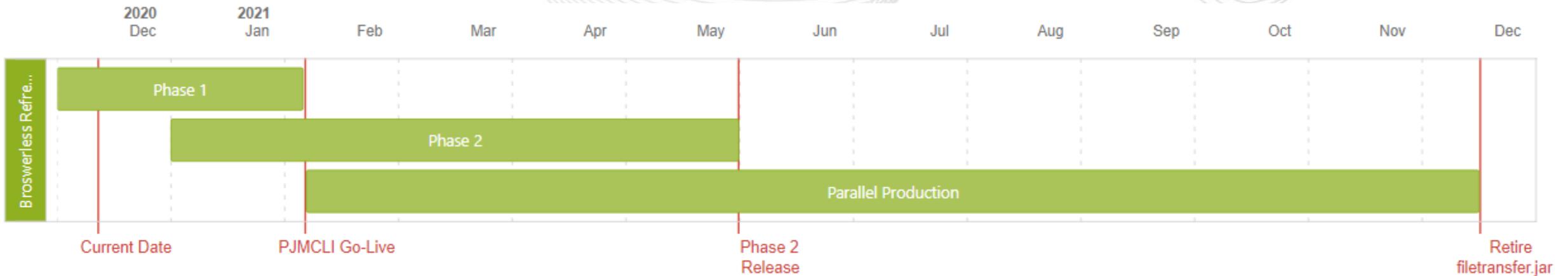# eDART January 2021 Enhancements

eDART Forum Meeting

12/14/2020

- General Discussion Topics

- January 2021 Enhancements

  – General Enhancements

  – Generation Related Enhancements

  – Transmission Related Enhancements

  – Nuclear Bus Voltage Limits in eDART
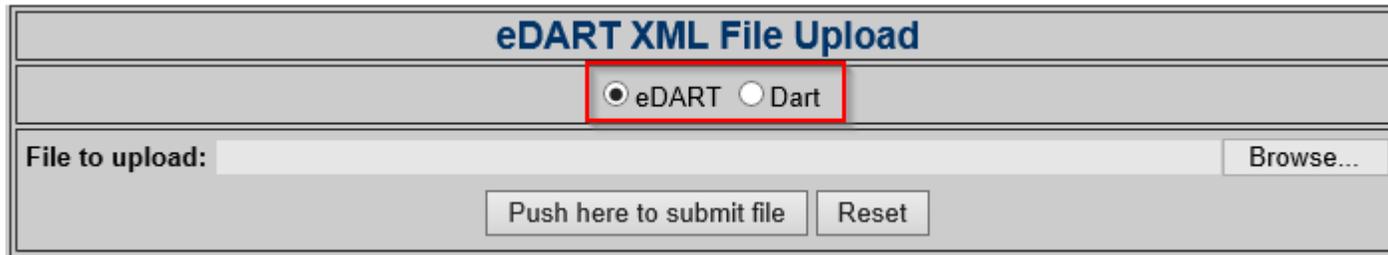
- Question and Answer

General Discussion Topics

Key take-away:

- The Phase 1 transition to PJMCLI is expected to be completed in early Q1 2021
- Phase 2 = Minor enhancements and fixes
- An updated User's Guide and training will be provided for each phase
- The filetransfer.jar and legacy URLs will be retired in December 2021

More details available in October eDART XML Forum presentation.

Option to use eDART or Dart will be available as part of Phase 1 for the browser uploads and downloads.

- eDART selected by default.

With the eDART refresh, management of eDART accounts will be migrated to Account Manager.

In preparation for that:

- Use Account Manager User ID for new eDART account requests.

- Update email addresses for existing accounts.

- Clean up dormant and invalid accounts.

January 2021 Enhancements

Production release of January enhancements planned for Wednesday, January ~~13th~~ 20th.

- eDART unavailability will be announced at least 3 business days prior.

Sandbox/Training release planned for Thursday, December 17th.

General Enhancements

Impact to all eDART Users

Flash will no longer be supported in Chrome beginning in December 2020.

eDART home page will be replaced with a dashboard showing **company** actions required.

- Actions required correspond to Red or Orange buttons and notices in eDART.

- For Agents, Member dashboards will be displayed.

- Important and Application Messages currently displayed on the eDART login page will also be displayed on the eDART Dashboard.

