



# PJM eDART Voltage Schedules for Transmission Owners

- The Voltage Schedules tool is an eDART web-based tool to aid compliance monitoring of Voltage Schedule communication between PJM, Transmission Owners and Generation Owners.
- This allows Transmission Owners to specify, and PJM to approve, Voltage Schedules for units in their zones.
- Includes new ticket (record) type, handling of exemptions, reporting, processing and seasonal verification.

## TO

### Specify

TO-Specified or PJM Default Voltage Schedule

Specify Voltage Schedule Type: Voltage, Power Factor, or Reactive Power

Provide Target Voltage Schedule & Tolerance Band

Attach Voltage Schedule Letters (Optional)

Submit Exemption Requests

## PJM

### Review

Maintain List of Applicable Units (M-03 Sect. 3.11)

Review and Acknowledge Voltage Schedules

Coordinate adjacent TO/External Voltage Schedules

Approve Exemption Requests

Initiate **Annual** Voltage Schedule Reviews

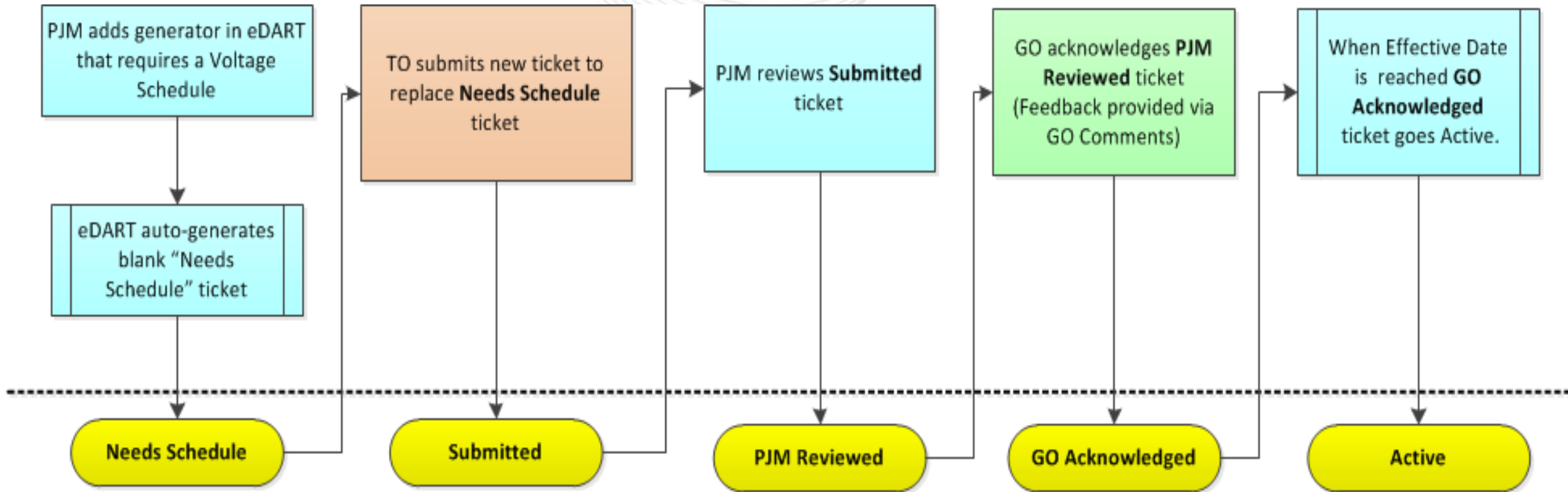
## GO

### Acknowledge

Acknowledge Voltage Schedules

Provide feedback on Voltage Schedule through GO Comments

# Voltage Schedules Ticket Process Flow



*eDART Voltage Schedules Ticket Statuses*

1. PJM adds a new generator and a blank Voltage Schedules ticket is created.
2. TO creates new Voltage Schedules ticket to replace the blank one.
3. PJM reviews the ticket submitted by the TO.
4. If PJM approves, the ticket will be available to GO for acknowledgement.
5. If GO acknowledges, the ticket becomes “Active”.

1. TO creates new Voltage Schedules ticket for unit for a future effective date.
2. PJM reviews the ticket submitted by the TO.
3. If PJM approves, the ticket will be available to GO for acknowledgement.
4. If GO acknowledges, the ticket becomes “Active” and “Completes” the prior Voltage Schedules ticket for that unit on the effective date.



# eDART Voltage Schedules – Application Walkthrough



- After logging into eDART, click on the Transmission Tickets Button to access the Transmission Outage Main Menu.
- The Transmission Outage Main Menu is shown on the right.

- My eDART
- Upload
- Download
- Trans. Tickets**
- Network Model
- Black Start
- TERM
- Reactive Reserve
- Instantaneous Reserve Check
- Minimum Gen. Report
- PJM Status Report
- NERC Data
- Online Help
- Feedback
- Logout

- Click on the Voltage Schedules button and you will arrive at the Voltage Schedules Page
- Button will be red if there is a required action by the TO

**Transmission Outage Main Menu**

<a href="#">Create New Outage Ticket</a>	<a href="#">View/Revise Outage Ticket</a>	<a href="#">EMS Trip Update</a>	<a href="#">Gen Outage Lookup</a>
<a href="#">Future Facilities</a>	<a href="#">Current One Line Diagrams</a>	<a href="#">RTEP Queue # Update</a>	<a href="#">Cause Lookup</a>
<a href="#">View / Revise Projects</a>	<a href="#">New Project</a>	<a href="#">Network Model Link</a>	

**Transmission Reports**

<a href="#">Status Report</a>	<a href="#">Trans. Outage Tickets Report</a>	<a href="#">Tickets Active Tomorrow</a>	<a href="#">Cut-In Tickets</a>
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Submitted: 34 / 0 Revised: 3 / 0 Received: 301 / 25 Cut-In Today: 15 / 16 Cut-In Near Future: 15 / 16  
 Approved: 4 / 0 Active: 51 / 1 Incomplete: 11 At Risk: 3

**Conflicts**

<a href="#">Conflicting Outages</a>	<a href="#">Confl. Identifier Facility List</a>	<a href="#">Confl. Identifier Group List</a>	<a href="#">Gen Off Scenario List</a>
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Review Needed: 6 Review Needed: 2  
 Submitted: 4 Revised: 0 Received: 0 Approved: 0 Active: 0

