Working to Perfect the Flow of Energy

eDART User Guide

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Effective Date: 10/31/2024

Prepared by

eDART Project Team

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Table of Contents

Table of Contents **2**
Revision History **10**
eDART: Introduction **14**

eDART User Registration 14

User Types and Access 16

Logging Into eDART 18

My eDART 19

Company Distributed Workflow (CDW) 21

CDW Member-Agent Functionality 21
CDW Unit-Task Functionality 22

Online Help 23

eDART Forum (formerly eDART and eDART XML User Groups) 24

eDART Forum Notification 25
Generator Tickets **28**

Business Rules 28

Forecasted Planned / Planned 29
Maintenance Outages 30
Unplanned Outages 31

Generator Outage Reporting 31

Create New Ticket 33
MW (Real Power) Ticket 34
Voltage Regulator Ticket 39
MVAR (Reactive Power) Ticket 40
Governor Ticket 41
MVAR Test (Reactive Power Test) Ticket 42
Power System Stabilizer (PSS) Ticket 43

Filtering Options 43

Sorting 47

Opportunity Window 47

View / Revise Ticket 48

eDART Ticket Status 52

Generator Outage Ticket Reports 52

- Submitted Tickets Report 52
- Revised Tickets Report 54
- Current Tickets Report 57
- Approved / Received Tickets Reports 60
- Future Tickets Report 62
- Approved Not Started Report 64
- Active Beyond Estimated End Date Report 66
- Recalled tickets 69
- Forced Tickets 70
- Tickets History 70

Peak Period Maintenance Margin 71

Owners Report 72

Maintenance Margin Log 75

D-curve Reports 76

BlackStart Test Upload 79

BlackStart File Download 81

Data Request 83

- Respond to Data Request 85
- Submit Data request form by Uploading TXT file 87
- View Completed Data Requests 89

Voltage Schedules 90

- Ticket Status 92
- Acknowledging Voltage Schedule Ticket 94
- Annual Review for GO 95

Voltage Schedule Criteria 96
Nuclear Voltage Limit 98
Unit Setup Report 99
Effective Limits Report 100
Help 100
Create Ticket 101
Review Ticket 102
Late Tickets 104
Implemented w/o Approval 104
Upcoming Tickets 105
Recently Completed 105
XML Download 106
Reactive Result Tickets 107
Reactive Result Ticket Process 109
Creating Reactive Result Tickets 109
Transmission Outage Tickets 124
Business Rules 124
Transmission Outage Requests 125
Emergency Outages 127
Transmission Outage Reporting 129
Create New Ticket 129
Ticket Fields 130
Cause Types 131
Equipment List 134
Equipment Status 136
Color Legend 139
Filtering 140
Sorting 142
View / Revise Ticket 143
Additional Ticket Fields 145

eDART Transmission Ticket Status 146
EMS Trip Update 147
Gen Outage Lookup 148
Future Facilities 149
Current One Line Diagrams 150
RTEP Queue Number Update 151
Cause Lookup 152
New Project 154
View/Revise Project 154
Network Model Link 157
Transmission Reports 159
Status Report 159
Transmission Outage Tickets Report 160
Tickets Active Tomorrow 162
Cut-In Tickets 163
Conflicts 163
Conflicting Outages 163
Conflicting Identifier Facility List 166
Conflicting Identifier Group List 168
Gen Off Scenario List 170
Example 172
NERC-TADS 174
NERC-TADS Report 174
Ticket Update 178
Ticket Date Exception 179
Transformer Selection 180
Generation Reports 182
Generation Acknowledgment Required 182

Owners Report....183
D-Curve Report....187
Reactive Test Results....190
Nuclear Voltage Limit....190
Voltage Schedules....196
Voltage Schedule Criteria....201

Notification Reports....204

Transmission Acknowledgment Required....204
Ticket/Notification Counter....206
Notifications Report....206
Notifications Request Form....207

Facility Outages Reports....208

Current & Future....208
Historical....209
EMS Outage List....210
Public Files....212

XML and Browserless Functionality....213

XML Documentation Page....213

eDART XML File Upload....217
eDART XML File Download....218

Browserless Functionality....220

Browserless Upload Example....224
Browserless Download Example....226

Network Model....228

General....228

Business Rules....229

PJM EMS Model Change Request Process Overview....230
Project or Ticket Life-Cycle (eDART Network Model Ticket Status)....230

Network Model Main Menu....232

Creating New Change Requests....233
View/Revise Change Request....240

Email 245
File Upload 246
Current One Line Diagrams 247
Future Facilities 249
Cut-In Ticket Link 251
Lat/Long Update 254
Black Start 256
Business Rules 256
Approved Restoration Plans 257
Annual Deadline 260
History 260
Email Notifications 261
Pending Restoration Plans 261
Restoration Plans Report 265
TERM 266
Business Rules 267
Create New Ticket 269
Ticket Fields 270
View / Revise Ticket 275
Effective Ratings 278
Bulk Upload 278
Dynamic Ratings Forecast 280
Historical Bulk Report 284
TERM Reports 285
Status Reports 285
Recently Restored 286
History Report 287

Expiring Temporary Tickets 289
Unrated Facilities Report 290
Equipment Historical Change Log....290

Base Data 291

Adjust R, X, B 291
Adjust Tariff Data....292
R, X, B Adjust Report....293
Adjusted Tariff Data Report....294