Generation User – Actions Required

eDART Dashboard
(As of: 12/07/2020 18:08)

Company: ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓

Actions Required:
  Generation: **Nuclear Voltage Limit Ticket, Open IRC, Voltage Schedules**

Important Message(s):
- Welcome to eDART! For eDART training and registration information please click here.

Application Message(s):
- **Semi-Annual Reactive Capability Review**

  The 2nd phase of the review is in progress. PJM requests that Transmission Owners review updated D-Curve data in eDART by (a) reviewing MVAR tickets entered in their zones using the Transmission Owners Report; and (b) reviewing unit D-Curve data as currently modeled in the PJM EMS for units in their zones using the D-Curve Report.

Generation User – No Actions Required

eDART Dashboard
(As of: 12/07/2020 18:09)

Company: ▓▓▓▓▓▓▓▓▓▓▓▓

Actions Required:
  Generation: **None**

Important Message(s):
- Welcome to eDART! For eDART training and registration information please click here.

Application Message(s):
- **Semi-Annual Reactive Capability Review**

  The 2nd phase of the review is in progress. PJM requests that Transmission Owners review updated D-Curve data in eDART by (a) reviewing MVAR tickets entered in their zones using the Transmission Owners Report; and (b) reviewing unit D-Curve data as currently modeled in the PJM EMS for units in their zones using the D-Curve Report.

Transmission User – Actions Required

eDART Dashboard
(As of: 12/07/2020 18:15)

Company: [redacted]

Actions Required:
Transmission: **Conflict Review, EMS Trip Update, Lat/Long Update, Nuclear Voltage Limit Open RRC**

Important Message(s):
- Welcome to eDART! For eDART training and registration information please click here.

Application Message(s):
- **Semi-Annual Reactive Capability Review**

The 2nd phase of the review is in progress. PJM requests that Transmission Owners review updated D-Curve data in eDART by (a) reviewing MVAR tickets entered in their zones using the Transmission Owners Report; and (b) reviewing unit D-Curve data as currently modeled in the PJM EMS for units in their zones using the D-Curve Report.

Transmission User – No Actions Required

eDART Dashboard
(As of: 12/07/2020 18:14)

Company: [redacted]

Actions Required:
Transmission: None

Important Message(s):
- Welcome to eDART! For eDART training and registration information please click here.

Application Message(s):
- **Semi-Annual Reactive Capability Review**

The 2nd phase of the review is in progress. PJM requests that Transmission Owners review updated D-Curve data in eDART by (a) reviewing MVAR tickets entered in their zones using the Transmission Owners Report; and (b) reviewing unit D-Curve data as currently modeled in the PJM EMS for units in their zones using the D-Curve Report.

Agent User – Actions Required

Generic User – No Actions Available

eDART Dashboard
(As of: 12/07/2020 18:12)

Company: _____

Actions Required:
Transmission: Conflict Review, Cut-In Near Future, Cut-In Today, EMS Trip Update Lat/Long Update, Nuclear Voltage Limit, Open RRC, TERM Tickets Transmission Tickets

Company: _____

Actions Required:
Transmission: Cut-In Today, EMS Trip Update, Lat/Long Update, Open RRC TERM Tickets, Transmission Tickets

Company: _____

Actions Required:
Transmission: Conflict Review, EMS Trip Update, Lat/Long Update, Nuclear Voltage Limit Open RRC

Important Message(s):
- Welcome to eDART! For eDART training and registration information please click here.
Application Message(s):
- **Semi-Annual Reactive Capability Review**

The 2nd phase of the review is in progress. PJM requests that Transmission Owners review updated D-Curve data in eDART by (a) reviewing MVAR tickets entered in their zones using the Transmission Owners Report; and (b) reviewing unit D-Curve data as currently modeled in the PJM EMS for units in their zones using the D-Curve Report.

eDART Dashboard
(12/07/2020 18:07)

Company: PJM Interconnection (PJM)

Important Message(s):
- Welcome to eDART! For eDART training and registration information please click here.
Application Message(s):
- **Semi-Annual Reactive Capability Review**

The 2nd phase of the review is in progress. PJM requests that Transmission Owners review updated D-Curve data in eDART by (a) reviewing MVAR tickets entered in their zones using the Transmission Owners Report; and (b) reviewing unit D-Curve data as currently modeled in the PJM EMS for units in their zones using the D-Curve Report.