**System Impacts**

<a href="#">Per Impact</a>	<a href="#">Per Facility</a>	<a href="#">Impacts Report</a>
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**NERC-TADS**

<a href="#">NERC-TADS Report</a>	<a href="#">Ticket Update</a>	<a href="#">Ticket Date Exception</a>	<a href="#">Transformer Selection</a>
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**Generation Reports**

<a href="#">Generation Ack. Required</a>	<a href="#">Owners Report</a>	<a href="#">Tickets Active Tomorrow</a>
<a href="#">D-Curve Report</a>	<a href="#">Reactive Test Result</a>	<a href="#">Nuclear Voltage Limit</a>
<a href="#">Voltage Schedules</a>	<a href="#">Voltage Schedules Criteria</a>	

Notifications: 11

**Notification Reports**

<a href="#">Transmission Ack. Required</a>	<a href="#">Notifications Report</a>	<a href="#">Notifications Request Form</a>
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Notifications: 0

**Facility Outages Reports**

<a href="#">Current &amp; Future</a>	<a href="#">Historical</a>	<a href="#">EMS Outage List</a>	<a href="#">Public Files</a>
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# Voltage Schedules Starting Screen

**Voltage Schedule (as of 05/11/2022 15:10)**

Needs Schedule (9 / 38)
  Submitted (2 / 0)
  Pending Review (0 / 1)
  TO Review (1 / 0)
  PJM Reviewed (1 / 0)
  GO Acknowledged (0 / 0)
  Saved (0 / 0)
  Active (7 / 1)
  Completed (0 / 0)
  Canceled by TO (0 / 0)
  Canceled by PJM (12 / 1)
  In Effect
  Canceled Prev. Ack. (1 / 0)
  Late (2 / 0)
  GO Comments (0 / 0)

Trans. Owner: 
 Unit Type: 
 Gen. Owner: 
 Unit Name: 
 Trans. Zone: 
 Ticket #: 
 From Date: 
 To Date: 
 Incl. Hist.: 
 Eff. Date: 
 TO Date: 
 GO Date:

**Filter Menu:** Use this to filter and find tickets.

**Command Buttons:** Use these for actions, navigation and access to Help files

**Voltage Schedule Tickets**

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	Comments
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
<input type="radio"/> 3006	GO Company A TO Company X	XX	Test Unit 1 TEST 13 KV UNIT 1 Test 13 KV Bus A	Voltage(KV)	13.0	11.0	15.0	13.0	11.0	15.0				03/29/2022	Active	TO: <input type="text"/> GO: <input type="text"/> PJM: <input type="text"/>
<input type="radio"/> 2679 <a href="#">Download</a>	GO Company A TO Company X	XX	Test Unit 2 TEST 13 KV UNIT 2 Test 13 KV Bus B	TO Exempt										03/26/2022	Active	TO: <input type="text"/> GO: <input type="text"/> PJM: <input type="text"/>
<input type="radio"/> 2642	GO Company B TO Company X	XX	Test Unit 3 TEST 13 KV UNIT 3 Test 13 KV Bus C	Reactive(MVAR)	110.0	100.0	130.0							03/29/2022	Active	TO: PJM is entering TO comments for Active GO: PJM is entering GO comments for Active PJM: PJM Comments
<input type="radio"/> 3007	GO Company B TO Company X	XX	Test Unit 4 TEST 13 KV UNIT 4 Test 13 KV Bus D	PowerFactor(PF)	1.00 Unity	0.98 Lead	0.98 Lag							06/01/2021	Active	TO: Test PF Schedule GO: No concerns with this Voltage Schedule PJM: <input type="text"/>

**Voltage Schedule Tickets:** Summary list of all tickets from selected filters

Click Edit button to open Voltage Schedules Ticket Details

Status filters

Voltage Schedule (as of 05/11/2022 15:13)

<input checked="" type="checkbox"/> Needs Schedule (5 / 11)	<input type="checkbox"/> Submitted (2 / 0)	<input type="checkbox"/> Pending Review (0 / 1)	<input checked="" type="checkbox"/> TO Review (0 / 0)	Trans. Owner	<input type="text"/>	Unit Type	<input type="text"/>
<input type="checkbox"/> PJM Reviewed (2 / 0)	<input type="checkbox"/> GO Acknowledged (0 / 0)	<input checked="" type="checkbox"/> Saved (0 / 0)	<input type="checkbox"/> Active (0 / 0)	Gen. Owner	<input type="text"/>	Unit Name	<input type="text"/>
<input type="checkbox"/> Completed (0 / 0)	<input type="checkbox"/> Canceled by TO (0 / 0)	<input type="checkbox"/> Canceled by PJM (2 / 0)		Trans. Zone	<input type="text"/>	Ticket #	<input type="text"/>
<input type="checkbox"/> In Effect	<input type="checkbox"/> Canceled Prev. Ack. (0 / 0)	<input type="checkbox"/> Late (2 / 0)	<input type="checkbox"/> GO Comments (0 / 0)	From Date	<input type="text"/>	To Date	<input type="text"/>
				Incl. Hist.	<input type="checkbox"/>	Eff. Date	<input checked="" type="checkbox"/>
				TO Date	<input type="checkbox"/>	GO Date	<input type="checkbox"/>

Apply Filter   Clear Filter   Submit Saved   CSV Export   Main Menu   Help   TO Schedule Philosophy

Complex filters

Date filters

# Voltage Schedule Ticket Details

Unit & Regulated Bus Identification

Voltage Schedule Type Selection

Voltage Schedules Target and Bandwidths

Voltage Schedule Load Conditions

Effective Date

**Voltage Schedule Ticket Details (as of 05/10/2022 16:48)**

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
3030	GO Company A	XX	Test Unit 1	Voltage	525.0	5.0	5.0							05/12/2022	Submitted	
	TO Company X		TEST 500 KV UNIT 1	(KV)		520.0	530.0									
			Test 500 kV Bus A													

TO Comments: Test ticket  
 GO Comments:  
 PJM Comments:

Needs Schedule (9 / 38)  
  Submitted (2 / 0)  
  Pending Review (0 / 1)  
  TO Review (1 / 0)  
 Trans. Owner:   
 Gen. Owner:   
 Trans. Zone:   
 From Date:   To Date:   Incl. Hist.   
 Eff. Date   
 TO Date   
 Unit Type:   
 Unit Name:   
 Ticket #:

PJM Reviewed (1 / 0)  
 GO Acknowledged (0 / 0)  
 Saved (0 / 0)  
 Active (7 / 1)  
 Completed (0 / 0)  
 Canceled by TO (0 / 0)  
 Canceled by PJM (12 / 1)  
 In Effect  
 Canceled Prev. Ack. (1 / 0)  
 Late (2 / 0)  
 GO Comments (0 / 0)

Apply Filter   Clear Filter   Files (0)   History Log   Submit Form   Close   Main Menu   Help   TO Schedule Philosophy

Comment Entry

Ticket Status

When creating Voltage Schedules ticket, the following fields are required:

- **Bus Name**
- **Voltage Schedule Type**
- **Normal** (Target Value, Lower Limit, and Upper Limit)
- **Effective Date**
- **Status**
  - Set to Submitted by default but can be changed to Saved if TO wants to save progress and submit ticket to PJM later.

