

Generator Outage Scheduling Overview

Ray Lee Lead Engineer, Generation OC Special Session: Outage Coordination August 19, 2022



Generator Outage Request Process

Generation Owner requests outage by submitting a generator outage ticket into eDART

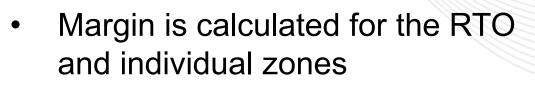
Planned (PO) Maintenance (MO) Unplanned/Forced (FO) eDART validates ticket against business rules and available generator outage margin

eDART automatically approves outage if all checks pass. Outage that fails a check is put in Pending Evaluation status for additional review by PJM staff PJM incorporates active and approved outages into near and long term studies.

Approved outages may be rescinded and active MO may be recalled pending system conditions.

PJM outage scheduling rules can be found in PJM Manual M10 https://www.pjm.com/-/media/documents/manuals/m10.ashx





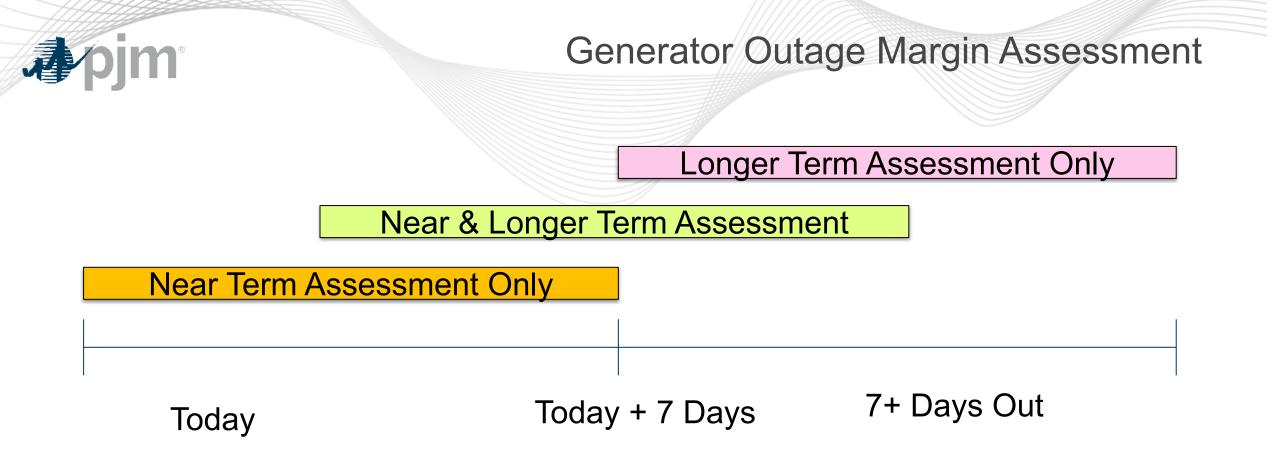
- Zonal margins account for import capability
- Near term margin: outages occurring within next 7 days
- Longer term margin: outage occurring 7+ day out
- Outage requests resulting in a negative margin in the RTO or area are rescheduled or denied

Generator Outage Margin (Additional outage MWs PJM can accommodate reliably)

Outages (Active and Approved)

Load

Near Term Margin: Short Term Load Forecast Longer Term Margin: Planning 50/50 Load Forecast



- 1. Near term assessment only: Tickets & revisions starting/ending within next 7 days
- 2. Near/longer term assessment: Tickets & revisions starting within next 7 days and ending 7+ days
- 3. Longer term assessment only: Tickets & revisions starting/ending 7+ days assessed



Planned Outage (PO)

- Typically longer in duration involving more complex tasks, repairs and plant modifications
- Must be submitted at least 30 days in advance
- Cannot occur during peak period maintenance season, which runs from the 24th week to 36th week.
 - Peak periods maintenance periods can be found using the following link in PJM Manual 10 <u>https://www.pjm.com/~/media/markets-ops/rpm/2016-2057-</u> <u>peak-period-maintenance-seasons.ashx</u>
- Not subject to the same recall provision as a Maintenance Outage



Maintenance Outage (MO)

- Intended for generators to perform maintenance between major "overhauls" that tend to take long periods of time or to maintain/repair plant systems
- Generally limited to nine days in duration. PJM may approve MO requests longer than nine days pending system conditions
- Not to be used to extend PO beyond approved estimated end date
- Active MOs can be recalled by PJM for grid reliability reasons with 72 hours' notice. Units that are not made available by the Recall Date are treated as an Unplanned/Forced Outage with a "Forced Date" applied to the outage ticket for the recall period