Voltage Limits 295

Create New ticket 296
View/Revise Ticket....297
Effective Limits....300
Implemented w/o Approval....301
Late Tickets 301
Back to PJM Defaults....302
PJM Default Limits....302
Overview Report....303

Company Notification Request and Reports 305

Acknowledgements Required 305
Notifications Report....306
Notification Request Form....309

Reactive Reserve Check.... 310

Business Rules 310

Submit RRC Data 310

RRC Report Search 313

Reactive Reserve Check Color Legend 314

Instantaneous Reserve Check 314

Submit IRC Data 315

IRC Report Search.... 317

Minimum Generation Report 320

Current MinGen 320

Reports 321

PJM Status Report 323

View Current System Report 323

View Today's Peak Report 325

Gen Checkout – Tomorrow 332

Gen Checkout – Historical 334

Gen Checkout – Ack. Reports 336

Gen Checkout – Unit Translation Report 337

NERC Data 338

PSSE Identifier Transmission 338

PSSE Identifier Generation 340

NERC Load Forecast Report 341

Facility Data – Retired 5/29/2019 343

Resources 344

Revision History

Revision 00 (06/26/2012)

This is the first published version of the eDART User Guide. eDART: Introduction, Generator Tickets and Transmission Outage Tickets sections included.

Revision 01 (09/10/2012)

Transmission Outage Tickets: Conflicts, Instantaneous Reserve Check, Minimum Generation Report and PJM Status Report sections added.

Revision 02 (09/28/2012)

Reactive Reserve Check, NERC Data, Restoration Data sections added.

Revision 03 (11/19/2012)

XML and Browserless Functionality, Network Model and TERM sections added.

Revision 04 (06/26/2013)

Conflict Analyzer Functionality, Black Start and Facility Data sections added.

Revision 05 (05/09/2014)

Updates made to XML and Browserless Functionality and Black Start sections.
Table of outage Cause IDs and Descriptions added to Generator [MW] Tickets and Transmission Outage Tickets sections.

Revision 06 (10/22/2015)

Requirement for Transmission users to sign NDA and new filetransfer.jar file reference added. Screenshots and email addresses updated.

Revision 07 (04/28/2017)

Reactive Results Tickets section added. Generation and Transmission Outage Cause lists updated.

Revision 08 (10/18/2017)

Added Default Status Section, updated EMS Trip and Emergency Outage Sections, updated Reactive Reserve Check Section.

Revision 09 (02/18/2019)

Updated User Types and Access List:

- Removed retired sections: Restoration Data and Telemetry Coordination
- Updated BlackStart Calculator section.
- Added Voltage Schedules section

Revision 10 (12/18/2019)

Removed retired sections: Facility Data and Supplemental Status Report

Replaced eDART User Groups with eDART Forums

Added GO Survey section

Revision 11 (02/11/2022)

Updated Data Request section (old GO Survey section)

Added Voltage Schedule for GO and TO

Added Dynamic Ratings section

Updated Resources

Revision 12 (08/12/2022)

Added Voltage Schedule Criteria

Added Equipment Status and Switching Equipment

Updated Equipment List, Default Status Changes and SVC Outage

Updated PJM Status Report

Revision 13 (09/28/2022)

Added Nuclear Voltage Limit for GO and TO

Revision 14 (04/28/2023)

Generation:

Updated Maintenance Outages

Updated Opportunity Window

Updated Nuclear Voltage Limit (added XML Download)

Updated Reactive Testing Results

Transmission:

Updated Tickets Active Tomorrow (Transmission Reports)

Added Cut-In Tickets

Added Tickets Active Tomorrow (Generation Reports)

Added Reactive Test Results

Updated Nuclear Voltage Limit

Revision 15 (02/16/2024)

Generator Tickets:

Updated Forecasted Planned / Planned

Updated Maintenance Outages

Transmission:

Added Public Files

TERM:

Added Equipment Historical Change Log in TERM Reports

Revision 16 (04/03/2024)

eDART Introduction:

Updated eDART User Registration

Updated Logging into eDART

Online Help

Generator Tickets:

Updated Emergency Outages

Updated Cause Types

Black Start:

Updated Restoration Plan

Revision 17 (04/19/2024)

Updated XML and Browserless Functionality

Revision 18 (05/10/2024)

Added Voltage Limits

Revision 19 (09/25/2024)

Updated Transmission Outages Cause Types

Revision 20 (10/31/2024)

Removed Feedback

Updated eDART Forum

eDART: Introduction

eDART (**e**lectronic **D**ispatcher **A**pplication **R**eporting **T**ool) is a suite of electronic applications used to facilitate dispatcher-to-dispatcher communications, along with other engineering communication and coordination functions.

eDART's benefits to PJM membership include a quick, 24/7 process for outage and model change request submittal, easy access to comprehensive information and a simple and user-friendly online interface. Through eDART, a user can filter outage information based on start date, end date, ticket number and other criteria to help ease the dissemination of information and to help make a comprehensive range of reports.

eDART's creation has greatly reduced the amount of physical paperwork and the time consuming communication of prior processes.

eDART User Registration

In order to have access to eDART, the company account must be provisioned with eDART access in Account Manager. Generation and Transmission owners are granted this access during company account set up. A Company Account Manager (CAM) may request this access if it is missing from the accesses available to the company.