- **Normal Target:** This is the target value.
  - Unit differs per schedule type.
- **Lower Limit:** The lower limit of the target value
- **Upper Limit:** The upper limit of the target value
- Light and Heavy values are not required but can be added if the TOs choose.

Voltage Schedule Type	Normal			Light			Heavy		
	Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper
Voltage (KV) <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

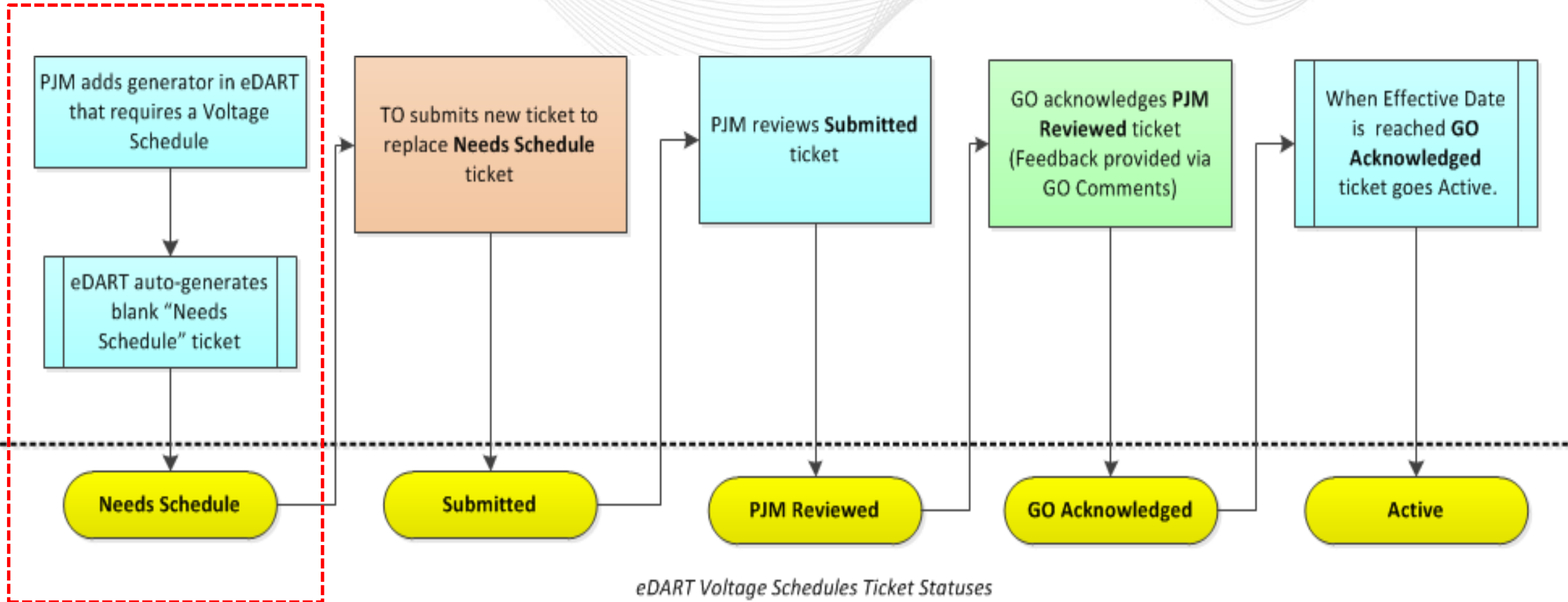
The effective date is the day the ticket becomes **“In Effect”**.

- This applies to all 4 Voltage Schedules Types
- This date cannot be the day the ticket was submitted.
  - Earliest Effective Date allowed is the next day (submission date + 1 day)
- No two tickets can start on the same day.
  - Error returned if user submits a future ticket with the same effective date as one that already exists for the unit.





# Voltage Schedules Ticket Process Flow





- Per PJM Manual 3 section 3.11, PJM has the following criteria for generators that require a Voltage Schedule:
  - Individual generating units greater than 20 MVA
  - Generators that aggregate to 75 MVA or greater that are connected to a common bus
  - Black start generators
  - Any other Generation Owners that request a voltage schedule
- Generators added to eDART that meet the above criteria will have a blank *Needs Schedule* ticket automatically entered requiring a new Voltage Schedule ticket to be submitted by the TO.

## Voltage Schedule Ticket Details (as of 05/11/2022 15:22)

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper		
	GO Company A TO Company X	XX	New Test Unit 1 TEST 500 KV UNIT 1											Submitted	

TO Comments: 
 GO Comments: 
 PJM Comments:

Needs Schedule (9 / 38)
  Submitted (2 / 0)
  Pending Review (0 / 1)
  TO Review (1 / 0)
  PJM Reviewed (1 / 0)
  GO Acknowledged (0 / 0)
  Saved (0 / 0)
  Active (7 / 1)
  Completed (0 / 0)
  Canceled by TO (0 / 0)
  Canceled by PJM (12 / 1)
  In Effect
  Canceled Prev. Ack. (1 / 0)
  Late (2 / 0)
  GO Comments (0 / 0)

Trans. Owner: 
 Gen. Owner: 
 Trans. Zone: 
 From Date: 
 To Date: 
 Incl. Hist. 
 Eff. Date 
 TO Date 
 GO Date

Unit Type: 
 Unit Name: 
 Ticket #:

- Apply Filter
- Clear Filter
- Submit Form
- Close
- Main Menu
- Help
- TO Schedule Philosophy