Currently, eDART checks the text after the first period in a file name to determine the file type and confirm it is an allowed file type for upload.

E.g. 'test.pdf' is identified as a PDF file but 'test.123.pdf' is considered an invalid file type.

Since Windows now allows periods in a file name, eDART will check the last period in a file name to determine the file type.

E.g. 'test.123.pdf' will be identified as a PDF file

The timestamps on the Public Files page are currently in GMT - they will be updated to EST to match what is actually displayed in the files.

Generation Related Enhancements

Impact to Generation Users

- New business rules to help prevent recent incident where MW outage tickets had over 50k revisions resulting in performance issues.

  - Revisions of Est. Start Date if the ticket is Active will be rejected (i.e. ticket is already started).

  - Reduction revisions equal to the current ticket reduction will be rejected (i.e. no change to the reduction).

- New business rule to prevent no duration tickets: Est./Ramp Start Date cannot equal Est. End Date

Currently the GO SURVEY button will only turn red if there is an open unit level survey which the GO has not completed.

e.g. Fuel Surveys

Enhancement is to turn the GO SURVEY button red for open company level surveys as well that are not complete.

e.g. Cold Weather Preparation Checklists

Transmission Related Enhancements

Impact to Transmission Users

Awareness Only Tickets

- The Status Only designation is applied to facilities which are non-BES and not in Congestion Management but may have impact on reliability or economics of the system.
  - PJM does not maintain ratings/limits on these facilities
  - TOs required to report outages on them but not to call before taking an outage
- eDART does not currently distinguish between equipment monitored priorities on tickets.
  - PJM and TO assume all tickets require the same level of scrutiny/coordination
  - This can lead to delays in switching

GROUP 1

GROUP 2

- eDART Transmission Tickets will be broken into 2 Groups:

Group 1: Permission to Proceed

(Monitored Priority 1, 2, 6, 7)

Group 2: Status Only (Monitored Priority 3) and
Not Monitored, No Status (Monitored Priority 0)

– Group 2 are also known as Awareness Only Transmission Tickets

GROUP 1

GROUP 2

Group 1: Permission to Proceed (Monitored Priority 1,2,6,7)

– Any equipment that requires coordination

– Congestion or Cut-In Flag is checked

– Equipment in active System Impact Note

– Equipment in active Conflict Scenario

– Ticket cannot Start/End without a call to PJM

– Tickets will be locked once they are Approved
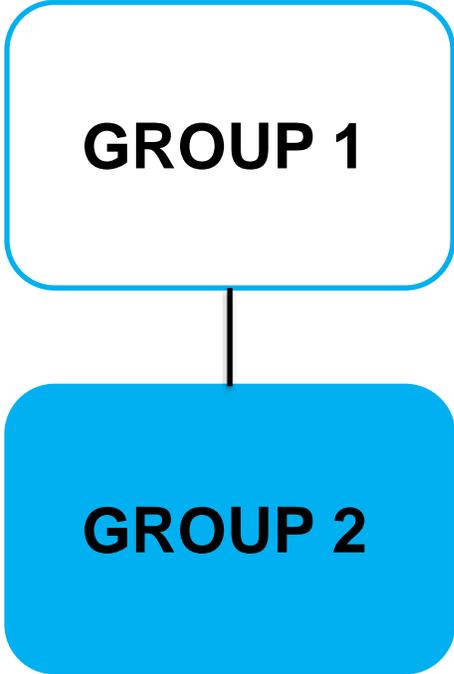
GROUP 1

GROUP 2

Group 2: Status Only (Monitored Priority 3) and Not Monitored, No Status (Monitored Priority 0)

- If telemetry is available, ticket will auto start/end
  - Otherwise, a call to PJM will be required in order to activate and end the ticket
- Ticket will be Auto-Approved after PJM engineer receives it
- "Submit On-Time" rules will not be applicable
- Ticket will remain unlocked for editing
  - Members can edit anything on tickets that are Not Activated
  - Members can only change comments and future dates if Active
- Emergency trip tickets will be created for MP3 equipment only
- Ticket will be Auto-cancelled if ticket is not yet Active 24 hours after the Ticket End Date.

- If a ticket has a mix of Monitored Priority Equipment, eDART will use the highest MP level (Group 1 > Group 2) to determine the correct group.