Member CAMs may be designated in the Membership Management Community by an Authorized Representative or Maintenance Manager.

For additional information regarding the Account Manager tool and PJM user accounts/passwords, please see the Account Manager tool page https://www.pjm.com/markets-and-operations/etools/account-manager and the PJM Security page https://www.pjm.com/markets-and-operations/etools/security

Account Set-up and eDART Access

Account Types

- User account - can be used for eDART User Interface (UI) and Dart Browserless interface.
- System account – can only be used for Dart Browserless interface and cannot be used to access the User Interface (UI).

Note: Dart Browserless use requires a PKI certificate. For more information, see the PKI Certificate Requirement section in https://www.pjm.com/-/media/committees-

groups/forums/edart/edartxml/2023/20230614/20230614-presentation.ashx

Request eDART access as a user

Users can utilize their current active account or create a new account in the Account Manager Tool.

- Submit a request for the required eDART access type
- Reach out to their CAM to approve eDART access

User account

To request a user account please use the following:
For the eDART Train/Sandbox Environment:
https://accountmanagertrain.pjm.com/accountmanager/pages/public/new-user.jsf
For the eDART Production Environment:
https://accountmanager.pjm.com/accountmanager/pages/public/new-user.jsf

For more information, please refer to the "How to Set Up a New PJM User Account as a User" section of the new-user-registration-workflows-quick-guide-1.ashx (pjm.com)

System account
To request system account, please use the following:
For the eDART Train/Sandbox Environment:
https://accountmanagertrain.pjm.com/accountmanager/pages/public/new-user.jsf?systemId=true
For the eDART Production Environment:
https://accountmanager.pjm.com/accountmanager/pages/public/new-user.jsf?systemId=true

For more information, please refer to the "How to Set Up a New PJM System Account as a User" section of the new-user-registration-workflows-quick-guide-1.ashx (pjm.com)

Non-Member users
Non-Member users can set up eDART user accounts under "Other", please refer to the "How to Set Up a New PJM User Account as a Non-Member, "Other" 3522 Account" section of the new-user-registration-workflows-quick-guide-1.ashx (pjm.com)

Grant eDART access as CAM

CAMs can perform the following actions in the Account Manager Tool:

- Approve eDART access if it was requested by a user.
- Add required eDART access for a user who has an active account in the Account Manager Tool.

- Create a new account and add required eDART access. For more information, please refer to the "How to Add a New PJM User or New System Account as a CAM Admin" sections in the new-user-registration-workflows-quick-guide-1.ashx (pjm.com)

Unlocking an eDART account and password resets

When an eDART account locks, an email will be sent to the user with their CAM information.

- PJM Member users should contact their CAM for password resets, unlocking, revoking or reinstating accounts.
- Users listed under 'Other' should contact the PJM Account Manager team at AccountManager@pjm.com

User Types and Access

There are 3 types of company users:

- Generation Owners
- Transmission Owners
- Generic

Generation Owners

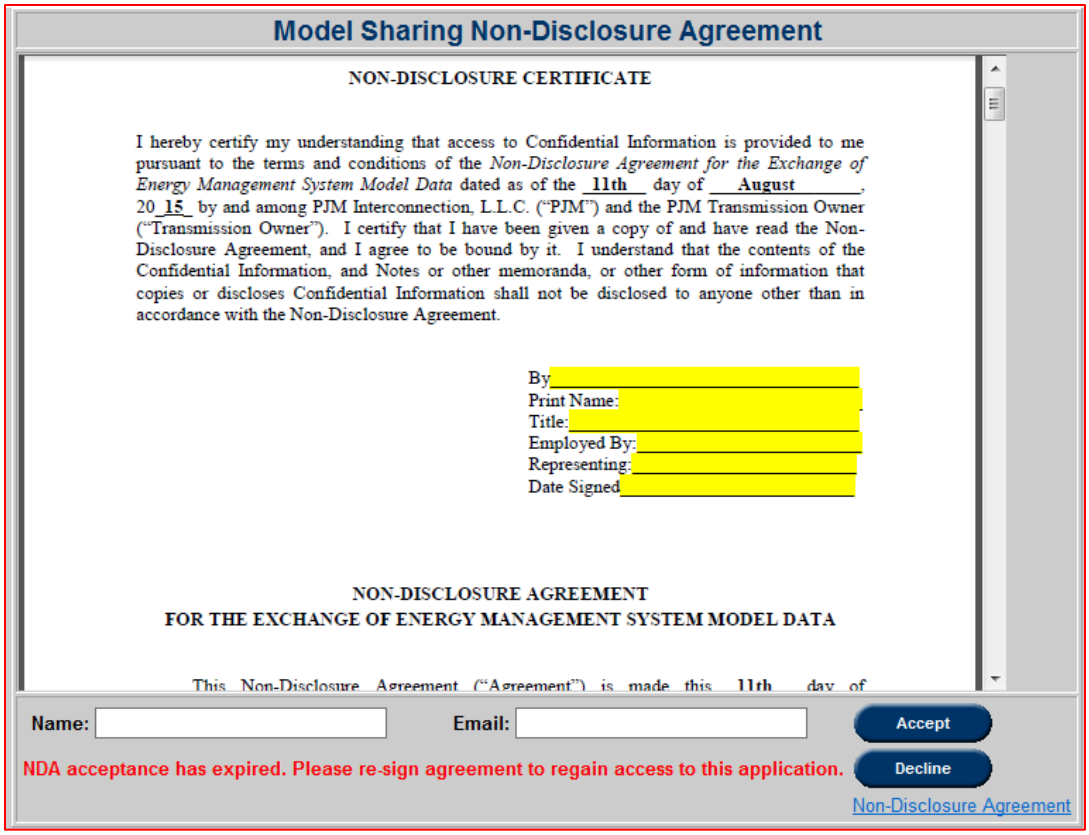
- **Edit** – This user can submit, revise and review company data.
- **Read Only** – This user can view company specific data. This user can NOT submit or revise company data.