## Voltage Schedule Ticket Details (as of 05/11/2022 15:22)

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
3115	GO Company A	XX	New Test Unit 1	Voltage (KV)	525.0	8.0	8.0							05/12/2022	Submitted	
	TO Company X		TEST 500 KV UNIT 1		517.0	533.0										
			TEST 500 KV West Bus													

TO Comments:  GO Comments:  PJM Comments:

Needs Schedule (9 / 38)  Submitted (3 / 0)  Pending Review (0 / 1)  TO Review (1 / 0)  
 PJM Reviewed (1 / 0)  GO Acknowledged (0 / 0)  Saved (0 / 0)  Active (7 / 1)  
 Completed (0 / 0)  Canceled by TO (0 / 0)  Canceled by PJM (12 / 1)  
 In Effect  Canceled Prev. Ack. (1 / 0)  Late (2 / 0)  GO Comments (0 / 0)

Trans. Owner:  Unit Type:   
 Gen. Owner:  Unit Name:   
 Trans. Zone:  Ticket #: 3115  
 From Date:  To Date:  Incl. Hist.  Eff. Date  TO Date  GO Date

[Apply Filter](#) [Clear Filter](#) [Files \(0\)](#) [History Log](#) [Submit Form](#) [Close](#) [Main Menu](#) [Help](#) [TO Schedule Philosophy](#)

Required Entries

Optional Entries

## Voltage Schedule Tickets

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	Comments
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
3115	GO Company A TO Company X	XX	New Test Unit 1 TEST 500 KV UNIT 1 TEST 500 KV West Bus	Voltage(KV)	525.0	517.0	533.0							05/12/2022	Submitted	TO: <input type="text"/> GO: <input type="text"/> PJM: <input type="text"/>



# TO Task: Submitting a New Voltage Schedules Ticket

**Notifications:** The TO will be notified of a new generator requiring a voltage schedule by the TO Voltage Schedules button turning **Red** AND an email notification to the TO email address.

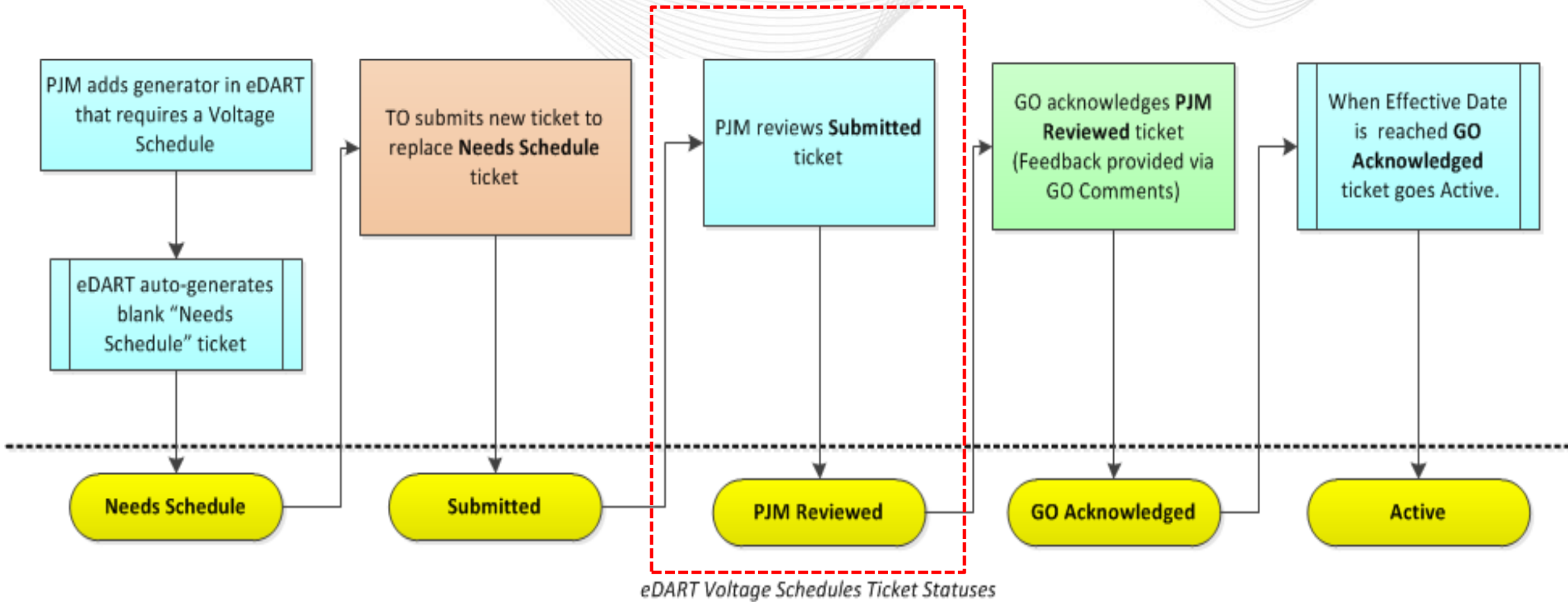
## Required Entries:

- Regulated Bus Name
- Normal Load Condition Schedule Values:
  - Target/Lower Tolerance/ Upper Tolerance
- Effective Date
- Status

## Optional Entries:

- Light and Heavy Load Condition Schedule Values:
  - Target/Lower Tolerance/ Upper Tolerance
- TO Comments
- File Attachment (Required for TO Exempt tickets)

# Voltage Schedules Ticket Process Flow





## Voltage Schedule Ticket Details (as of 05/11/2022 15:22)

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
3115	GO Company A	XX	New Test Unit 1	Voltage	525.0	8.0	8.0							05/12/2022	PJM Reviewed	
	TO Company X		TEST 500 KV UNIT 1	(KV)		517.0	533.0									
			TEST 500 KV West Bus													

**Status Date:**  
05/11/2022 16:29  
**Last Modified Date:**  
05/11/2022 16:29

TO Comments:  GO Comments:  PJM Comments:

Needs Schedule (14 / 13)  
  Submitted (1 / 1)  
  Pending Review (0 / 0)  
  TO Review (0 / 1)  
  Trans. Owner   
  Unit Type

PJM Reviewed (1 / 0)  
  GO Acknowledged (0 / 0)  
  Saved (1 / 0)  
  Active (2 / 3)  
  Gen. Owner   
  Unit Name

Completed (0 / 0)  
  Canceled by TO (0 / 0)  
  Canceled by PJM (1 / 0)  
  Trans. Zone   
  Ticket #