  - E.g. a ticket with MP2 and MP3 equipment will be regarded as a Permission to Proceed ticket.

- If Monitored Priority for LINE, XFMR, PS and SD cannot be determined, the station voltage MP will be used.

- For other equipment, the most restrictive between the equipment MP and station voltage MP will be used.

Other Transmission Related Enhancements

- New business rule to prevent equipment from having conflicting default status changes for the same day.
  - i.e. no 2 trans tickets ending the same day (per day; not time) should have opposite default status changes for the same equipment.
  - no impact to the equipment status for the outage (open, closed, reactive, etc.)

- Logic to flag a ticket with only breakers as Potentially Incomplete to be removed.
  - Other PJM tools being used to validate equipment on tickets.

- TO company short name to be added to the subject of any Restoration Plan Update emails that do not include it. Short name will also replace the TO zone where applicable.

- Refresh buttons on Reactive Reserve Check forms/reports will now refresh the equipment page user is on instead of refreshing & resetting to the Capacitors page.

Nuclear Bus Voltage Limits

Impact to Nuclear Generation
Owners and applicable
Transmission Companies

In compliance with NERC standard NUC-001, Nuclear Generation Owners (NGOs), develop Nuclear Plant Interface Requirements (NPIRs)

– NPIRs, in part, define safe shutdown voltage limits

Applicable Transmission entities monitor the transmission system as not to violate the NPIRs

To gain efficiencies for TOs, NGOs, and PJM, Nuclear Bus Voltage Limits will be maintained in eDART

Stand alone application within eDART, limited to NGOs and applicable TOs

- New eDART ticket type: Nuclear Bus Voltage Limit Change
- Current limits and upcoming limit changes will be visible to all applicable entities
- eDART will be the primary input for Nuclear Bus Voltage Limit changes; Manual 3 Attachment C available as backup