Transmission Owners*

- **Edit** – This user can submit, revise and review company data.
- **Read Only** – This user can view company specific data. This user can NOT submit or revise company data.
- **Transmission Planning** - This user can review D-Curve reports for units within user's Transmission Zone and view Default MVAR Tickets.

Transmission Edit and Read Only users must also have CEII approval. User can submit the CEII Request Form here (https://www.pjm.com/library/request-access/form-ceii-request-new.aspx). User must be logged into pjm.com to access the form.

***** Transmission users must accept a Model Sharing Non-Disclosure Agreement monthly to retain access to eDART. The user's name and email address are required as a signature. The agreement can also be accepted through the XML browserless interface as well.



The table below displays the privileges of each user access type. It is also available [online](http://www.pjm.com/~/media/etools/edart/account-types-and-application-access.ashx).

	Generic	Generation		Transmission			
Application	**Generic Read Only**	**Gen Read/Write**	**Gen Read Only**	**Gen &Trans Read/Write**	**Trans Read/Write**	**Trans Read only**	**Transmission Planning**
Generator Tickets		Complete functionality	No update or insert	Complete functionality			
Transmission Outage Tickets	Read Current and Future and Historical Reports	Read Current and Future and Historical Reports	Read Current and Future and Historical Reports	Complete functionality	Complete functionality	No update or insert.	New Default MVAR Tickets and D-Curve Reports
TERM				Complete functionality	Complete functionality	No update or insert.	
Black Start		Generator Data	Generator Data	Complete functionality	Complete functionality	No update or insert.	
Status Report		Gen Checkout. SSR Resource Limitations and On/Cost Max Emerg Forms.	Gen Checkout, SSR Resource Limitations and On/Cost Max Emerg Forms Read Only.	Complete functionality	Complete functionality	No update or insert. Can't view Resource Limitations.	
NERC Data		Gen PSSE Map	Gen PSSE Map Read Only	Complete functionality	Complete functionality	No update or insert.	

Instantaneous Reserve Check	View Pool Totals	Complete functionality	No update.	Complete functionality	View Pool Totals	View Pool Totals	
MinGen		Complete functionality	No update.	Complete functionality	View Final Report	View Final Report	
Reactive Reserve				RRC update only.	RRC update only.	RRC view only.	
Network Modeling				Complete functionality	Complete functionality	No update or insert.	
Voltage Schedules		Acknowledge and View Voltage Schedules	View Voltage Schedules	Complete functionality	Create, Update and View Voltage Schedules	View Voltage Schedules	
Voltage Limits				Complete functionality	Complete functionality	No update or insert	

Logging Into eDART

To login into the eDART UI, please use:

- **For the eDART Train/Sandbox Environment:** https://edartssotrain.pjm.com
- **For the eDART Production Environment:** https://edartsso.pjm.com

The eDART login screen contains a legal notice message, along with the ability to login, change a password through "Forgot Password" or register for a new account in the Account Manager Tool.

To login, enter a user name and its corresponding correct password and click on the "Log In" button.

To ensure PJM user accounts remain secure, PJM requires that user accounts have their passwords changed every 128 days. PJM's Account Manager tool sends a reminder to the user's email on file 14 days, 7 days and 4 days before the password will expire. Those email reminders come from "Account Manager <accountmanager-donotreply@pjm.com>" and include the username about to expire and the Account Manager login link.

When an eDART account locks, an email will be sent to the user with their CAM information. To reset a password and/or unlock an account, users should contact their Company Authorized Manager (CAM).
If there are no CAMs noted for your company, contact accountmanager@pjm.com to request that your user account be unlocked and/or password reset. In that request, provide your username, full name and email address associated with the user account.

For additional information regarding PJM user accounts/passwords, please see Password Reset Best Practices (https://www.pjm.com/-/media/etools/account-manager/password-reset-best-practices.ashx) and the PJM Security page https://www.pjm.com/markets-and-operations/etools/security on PJM.com

In addition to a valid user name and password, eDART has an additional security requirement that a user's IP address remain static during a session in eDART. This is to prevent action being taken in eDART by a hijacked user session.
If the IP address on taking action in eDART (submitting a ticket, downloading a file, etc.) is different from the IP address captured on login, the user's session will be ended.

My eDART

My eDART gives users the ability to customize their eDART experience. Users can choose which eDART applications they would like to see when they log in. Depending on user access rights, an eDART user can see up to 12 application buttons on the left hand side when in eDART. Not all of these applications may be necessary to the user and with My eDART, users have the ability to pick and choose the applications they need.

Clicking on the 'My eDART' button will pull up a menu with the applications user has access to.