In Effect  
  Canceled Prev. Ack. (0 / 0)  
  Late (2 / 2)  
  GO Comments (0 / 0)  
  From Date   
  To Date   
  Incl. Hist.  
  Eff. Date  
  TO Date  
  GO Date

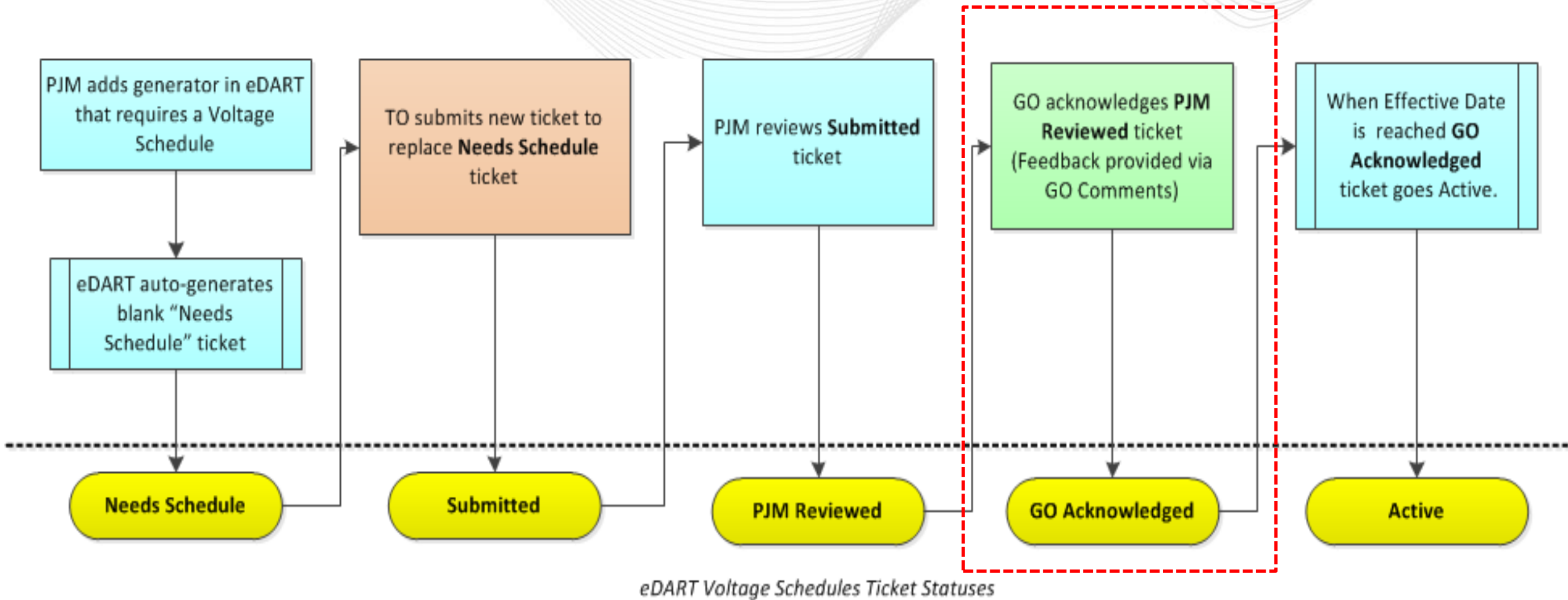
- Apply Filter
- Clear Filter
- Files (0)
- History Log
- Submit Form
- Close
- Main Menu
- Help
- TO Schedule Philosophy

## Voltage Schedule Tickets

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	Comments
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
3115	GO Company A TO Company X	XX	New Test Unit 1 TEST 500 KV UNIT 1 TEST 500 KV West Bus	Voltage(KV)	525.0	517.0	533.0							05/12/2022	PJM Reviewed	TO: <input type="text"/> GO: <input type="text"/> PJM: <input type="text"/>



# Voltage Schedules Ticket Process Flow



Voltage Schedule Tickets																
Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	Comments
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
3115 <a href="#">Download</a>	GO Company A	XX	New Test Unit 1	Voltage(KV)	525.0	517.0	533.0						05/12/2022	PJM Reviewed	TO: <input type="text"/>	
	TO Company X		TEST 500 KV UNIT 1												GO: <input type="text"/>	
	TEST 500 KV West Bus		PJM: <input type="text"/>													

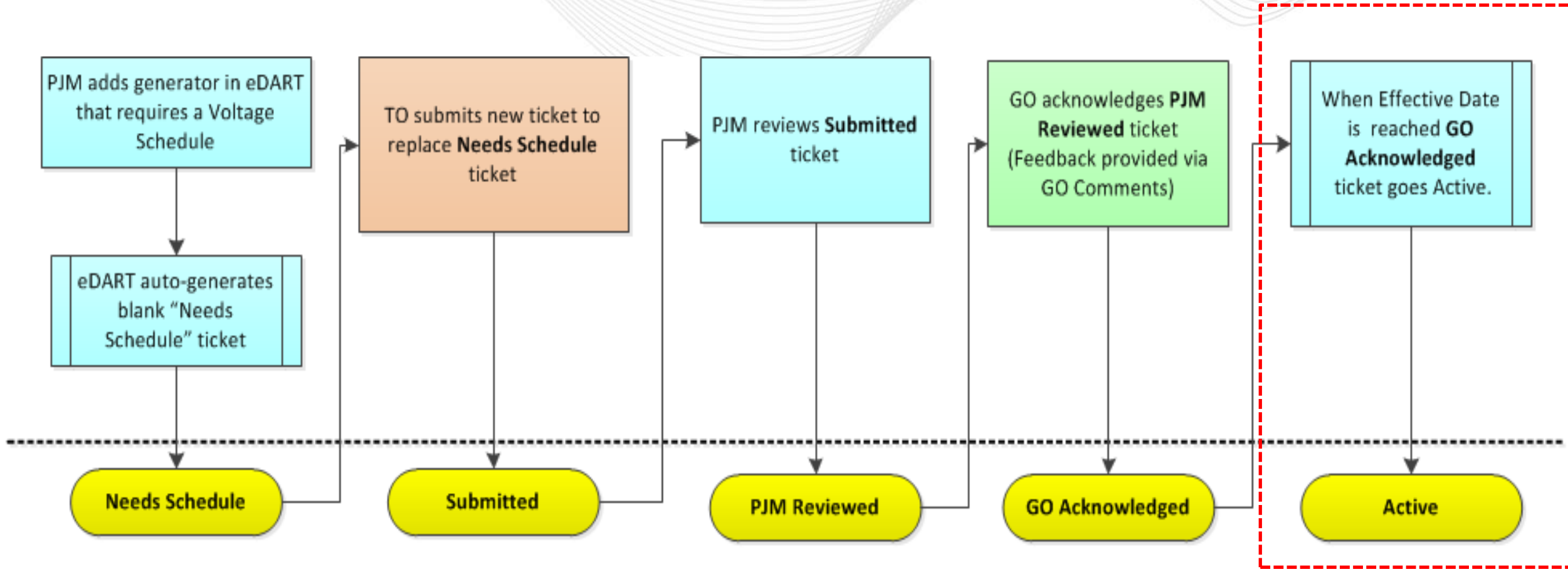
- Click download link to download file(s) as a zip file
- Extract and open attached file(s) using Windows Explorer file options

