- Administrative Change: updated all references of "eSchedules" to "InSchedules"

Revision 26 (10/01/2012):

- Annual Review for 2012
- Added new Section 1.4: Unit Start-up Notification – Section defines purpose of Unit Start-up Notification, what happens when PJM issues a notification / start-up alert, and required notification plus start-up time requirements for Peak Period and Off-Peak Periods.

Revision 25 (01/01/2010):

- Section 6: Winter Net Capability Test Exemption. Deleted section based on RFC Standard MOD-024-RFC-01, which permits verification of winter gross Real Power capability by adjusting the summer verification, eliminating the need for exemption program. Revisions approved by stakeholders at MRC on November 30, 2009 (tariff change filed and awaiting FERC approval by February 1, 2010).

Revision 24 (10/01/2009):

- Annual Review
- Reformatted manual to assist in NERC Compliance.
- Section 2.1: Outage Reporting Overview – clarified outage reporting requirement for both capacity and energy only resources.
- Section 6: Winter Net Capability Test Exemption – Modified section for the purpose of providing clarity based on PJM SOS member feedback.

Revision 23 (1/2/2008):

- Minor editing to align with NERC Reserve Definition Titles
- Section 3:
- Defined annual Day-ahead Scheduling Reserve Requirement
- Replaced Operating Reserves with Day-ahead Scheduling Reserves
- Replaced Primary Reserves with Contingency (Primary) Reserves
- Replaced Objective(s) with Requirement(s)
- Clarified Contingency (Primary) Reserve Requirements, referencing RFC Standards and adding Emergency Procedures Triggers for Mid-Atlantic Control Zone and RFC.
- Attachment A: Deleted due to development of an annual RTO requirement

Revision 22 (05/15/2007):

- Minor editing to align with NERC Functional Model
- Section 3:
- Defined Contingency (Primary) Reserves
- Clarified Reserve Requirements, referencing PJM Emergency Operations Manual (M-13), Section 2 for additional details.
- Clarified more conservative Mid-Atlantic Reserve Requirement based on historical transmission constraint limitations.

Revision 21 (03/14/2007):

- Section 3: Reserve Objectives
- Include reference to NERC Performance Standard BAL-002-0, Disturbance Control Performance, and PJM Manual 11, Attachment B

- Clarified Ancillary Services Rules for Reliability First standards
- Section 5: Maintaining Market Information
- Revised to include a process for Change in Generation Ownership.

Revision 20 (06/15/2006):

- Section 3: Reserve Objectives
- Revised Ancillary Services Rules for Demand Side Response providing Ancillary Services.
- Revised Ancillary Services Rules for Reliability First Corporation.
- Change “unit” references to “resource” as they apply to Demand Side Response providing Ancillary Services.
- Change “Spinning” references to “Synchronized” as they apply to Demand Side Resources providing Ancillary Services.
- Section 4: Regulation Requirements
- Revised Ancillary Services Rules for Demand Side Response providing Ancillary Services.
- Revised Ancillary Services Rules for Reliability First Corporation.
- Change “unit” references to “resource” as they apply to Demand Side Response providing Ancillary Services.
- Change “Spinning” references to “Synchronized” as they apply to Demand Side Resources providing Ancillary Services.

Revision 19 (04/17/2006):

- Eliminated Attachment B and changed any references to Attachment B in the manual to the Markets Database Dictionary.
- Revisions were made on the following page: 29.

Revision 18 (08/10/2005):

- Added new Section 6 on Winter Net Capability Test Exemption.

Revision 17 (07/29/2005):

- Attachment A: Replaced old Reserve Objective Tables (Winter 2002 – 2003) with hyperlinks to current and previous PJM Operating Reserve Objective Summaries.

Revision 16 (12/24/2003):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A5 and A6, Winter 2002 - 2003.
- Updated Exhibit 1 PJM Manuals List

Revision 15 (10/01/2003):

- *Section 4: Regulation Requirements* – Updated Exhibit 6 on Limit Relationship for Regulation. Also updated definition of energy dispatch range of a unit under regulation to be consistent with definitions in other PJM manuals.
- ATTACHMENT B: Replace attachment B (a copy of the Markets Database Dictionary) with a hyperlink to the Markets Database Dictionary.

Revision 14 (06/25/2003):

- *Section 2: Outaqe Reporting – Rules & Regulations* – **Deleted**: "At least three days prior to the Operating Day during which the Planned Outage is to begin, the PJM Member submits a MW Outage Generator ticket through eDART for PJM to confirm the Planned Outage request.
- *Section 2: Outage Reporting – Maintenance General Information* – **Deleted**: "If approved, PJM acknowledges the Maintenance Outage request via eDART tool.