Using the **Display** drop down, select 'Yes' to display the application, and 'No' to hide it.

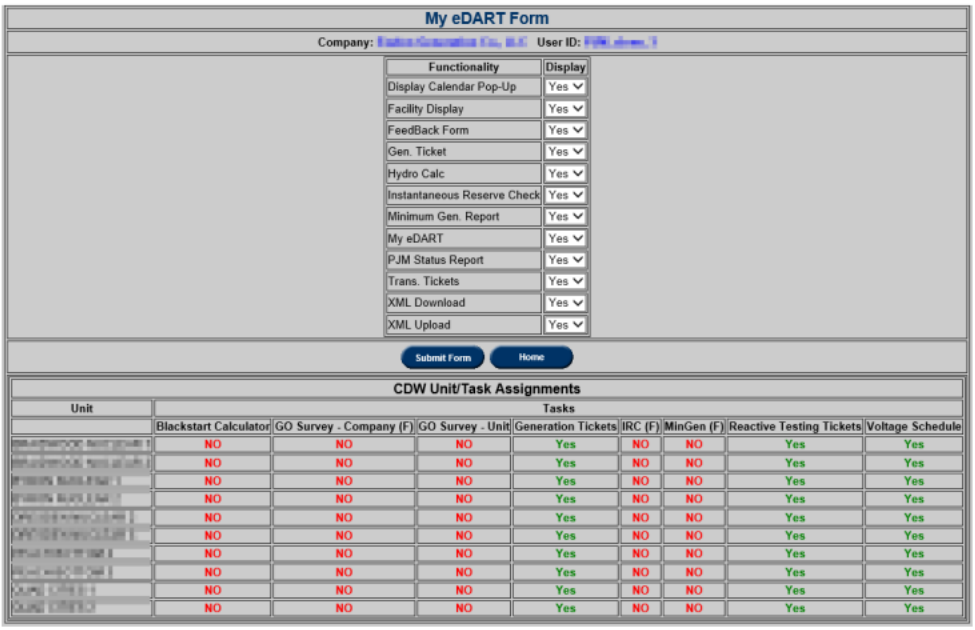
> A pop-up calendar is displayed when a user clicks on a date field in the eDART applications. To disable or hide the calendar, select 'No' from the **Display** drop down for **Display Calendar Pop-Up.**

Click the **Submit Form** button to save changes.

A Transmission user can also sign the Model Sharing Non-Disclosure Agreement by clicking the **NDA Sign-Off** button. This can be used when user is within 7 days of the NDA expiring.

Generation users of companies set up for the CDW Unit-Task functionality will also see their assignments on this page.

Generation users of companies set up for the CDW Unit-Task functionality will also see their assignments on this page.



My eDART Form

Company: [redacted] User ID: [redacted]

Functionality	Display
Display Calendar Pop-Up	Yes
Facility Display	Yes
FeedBack Form	Yes
Gen. Ticket	Yes
Hydro Calc	Yes
Instantaneous Reserve Check	Yes
Minimum Gen. Report	Yes
My eDART	Yes
PJM Status Report	Yes
Trans. Tickets	Yes
XML Download	Yes
XML Upload	Yes

Submit Form Home

CDW Unit/Task Assignments

Unit	Tasks							
	Blackstart Calculator	GO Survey - Company (F)	GO Survey - Unit	Generation Tickets	IRC (F)	MinGen (F)	Reactive Testing Tickets	Voltage Schedule
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes
[redacted]	NO	NO	NO	Yes	NO	NO	Yes	Yes

Company Distributed Workflow (CDW)

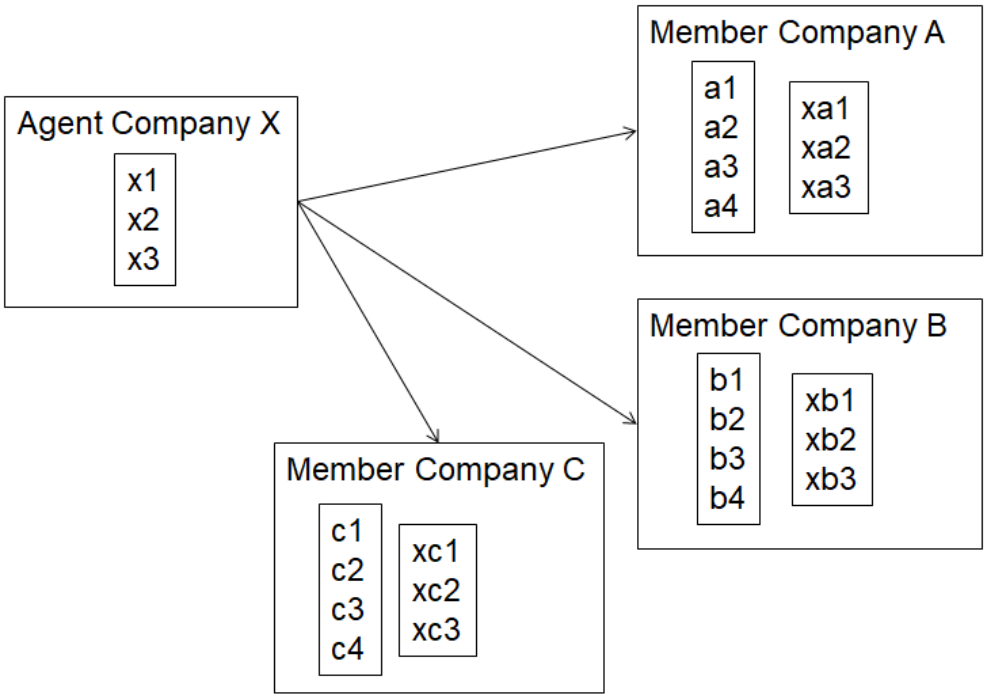
This functionality in eDART allows eDART tasks to be distributed either to an Agent company or on a unit/task basis per user (for Generation companies only).
The use of CDW minimizes the need for multiple sub-accounts per company and multiple user accounts per person.