The screenshot shows a Windows Explorer window with the file 'Test Unit\_Voltage\_Schedule\_Letter.pdf' in the Downloads folder. Below it, the Adobe Acrobat Reader window is open, displaying the PDF content. The document title is 'Test Unit\_Voltage\_Schedule\_Letter.pdf - Adobe Acrobat Reader'. The content includes a section for 'Target Voltage Schedule and Range' with a table of generator data.

Generator	Maximum Voltage (kV)	Minimum Voltage (kV)	Voltage Range (kV)	Monitored Bus
Test Unit 1	517	533	525 +/- 8 kV	Test 500 kV West bus

Below the table, there is a section titled 'Operation Outside of Target Voltage Schedule and Range' with detailed instructions for generator operation and notification requirements.

# Voltage Schedules Ticket Process Flow



*eDART Voltage Schedules Ticket Statuses*

- A ticket in GO Acknowledged status will turn active once the effective date of the ticket has been reached.
- Old Active Voltage Schedule tickets are automatically completed once a new GO Approved ticket turns Active by reaching its Effective Date.
- Active tickets are highlighted by a **mint-green** tab on the Voltage Schedule Tickets listing.

### Voltage Schedule Ticket Details (as of 05/12/2022 13:28)

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper		
3115	GO Company A	XX	New Test Unit 1	Voltage (KV)	525.0	8.0	8.0							05/12/2022	Active Status Date: 05/12/2022 00:02 Last Modified Date: 05/12/2022 00:02
	TO Company X		TEST 500 KV UNIT 1		517.0	533.0									
			TEST 500 KV West Bus												

TO Comments: 
 GO Comments: 
 PJM Comments:

Needs Schedule (3 / 23)
  Submitted (8 / 0)
  Pending Review (0 / 0)
  TO Review (0 / 0)
  PJM Reviewed (2 / 0)
  GO Acknowledged (1 / 0)
  Saved (2 / 0)
  Active (4 / 0)
  Completed (0 / 0)
  Canceled by TO (0 / 0)
  Canceled by PJM (1 / 0)
  In Effect
  Canceled Prev. Ack. (0 / 0)
  Late (4 / 0)
  GO Comments (0 / 0)

Trans. Owner: 
 Unit Type: 
 Gen. Owner: 
 Unit Name: 
 Trans. Zone: 
 Ticket #: 
 From Date:  To Date: 
 Incl. Hist.  Eff. Date  TO Date  GO Date

- Apply Filter
- Clear Filter
- History Log
- Close
- Main Menu
- Help
- TO Schedule Philosophy

### Voltage Schedule Tickets

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status	Comments
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper			
3115	GO Company A TO Company X	XX	New Test Unit 1 TEST 500 KV UNIT 1 TEST 500 KV West Bus	Voltage(KV)	525.0	517.0	533.0							05/12/2022	Active	TO: <input type="text"/> GO: <input type="text" value="GO Company A has no concerns with the"/> PJM: <input type="text"/>

# Voltage Schedule Criteria



Submission, by TO, and review of Voltage Schedule (VS) Criteria is in accordance with VAR-001-5 R5.3 standard.

## Status Definitions

- **Submitted:** new VS Criteria status when submitted to PJM
- **Approved:** VS Criteria reviewed and approved by PJM
- **Denied:** VS Criteria reviewed and not approved by PJM
- **Active:** Approved VS Criteria is in effect
- **Completed:** VS Criteria is no longer in effect; may be replaced by a new Active VS Criteria
- **Cancelled:** VS Criteria cancelled by PJM or TO



- My eDART
- Upload
- Download
- Trans. Tickets**
- Network Model
- Black Start
- TERM
- Reactive Reserve
- Instantaneous Reserve Check
- Minimum Gen. Report
- PJM Status Report
- NERC Data
- Online Help
- Feedback
- Logout

- After logging into eDART, click on the Transmission Tickets Button to access the Transmission Outage Main Menu.
- The Transmission Outage Main Menu is shown on the right.

- Click on the Voltage Schedules Criteria button and you will arrive at the Voltage Schedules Criteria Report
- Button will be **RED** if there is **no** Submitted, Approved or Active VS Criteria OR VS Criteria was Denied in the last 5 days

**Transmission Outage Main Menu**

<a href="#">Create New Outage Ticket</a>	<a href="#">View/Revise Outage Ticket</a>	<a href="#">EMS Trip Update</a>	<a href="#">Gen Outage Lookup</a>
<a href="#">Future Facilities</a>	<a href="#">Current One Line Diagrams</a>	<a href="#">RTEP Queue # Update</a>	<a href="#">Cause Lookup</a>
<a href="#">View / Revise Projects</a>	<a href="#">New Project</a>	<a href="#">Network Model Link</a>	

**Transmission Reports**

<a href="#">Status Report</a>	<a href="#">Trans. Outage Tickets Report</a>	<a href="#">Tickets Active Tomorrow</a>	<a href="#">Cut-In Tickets</a>
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Submitted: 7 / 3 Revised: 0 / 2 Received: 236 / 76 Cut-In Today: 32 / 32 Cut-In Near Future: 32 / 32  
Approved: 11 / 1 Active: 38 / 21

**Conflicts**

<a href="#">Conflicting Outages</a>	<a href="#">Confl. Identifier Facility List</a>	<a href="#">Confl. Identifier Group List</a>	<a href="#">Gen Off Scenario List</a>
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Review Needed: 2