New Process for Temporary Pre-Approved Voltage Limit Changes

```
┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│ Default plant       │     │                     │     │ GO submits a        │     │ PJM Receives the    │
│ configuration NPIR  │     │ Plant schedules a   │     │ temporary Nuclear   │     │ temporary Nuclear   │
│ Voltage Limits      │ ──▶ │ temporary           │ ──▶ │ Bus Voltage Limit   │ ──▶ │ Bus Voltage Limit   │
│ effective in eDART  │     │ configuration       │     │ Change ticket       │     │ Change eDART        │
│ and EMS             │     │ change              │     │ through a dedicated │     │ ticket/TO           │
│                     │     │                     │     │ eDART interface     │     │ automatically       │
│                     │     │                     │     │                     │     │ notified            │
└─────────────────────┘     └─────────────────────┘     └─────────────────────┘     └─────────────────────┘
```

```
┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│ PJM, TO and plant   │     │                     │     │ Temporary Nuclear   │     │                     │
│ coordinate via      │     │ PJM and TO update   │     │ Bus Voltage Limit   │     │                     │
│ phone call prior to │ ──▶ │ applicable voltage  │ ──▶ │ Change eDART ticket │ ──▶ │ Plant performs work │
│ start of            │     │ limits within their │     │ Implemented         │     │                     │
│ configuration       │     │ EMS                 │     │                     │     │                     │
│ change              │     │                     │     │                     │     │                     │
└─────────────────────┘     └─────────────────────┘     └─────────────────────┘     └─────────────────────┘
```
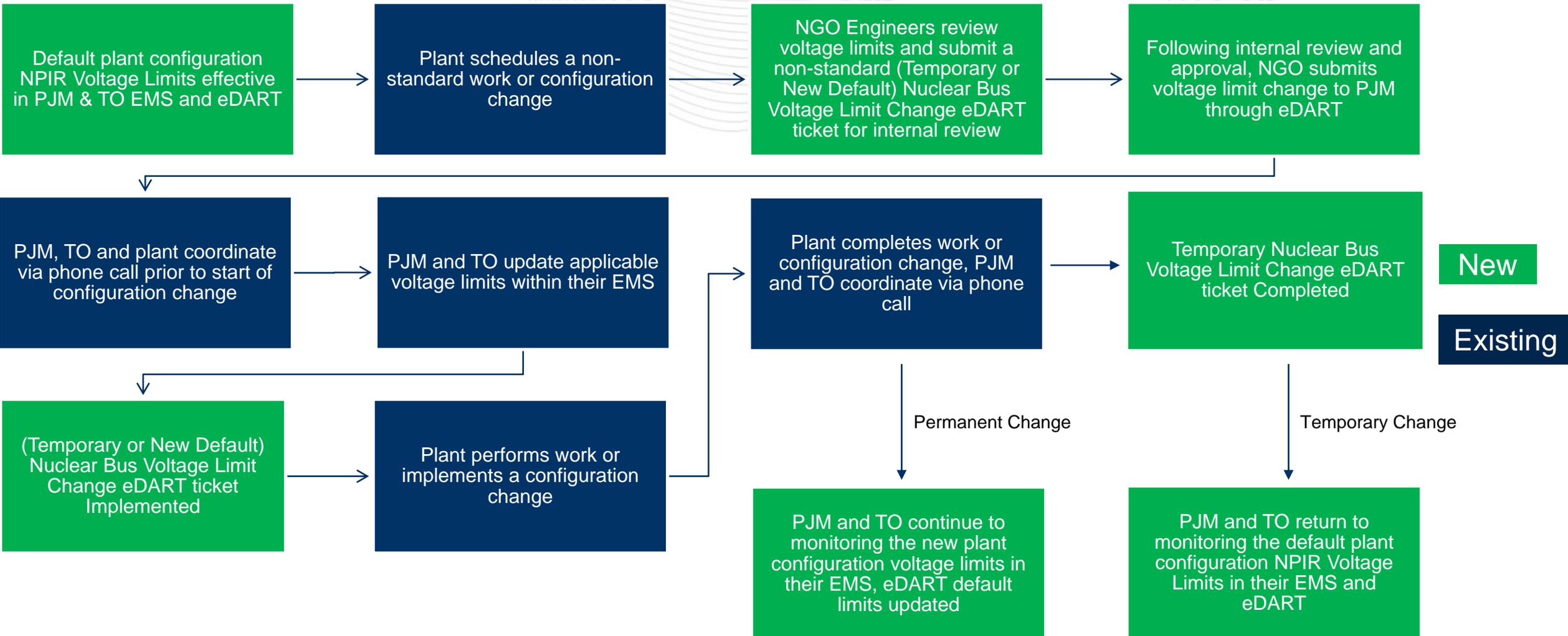
```
┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│ Plant completes     │     │                     │     │ Temporary Nuclear   │     │ Default plant       │
│ work, PJM and TO    │     │ PJM and TO update   │     │ Bus Voltage Limit   │     │ configuration NPIR  │
│ coordinate via      │ ──▶ │ applicable voltage  │ ──▶ │ Change eDART ticket │ ──▶ │ Voltage Limits      │
│ phone call          │     │ limits within their │     │ Completed           │     │ effective in eDART  │
│                     │     │ EMS                 │     │                     │     │ and EMS             │
└─────────────────────┘     └─────────────────────┘     └─────────────────────┘     └─────────────────────┘
```

New

Existing

New Process for Voltage Limit Changes Outside of NPIRs

```
┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│ Default plant       │     │                     │     │ NGO Engineers review│     │                     │
│ configuration       │     │ Plant schedules a   │     │ voltage limits and  │     │ Following internal  │
│ NPIR Voltage Limits │ ──▶ │ non-standard work   │ ──▶ │ submit a non-       │ ──▶ │ review and approval,│
│ effective in PJM &  │     │ or configuration    │     │ standard (Temporary │     │ NGO submits voltage │
│ TO EMS and eDART    │     │ change              │     │ or New Default)     │     │ limit change to PJM │
│                     │     │                     │     │ Nuclear Bus Voltage │     │ through eDART       │
│                     │     │                     │     │ Limit Change eDART  │     │                     │
│                     │     │                     │     │ ticket for internal │     │                     │
│                     │     │                     │     │ review              │     │                     │
└─────────────────────┘     └─────────────────────┘     └─────────────────────┘     └─────────────────────┘
```

Default plant configuration NPIR Voltage Limits effective in PJM & TO EMS and eDART

Plant schedules a non-standard work or configuration change

NGO Engineers review voltage limits and submit a non-standard (Temporary or New Default) Nuclear Bus Voltage Limit Change eDART ticket for internal review

Following internal review and approval, NGO submits voltage limit change to PJM through eDART

PJM, TO and plant coordinate via phone call prior to start of configuration change