Companies interested in using the Company Distributed Workflow (CDW) functionality should contact the eDART team for set up requirements.

CDW Member-Agent Functionality

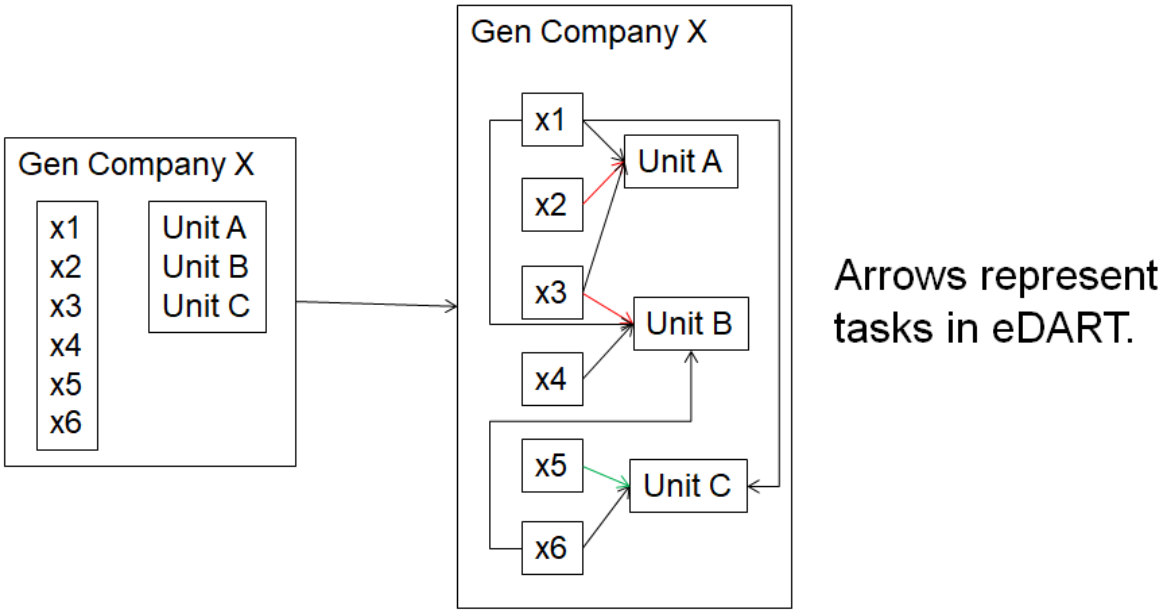
Company admins of Members will be able to request Agent companies to act on their behalf in eDART. Agent users only need one account, under Agent company, and are able to switch companies in eDART without logging out and back in.

Suggested for Agent companies managing eDART tasks for multiple PJM Members.



CDW Unit-Task Functionality

Company admins for Generation companies will be able to split eDART tasks per unit/per user.
Users no longer need multiple accounts
Suggested for Generation companies that currently have multiple sub-accounts or that are managing eDART tasks for multiple plants outside eDART.