Submitted: 0 Revised: 0 Received: 0 Approved: 0 Active: 0

**System Impacts**

<a href="#">Per Impact</a>	<a href="#">Per Facility</a>	<a href="#">Impacts Report</a>
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**Generation Reports**

<a href="#">Generation Ack. Required</a>	<a href="#">Owners Report</a>	<a href="#">Tickets Active Tomorrow</a>
<a href="#">D-Curve Report</a>	<a href="#">Reactive Test Result</a>	

[Voltage Schedules](#)     Voltage Schedules Criteria

Notifications: 3

**Notification Reports**

<a href="#">Transmission Ack. Required</a>	<a href="#">Notifications Report</a>	<a href="#">Notifications Request Form</a>
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Notifications: 102

**Facility Outages Reports**

<a href="#">Current &amp; Future</a>	<a href="#">Historical</a>	<a href="#">EMS Outage List</a>	<a href="#">Public Files</a>
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**Voltage Schedule Criteria Report**

Status:  Submitted  Approved  Denied  Canceled by Company  Canceled by PJM  Active  Completed Include Notifications:  Include Historical:  From Date:  To Date:

[Apply Filter](#) [Refresh](#) [Create New Criteria](#) [Main Menu](#)

**Generation Reports**

- Generation Ack. Required
- Owners Report
- Tickets Active Tomorrow
- D-Curve Report
- Reactive Test Result
- Nuclear Voltage Limit
- Voltage Schedules**
- Voltage Schedules Criteria**

Notifications: 110

**New Voltage Schedule Criteria**

Company:  Effective Date:

Criteria:

[Submit Form](#) [Refresh](#) [Back to Report](#) [Main Menu](#)

Submitted, Approved, Denied and Active VS Criteria Tickets are selected by default

**Voltage Schedule Criteria Report**

Status:  Submitted  Approved  Denied  Canceled by Company  Canceled by PJM  Active  Completed Include Notifications:  Include Historical:  From Date:  To Date:

[Apply Filter](#) [Refresh](#) [Create New Criteria](#) [Main Menu](#)

ID	Company	Status	Eff. Date	Start Date	End Date	Criteria	Files
<a href="#">2201</a>	[REDACTED]	Approved	05/23/2022			Test	<a href="#">Download (1 files)</a>
<a href="#">2203</a>	[REDACTED]	Denied	05/12/2022			Test	<a href="#">Download (0 files)</a>
<a href="#">2063</a>	[REDACTED]	Active	04/20/2022	04/19/2022		Test	<a href="#">Download (0 files)</a>

[Apply Filter](#) [Refresh](#) [Create New Criteria](#) [Main Menu](#)

Check 'Include Notifications' to include VS Criteria from TOs of Informational VS Tickets

Check to include VS Criteria completed or cancelled 40 or more days ago

**Voltage Schedule Criteria Report**

Status:  Submitted  Approved  Denied  Canceled by Company  Canceled by PJM  Active  Completed  Include Notifications:  Include Historical:  From Date:  To Date:

ID	Company	Status	Eff. Date	Start Date	End Date	Criteria	Files
<a href="#">2201</a>	[Redacted]	Approved	05/23/2022			Test	<a href="#">Download (1 files)</a>
<a href="#">2203</a>	[Redacted]	Denied	05/12/2022			Test	<a href="#">Download (0 files)</a>
<a href="#">2063</a>	[Redacted]	Active	04/20/2022	04/19/2022		Test	<a href="#">Download (0 files)</a>

Click to download zip of attached files and text file with information in Criteria field

**Voltage Schedule Criteria Report**

Status:  Submitted  Approved  Denied  Canceled by Company  Canceled by PJM  Active  Completed Include Notifications:  Include Historical:  From Date:  To Date:

[Apply Filter](#) [Refresh](#) [Create New Criteria](#) [Main Menu](#)

ID	Company	Status	Eff. Date	Start Date	End Date	Criteria	Files
<a href="#">2201</a>	[Redacted]	Approved	05/23/2022			Test	<a href="#">Download (1 files)</a>
<a href="#">2063</a>	[Redacted]	Active	04/20/2022	04/19/2022		Test	<a href="#">Download (0 files)</a>

[Apply Filter](#) [Refresh](#) [Create New Criteria](#) [Main Menu](#)

**Voltage Schedule Criteria Review (2201)**

Company: [Redacted] Status:  Effective Date:

Criteria:

PJM Comments:

History Log		
Status	User	Time
Approved	[Redacted]	05/10/2022 15:16
Submitted	[Redacted]	05/10/2022 15:15

[Submit Form](#) [Refresh](#) [Files \(1\)](#) [Back to Report](#) [Main Menu](#)

# eDART Voltage Schedules – Appendix

- **Submitted:** The ticket is submitted and ready for PJM to review.
- **Saved:** This is a save state for TOs. TOs can close the ticket and come back to work on it at a later time.
- **TO Review:** PJM sent ticket back to TO with comments for review.
- **PJM Reviewed:** PJM has reviewed the ticket and it is pending GO acknowledgement.
- **GO Acknowledged:** GO has acknowledged ticket.



- **Active:** The ticket is in effect.
- **Completed:** The ticket has been replaced by another active ticket for that unit.
- **Canceled by TO:** TO canceled the ticket.
- **Canceled by PJM:** PJM canceled the ticket.

There are 4 types of Voltage Schedules tickets:

- Voltage
- Power Factor
- Reactive
- TO Exempt

## Required fields:

- Normal (Target Value, Lower Limit, and Upper Limit in KV)
- Effective Date
- Status
- Bus Name

**Voltage Schedule Ticket Details (as of 05/16/2022 09:17)**

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper		
3031	TEST GO Company 1 TEST TO Company 1	TEST	TEST Unit 1 TEST Equipment 1	Voltage (KV)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	10/01/2023	Saved  Status Date: 05/16/2022 09:16 Last Modified Date: 05/16/2022 09:16
			<input type="text" value="Test"/>												
TO Comments:		<input type="text"/>		GO Comments:		<input type="text"/>		PJM Comments:		<input type="text"/>					

```
<voltageSchedule>
  <unitNumber>1234</unitNumber>
  <scheduleType>Voltage</scheduleType>
  <effectiveDate>2023-10-01T00:00:00.000-04:00</effectiveDate>
  <status>Submitted</status>
  <busName>test2</busName>
  <toComments>Test Voltage Schedule</toComments>
  <normalValues>
    <target>138</target>
    <lowerBound>4</lowerBound>
    <upperBound>2</upperBound>
  </normalValues>
  <lightValues>
    <target>140</target>
    <lowerBound>3</lowerBound>
    <upperBound>5</upperBound>
  </lightValues>
  <heavyValues>
    <target>142</target>
    <lowerBound>1</lowerBound>
    <upperBound>4</upperBound>
  </heavyValues>
</voltageSchedule>
```