PJM and TO update applicable voltage limits within their EMS

Plant completes work or configuration change, PJM and TO coordinate via phone call

Temporary Nuclear Bus Voltage Limit Change eDART ticket Completed

(Temporary or New Default) Nuclear Bus Voltage Limit Change eDART ticket Implemented

Plant performs work or implements a configuration change

Permanent Change

PJM and TO continue to monitoring the new plant configuration voltage limits in their EMS, eDART default limits updated

Temporary Change

PJM and TO return to monitoring the default plant configuration NPIR Voltage Limits in their EMS and eDART

New

Existing

Buttons highlighted in red indicate required actions or items for review

Return to Transmission Outage Main Menu

My eDART

Upload

Download

Hydro Calculator

Gen. Tickets

Trans. Tickets

Instantaneous Reserve Check

Minimum Gen. Report

Owners Report | Maint. Margin Log | D-Curve Report

Black Start Test Upload | Black Start Test Download | Black Start Calculator

GO Survey | Voltage Schedules | Nuclear Voltage Limit

Nuclear Voltage Limit Main Menu

Unit Setup Report | Effective Limits | Help

Create Ticket | Review Tickets | Late Tickets

Implemented w/o Approval | Upcoming Tickets | Recently Completed

Generation Menu

Display PDF Help file

Buttons highlighted in red indicate required actions or items for review

Return to Generator Tickets Main Menu

The Unit Setup Report provides an overview of the pre-determined voltage limits for all unit groups.

- Indicates the Default monitored values on a per voltage level basis, including the PJM specific value shown in blue and indicated with the letter 'P'.

- Displays all unit group specific scenarios and the associated voltage limits.

Nuclear Voltage Limit Unit Setup Report

Default monitored values are displayed on a per voltage level basis.
The PJM specific values are shown in blue and indicated with the letter 'P'.

NUCLEAR TEST   PJM TEST

Default/Scenario Name	Station	Voltage	Bus Name Keyword	Norm. Min kV	Norm. Max kV	Emerg. Min kV	Emerg. Max kV	Load Dump	Volt. Drop Warn. %	Volt. Drop Viol. %
Default	LACKAWAN	500 KV		536.5	550.0 (P: 547.0)	535.0 (P: 533.5)	550.0	475.0	5.0	8.0
Default	LACKAWAN	230 KV		230.0	242.0 (P: 239.0)	230.0 (P: 227.0)	242.0	217.0	2.0	5.0
Default	LACKAWAN	69 KV		69.0	72.0	66.0	75.0	60.0	1.0	4.0
LTC in manual	LACKAWAN	500 KV		536.5	550.0 (P: 547.0)	535.0 (P: 533.5)	550.0	475.0	9999	9999
Single unit operation	LACKAWAN	500 KV		536.5	540.0	535.0 (P: 533.5)	550.0	475.0	5.0	8.0
LTC in manual	LACKAWAN	230 KV		230.0	242.0 (P: 239.0)	230.0 (P: 227.0)	242.0	217.0	9999	9999

Refresh   Help   Main Menu

The Effective Limits Report allows the user the ability to see applicable limits for a chosen timeframe. The filter will take into account any current and future tickets.

Nuclear Voltage Limit Effective Limits Report

Unit: [▼]   Include Historical: ☐   Effective Date/Time: [11/10/2020] [10:56]
(MM/DD/YYYY)   (HH24:MI)

[Apply Filter]   [Help]   [Main Menu]

PJM specific values are shown in blue and indicated with the letter 'P'.

Company	Unit	Ticket ID	Type	Status	Start Date	End Date	Station	Voltage	Bus Name Keyword	Scenario	Norm. Min kV	Norm. Max kV	Emerg. Min kV	Emerg. Max kV	Load Dump	Volt. Drop Warn. %	Volt. Drop Viol. %
▓▓▓	▓▓▓	70	Permanent	Completed	11/03/2020 17:25	11/17/2020 17:41	▓▓▓	230 KV		test 12 inactive	229.2 (P: 228.1)	240.0 (P: 239.5)	226.0 (P: 225.5)	243.0 (P: 242.5)	214.0 (P: 213.5)	1.1	1.6
							▓▓▓	13 KV		New Default	13.6 (P: 13.6)	9999 (P: 9999)	13.6 (P: 13.6)	9999 (P: 9999)	1.0 (P: 1.0)	1.2	2.2

[Apply Filter]   [Help]   [Main Menu]

The Create Ticket screen allows for creating and submitting new Nuclear Voltage Limit tickets that will be used by the Transmission Owner (TO) and PJM in their forward looking studies and in real-time.