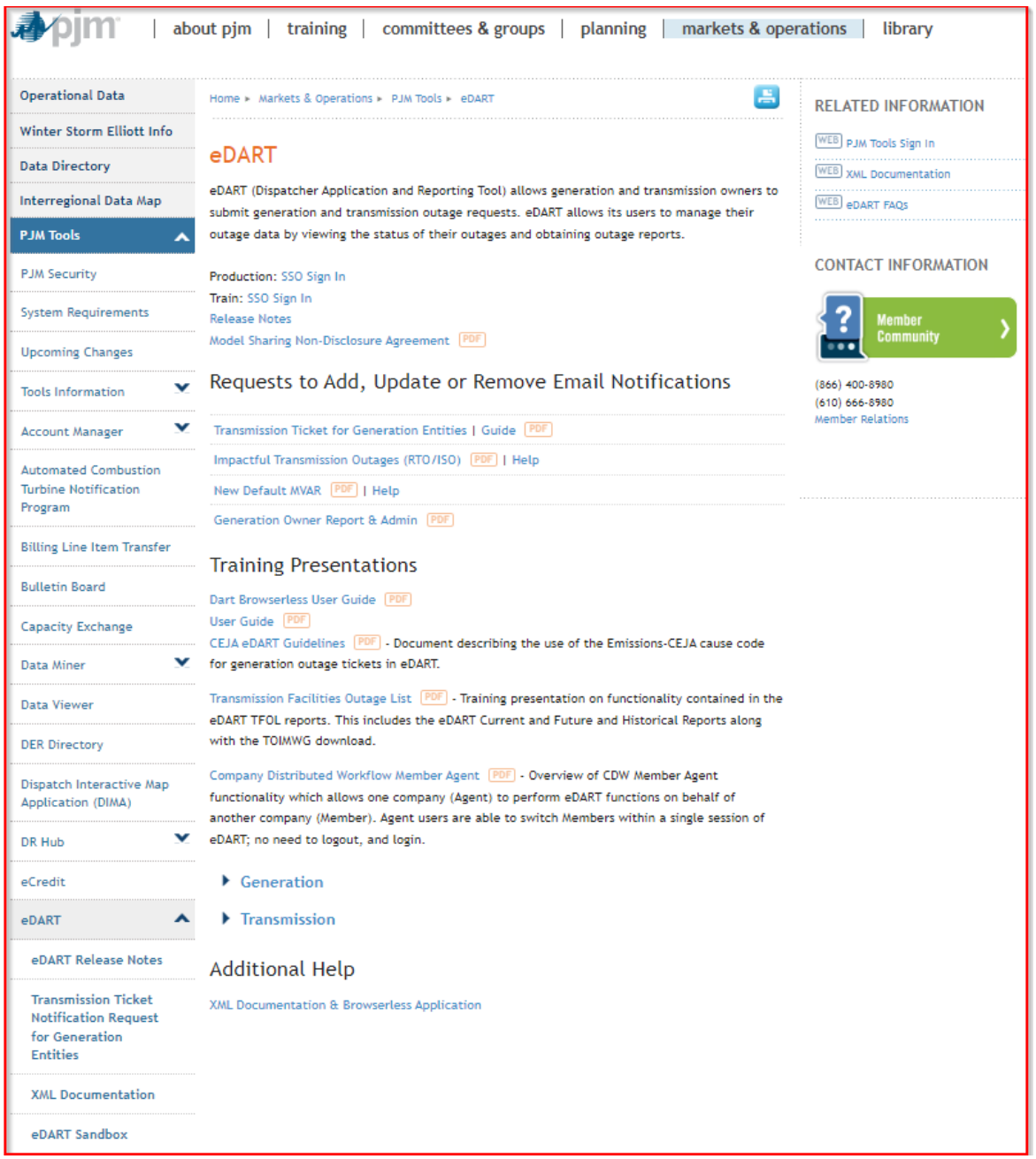


Online Help

PJM offers extensive online support for eDART. There are a variety of ways to access help materials for eDART.

eDART page: https://www.pjm.com/markets-and-operations/etools/edart.aspx .

Users can also use the **Online Help** button in eDART to access this page.



This page contains a variety of help sources.
Each form listed has a corresponding help document/guide.
Additionally, PJM has provided an **eDART FAQs** (Frequently Asked Questions) section, which can be accessed from the link on the right side of the page.

Training Presentations are also available for different eDART functionalities.

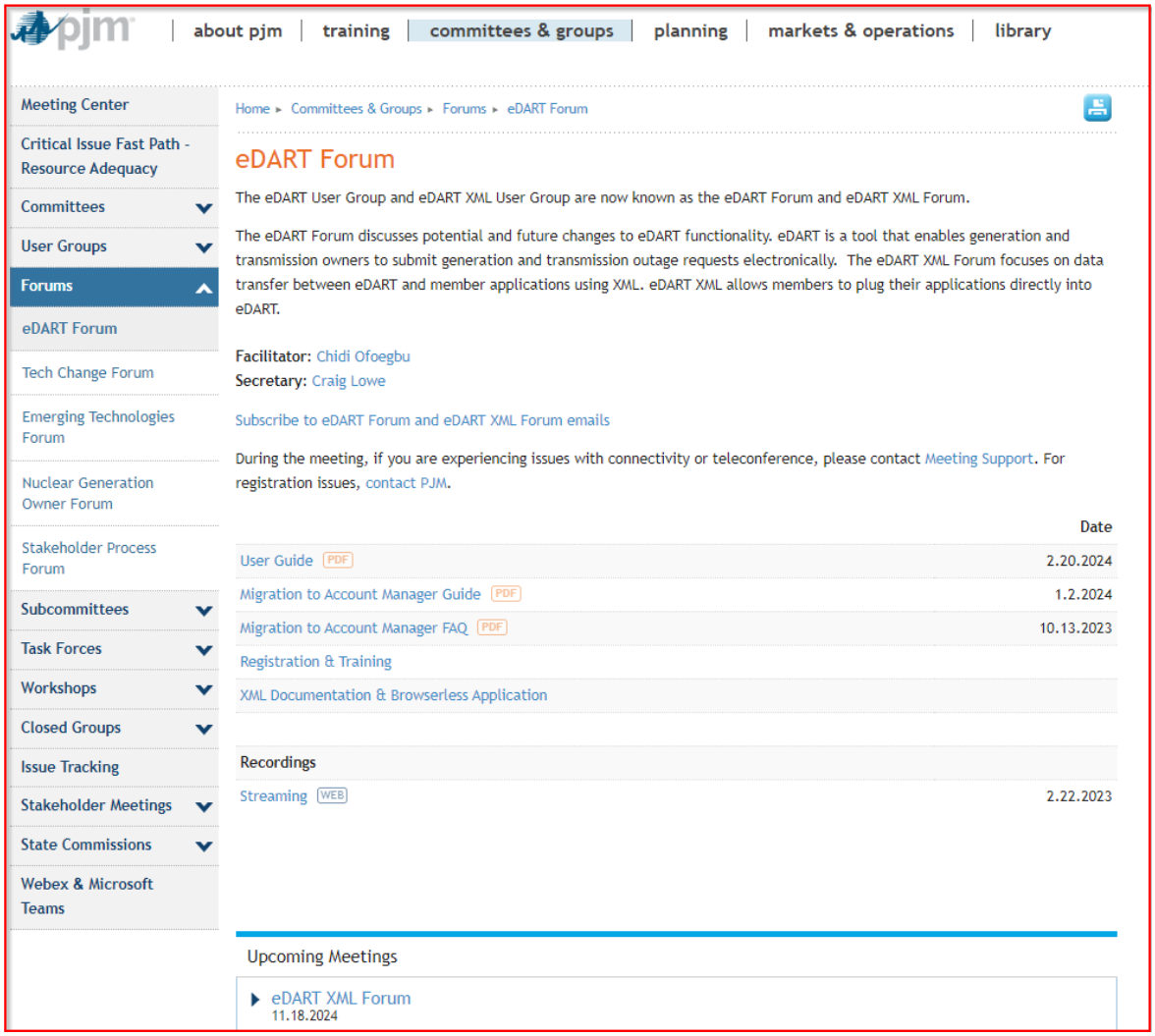
The **XML Documentation** page has information and tools needed for the browserless functionality of eDART. On this page, the user can also find eDART XML schema diagrams, documentation and examples. More information is provided in the **XML and Browserless Functionality** section of the **eDART User Guide**.