## Required Fields.

- Normal (Target Value, Lower Limit in %, and Upper Limit in %)
- Lead, Lag and Unity
- Effective Date
- Status
- Bus Name

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper		
3029	TEST GO Company TEST TO Company	BC	TEST Unit TEST Equipment <input type="text"/>	PowerFactor (PF)	<input type="text"/>	<input type="text"/> %	<input type="text"/> %	<input type="text"/>	<input type="text"/> %	<input type="text"/> %	<input type="text"/>	<input type="text"/> %	<input type="text"/> %	10/01/2023	TO Review Status Date: 05/16/2022 09:16 Last Modified Date: 05/16/2022 09:16

```
<voltageSchedule>
  <unitNumber>1234</unitNumber>
  <scheduleType>PowerFactor</scheduleType>
  <effectiveDate>2023-08-01T00:00:00.000-04:00</effectiveDate>
  <status>Submitted</status>
  <busName>Test</busName>
  <normalValues>
    <target>0.8</target>
    <pfType>Lead</pfType>
    <lowerBound>2</lowerBound>
    <upperBound>2</upperBound>
  </normalValues>
  <lightValues>
    <target>1</target>
    <pfType>Unity</pfType>
    <lowerBound>2</lowerBound>
    <upperBound>0</upperBound>
  </lightValues>
  <heavyValues>
    <target>0.8</target>
    <pfType>Lag</pfType>
    <lowerBound>1</lowerBound>
    <upperBound>1</upperBound>
  </heavyValues>
</voltageSchedule>
```



## Required fields:

- Bus Name
- Normal (Target Value, Lower Limit, and Upper Limit in MVAR)
- Effective Date
- Status

**Voltage Schedule Ticket Details (as of 05/11/2022 15:22)**

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper		
	TEST GO Company TEST TO Company	TEST	TEST UNIT 4 TEST Equipment 4	Reactive (MVAR)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Submitted
TO Comments:			<input type="text"/>	GO Comments:			<input type="text"/>	PJM Comments:			<input type="text"/>				

```
<voltageSchedule>
  <unitNumber>1234</unitNumber>
  <scheduleType>Reactive</scheduleType>
  <effectiveDate>2023-04-01T00:00:00.000-04:00</effectiveDate>
  <status>Submitted</status>
  <busName>test2</busName>
  <toComments>Test Reactive Voltage Schedule</toComments>
  <normalValues>
    <target>500</target>
    <lowerBound>4</lowerBound>
    <upperBound>2</upperBound>
  </normalValues>
  <lightValues>
    <target>550</target>
    <lowerBound>3</lowerBound>
    <upperBound>5</upperBound>
  </lightValues>
  <heavyValues>
    <target>480</target>
    <lowerBound>1</lowerBound>
    <upperBound>4</upperBound>
  </heavyValues>
</voltageSchedule>
```

- TO Exempt Tickets allow Transmission Owners to request a Voltage Schedule exemption for units that meet PJM's criteria.

**Voltage Schedule Ticket Details (as of 05/11/2022 15:22)**

Ticket #	GO Company TO Company	TR Zone	Unit Name Equipment Name Bus Name	Voltage Schedule Type	Normal			Light			Heavy			Effective Date	Status
					Target	Lower	Upper	Target	Lower	Upper	Target	Lower	Upper		
3031	TEST GO Company TEST TO Company	TEST	TEST UNIT 1 TEST Equipment 1 Test	TO Exempt									06/22/2023	Saved Status Date: 05/16/2022 09:29 Last Modified Date: 05/16/2022 09:29	

TO Comments:  GO Comments:  PJM Comments:

Needs Schedule (11 / 38)  
  Submitted (6 / 0)  
  Pending Review (0 / 0)  
  TO Review (0 / 0)  
  PJM Reviewed (1 / 0)  
  GO Acknowledged (0 / 0)  
  Saved (2 / 1)  
  Active (5 / 1)  
  Completed (0 / 0)  
  Canceled by TO (0 / 0)  
  Canceled by PJM (45 / 0)  
  In Effect  
  Canceled Prev. Ack. (38 / 0)  
  Late (5 / 1)  
  GO Comments (0 / 0)

Trans. Owner:    Unit Type:   
 Gen. Owner:    Unit Name:   
 Trans. Zone:    Ticket #:   
 From Date:  To Date:  Incl. Hist.  Eff. Date  TO Date  GO Date

File attachment is required to provide justification for the requested exemption

Ticket will be created in Saved status.

- TO should login on the web UI to attach file and submit ticket.

```
<voltageSchedule>
  <unitNumber>1234</unitNumber>
  <scheduleType>TO Exempt</scheduleType>
  <effectiveDate>2022-06-01T00:00:00.000-04:00</effectiveDate>
  <status>Saved</status>
  <busName>Test</busName>
  <toComments>Test TO Exempt Voltage Schedule</toComments>
</voltageSchedule>
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<vs:voltageScheduleResponses xsi:schemaLocation="http://www.pjm.com/external/schemas/voltageschedule/v1"
xmlns:vs="http://www.pjm.com/external/schemas/voltageschedule/v1 voltageschedule.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

  <voltageScheduleResponse>
    <uploadStatusMessage>New Ticket# 1111 created.</uploadStatusMessage>
    <ticketId>1111</ticketId>
    <ticketStatus>Saved</ticketStatus>
    <unitNumber>1234</unitNumber>
    <effectiveDate>2022-06-01T00:00:00.000-04:00</effectiveDate>
  </voltageScheduleResponse>

</vs:voltageScheduleResponses>
```

For more information please refer to [edart-user-guide.ashx \(pjm.com\)](https://www.pjm.com/-/media/etools/edart/edart-user-guide.ashx)  
(<https://www.pjm.com/-/media/etools/edart/edart-user-guide.ashx>)

For more information about VS XML Upload/Download please refer to  
[Dart Browserless User Guide \(pjm.com\)](https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx)  
(<https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx>)

For additional help, please contact [VoltageSchedules@pjm.com](mailto:VoltageSchedules@pjm.com)