- The submitter will be able to see the Default, Current and Adjusted limits.

- Additional fields include, Start Date and Time, End Date and Time and GO Comments.

Nuclear Voltage Limit New Ticket

Company: ██████████████ Unit: ██████████ ▼

Default limits represent the base limits PJM and the TO will operate to during normal station configuration.
Current limits represent the limits PJM and the TO are currently monitoring for. Adjusted limits show the limits associated with selected change.
PJM specific values are shown in blue and indicated with the letter 'P'.

Station	Voltage	Bus Name Keyword	Scenario	Type	Norm. Min kV	Norm. Max kV	Emerg. Min kV	Emerg. Max kV	Load Dump	Volt. Drop Warn. %	Volt. Drop Viol. %
██████	230 KV		No Change ▼	Default	229.2 (P: 228.1)	240.0 (P: 239.5)	226.0 (P: 225.5)	243.0 (P: 242.5)	214.0 (P: 213.5)	1.1	1.6
				Current	228.0	239.0	228.0	242.0	213.5	1.0	1.5
				Adjusted	229.2 (P: 228.1)	240.0 (P: 239.5)	226.0 (P: 225.5)	243.0 (P: 242.5)	214.0 (P: 213.5)	1.1	1.6
██████	13 KV		New Default ▼	Default	13.6	9999	13.6	9999	1.0	1.2	2.2
				Current	13.5	9999	13.5	9999	0.0	1.0	2.1
				Adjusted							

Ticket Type: New Default   Est. Start Date: [   ] [   ]   GO Comments: [   ]
                                             (MM/DD/YYYY)   (HH24:MI)

[Submit Form] [Help] [Refresh] [Main Menu]

The Review Tickets screen allows the users to search for historical, current, and future Nuclear Voltage Limit tickets. The available filter choices allow the user to be specific if desired, or complete a broad search by not selecting any additional information.

- Submitted – new ticket status when submitted to PJM.

- Received – initial review of ticket by PJM completed.

- Denied – voltage limit change reviewed and not approved by PJM.

- Approved – voltage limit change reviewed and approved by PJM.

- Cancelled by Company – NGO cancelled the tickets.

- PJM Admin Closure – PJM cancelled the ticket.

- Revised – Received or Approved ticket has been changed by NGO.

- Implemented – PJM EMS updated with new limits from approved ticket.

- Implemented w/o Approval – PJM EMS updated with new limits from un-approved ticket.

- Completed – PJM EMS updated with new limits that no longer match implemented temporary ticket or new permanent ticket created.

The Late Tickets reports shows tickets that either:

- Are past their Start date but have not been Implemented or Cancelled.

- Are past their End Date but have not been Completed or Cancelled.

Nuclear Voltage Limit Late Ticket Report

	3			1	2	
Ticket ID	Unit	GO Name	Perm/Temp	Start Date	End Date	Status
94	NUCLEAR TEST	PJM TEST	Temporary	11/17/2020 00:00	11/18/2020 00:00	Received
129	NUCLEAR TEST	PJM TEST	Temporary	11/17/2020 17:41	11/18/2020 17:41	Implemented
100	NUCLEAR TEST	PJM TEST	Temporary	11/20/2020 00:00	11/20/2020 23:59	Submitted
96	NUCLEAR TEST	PJM TEST	Temporary	11/27/2020 11:11	11/28/2020 12:00	Submitted

Apply Filter   Help   Main Menu

The Implemented without Approval screen will show tickets which are created when the currently active limits in eDART do not match the limits monitored by PJM.

The Upcoming Tickets report will show all tickets scheduled to start in the next 7 days.

The Recently Completed report will show all tickets completed in the last 7 days.

NGOs should indicate which users should have access to the new functionality – especially for companies using Unit-Task CDW (Company Distributed Workflow) functionality in eDART.

Affected entities can remain up-to-date by continuing to engage in individual discussions with PJM and group discussions at the NGO User Group (NGOUG) Meetings.

Nuclear Bus Voltage Limits contact:

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Vy Le: Vy.Le@pjm.com