Revision 13 (06/01/2003):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A1 and A2, Summer 2003.
- Changed references to PJM Interconnection, L.L.C. to PJM.
- Changed department name "Real Time Market Operations" to "Forward Market Operations."
- Renamed Exhibits I.1 through C.3 to Exhibit 1 through Exhibit 17.
- Reformatted to new PJM formatting standard.
- Renumbered pages to consecutive numbering.

Revision 12 (03/01/2003):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A7 and A8, Spring 2003.

Revision 11 (12/01/2002):

- Revised Section 2: Outage Reporting
- Incorporated the procedures that PJM follows to ensure and monitor Black Start Service.

Revision 10 (11/01/2002):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A5 and A6, Winter 2002 - 2003.

Revision 09 (10/01/2002):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A3 and A4, Fall 2002.

Revision 08 (06/01/2002):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A1 and A2, Summer 2002.

Revision 07 (03/01/2002):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A7 and A8, Spring 2002.

Revision 06 (11/01/2001):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A5 and A6, Winter 2001 - 2002.

Revision 05 (10/01/2001):

- Revised Attachment A: PJM Operating Reserve Objective Summary. Updated Exhibits A3 and A4, Fall 2001.

Revision 04 (06/01/2001):

- Revised to reflect PJM eDART tool implementation.
- Removed Attachment A: Definitions & Abbreviations. Attachment A is being developed into a new PJM Manual for ***Definitions & Abbreviations (M-35)***. Also, removed Attachment B: PJM Generating Unit Event Request. Renamed Attachment C, D and E to be A, B and C, respectively. Revised new Attachment A: PJM Operating Reserve Objective Summary.

Revision 03 (06/01/2000):

- Revised to reflect the Multi-Settlement Process implementation.

Revision 02 (04/01/2000):

- Attachment D: Unit Commitment Database
- Removed reference to Maximum Scheduled Generation in section Unit Commitment – Scheduling Data (Cost Capped) for Steam Unit and Schedule Data #7 Schedule Operating Data.
- Removed reference to Maximum Scheduled Generation in section Unit Commitment – Scheduling Data (Cost Capped) CT Unit and Schedule Data #5 Unit & Schedule Operating Data. Removed reference to Maximum Scheduled Generation in section Unit Commitment – Scheduling Data (Cost Capped) Diesel Unit Data #5 Schedule Operating Data. Revision 01 (09/22/97)
- Attachment C: PJM Operating Reserve Objective Summary
- Added Operating Reserve Objectives for October 1, 1997 to October 31, 1997 and November 1, 1997 to February 28, 1998.

Revision 01 (07/21/1997):

- Section 1: Pre-Scheduling Overview
  - Changed “Market Participant” to “PJM Member” in Exhibit 2.
- Section 5: Maintaining Market Information
  - Changed “company data (name, long name, short name, gross/net ID)” to “company data (name, long name, short name, gross/net switch)” in Thermal Resource Design Data under Resource Scheduling Database.
- Attachment B: PJM Generating Unit Event Request
  - Added unit choices “CT, CC” and company choices “PEP, AE, DPL JO” to PJM Steam Generating Unit Event Request form.
- Attachment D: Unit Commitment Database
- Exhibit B.2: Steam Unit and Schedule Data (Cost Capped)
- Changed “Price in dollars to release a PJM RTO scheduled unit if the unit is not synchronized." to “Price/cost in dollars to release a PJM RTO scheduled unit if the unit has begun the start-up sequence and is not synchronized. Note: for cost-based-units, this fee is defaulted to the Hot Start Cost.” in Unit Cancellation Fee Data.
- Changed “2. Available (marginal)” to “2. Available (marginal) (Bid into market)” in Schedule Operating Data.
- Deleted “Scheduled to run for Company (R)” from Schedule Operating Data.
- Deleted “Scheduled to run for PJM (P)” from Schedule Operating Data.

Revision 00 (05/01/1997):

- Attachment C: PJM Operating Reserve Objective Summary
- Replaced Operating Reserve Objectives for March 1, 1997 to May 31, 1997 with Objectives for June 1, 1997 to September 30, 1997.
- Section 2: Outage Reporting
- Maintenance Outage Extension
- The request for a Maintenance Outage Extension must be submitted at least 48 hours before the original end date.
- Changed references to PJM Interconnection Association to PJM Interconnection, L.L.C.
- Changed references to PJM to PJM where appropriate.
- Changed references to PJM to PJM RTO where appropriate.
- Changed references to PJM IA to PJM.
- Changed references to IA to PJM.
- Changed references to Mid-Atlantic Market to PJM Interchange Energy Market.
- Changed references to Mid-Atlantic Market Operations Agreement to Operating Agreement of PJM Interconnection, L.L.C.

- Changed references to pool to control area.
- Changed references to parties to PJM Members.
- Changed references to External Market Participant to Non-Metered PJM Member.
- Changed references to Internal Market Participant to Metered PJM Member.

Revision 00 (03/13/1997):

- This revision is a draft of the PJM Manual for ***Pre-Scheduling Operations***.