Outage Extension Requests

- POs and MOs can be extended beyond original estimated completion date when the original scope of work requires more time to complete
 - PO extension requests must be submitted 48 hours before the last approved end date and time
 - MO extension requests must be submitted prior to the last approved end date and time
 - POs and MOs that fail to follow extension deadlines may result in the extension of the outage ticket being treated as an Unplanned/Forced Outage with a "Forced Date" being applied to the outage ticket in eDART
- Unexpected issues or delays are not grounds for extensions



Unplanned/Forced Outage (FO)

- Unexpected failures or inability to operate
- Typically submitted with very short notice
- PJM cannot deny Unplanned/Forced Outages



Generator Outage Scheduling Tools: Generator Outage Margin & Peak Period



- Current day generator outage margin for Mid-Atlantic and Western-Southern areas
- Refer to the eDART User Guide: Peak Period Maintenance for additional details. <u>https://pjm.com/-/media/etools/edart/edart-user-guide.ashx</u>



Generator Outage Scheduling Tools: Opportunity Window

Generator Ou	utage Opportunity Window	
Generator outage opportunity window shows po Proposed windows are based solely on current Outages will be evaluated against current edart	reserve projections and does not guarantee outage appr	roval.
Company: Generation Co.	Unit: RBL-10; ICAP: 220	~
Reduction: 20 Duration (in days): 10	Interval Start: 08/18/2017 Interval End: 09/18/201	17
Apply Filter	Refresh Main Menu	

Reduction: 1000 Duration (in days): 30 Interval Start: 08/19/2017 Interval End: 09/30/2017		
Opportunity Window DURING: 08/21/2017 00:00 - 09/30/2017 00:00		
Apply Filter Refresh Main Menu		

 Refer to the eDART User Guide: Opportunity Window for additional details. <u>https://pjm.com/-/media/etools/edart/edart-user-guide.ashx</u>



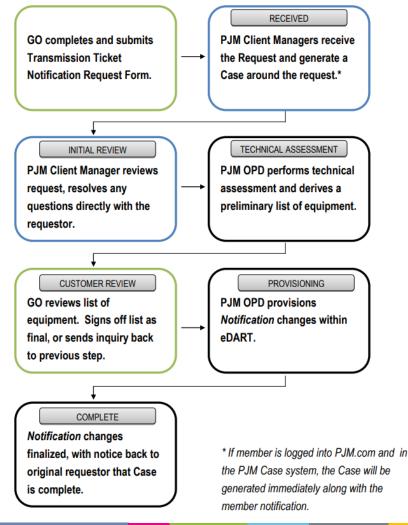
Generator Outage Schedule Tools: Transmission Ticket Notification for Generation

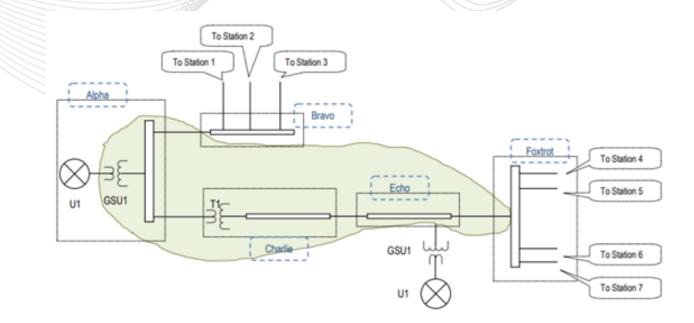
- Generation Owners may request email notifications from eDART for transmission outages that impact their resources
- eDART Transmission Notification Request Process <u>https://pjm.com/-/media/etools/edart/edart-transmission-ticket-notification-request-form-guide.ashx</u>
- Transmission Ticket Notification Request form for Generation Entities
 <u>https://pjm.com/markets-and-operations/etools/edart/transmission-</u>
 <u>ticket-notification-request</u>



Generator Outage Schedule Tools: Transmission Ticket Notification for Generation

Notification Request Form Flow





PJM assesses a unit's outlets and identifies BES facilities until the unit is considered to be networked to the transmission system with at least three outlets for each radial path

Generation Owner notified via email when outages are received/updated for the following equipment: Alpha-Bravo; Alpha-Charlie; Charlie-Echo; Echo-Foxtrot; Alpha GSU1 transformer; Charlie T1 transformer





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Generator Outage Scheduling Education

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