eDART Forum (formerly eDART and eDART XML User Groups)

The eDART User Group and eDART XML User Group are now known as the eDART Forum and eDART XML Forum.

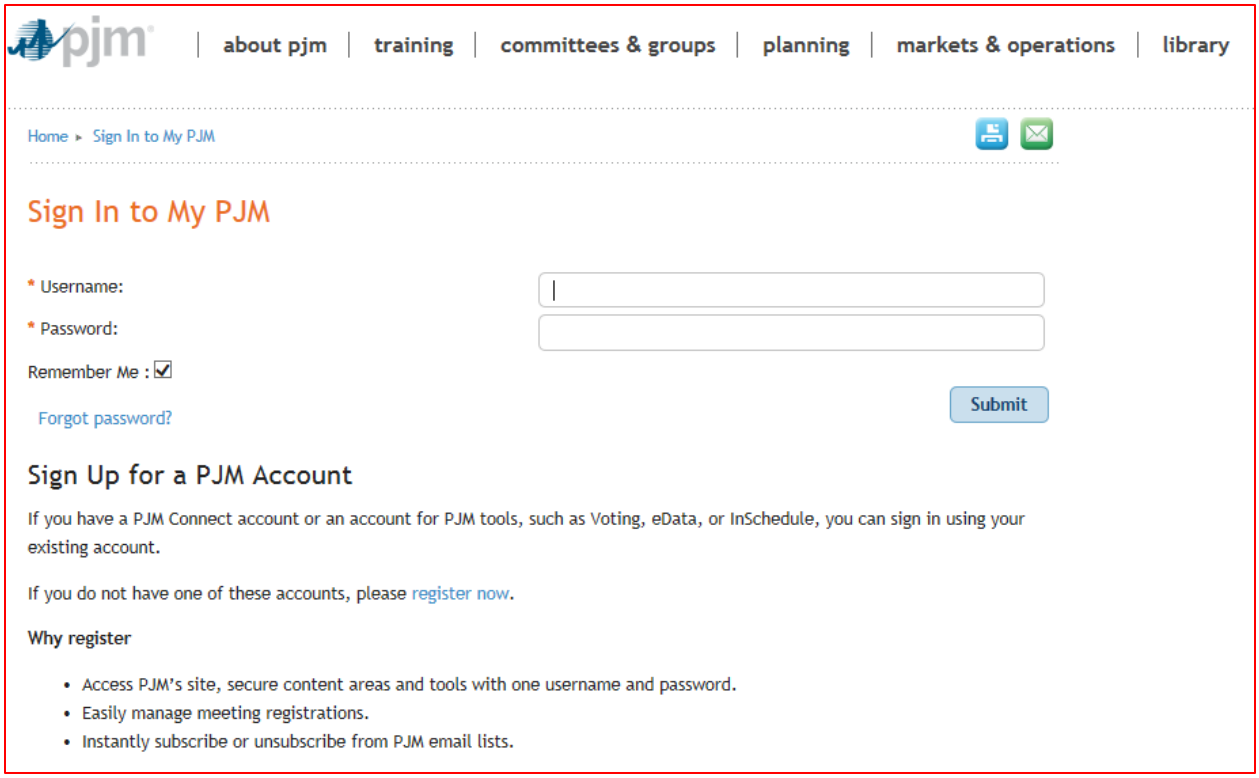
The eDART Forum discusses potential and future changes to eDART functionality. eDART is a tool that enables generation and transmission owners to submit generation and transmission outage requests electronically.
The eDART XML Forum focuses on data transfer between eDART and member applications using XML. eDART XML allows members to plug their applications directly into eDART.

The eDART Forum page is https://www.pjm.com/committees-and-groups/forums/edart-forum.



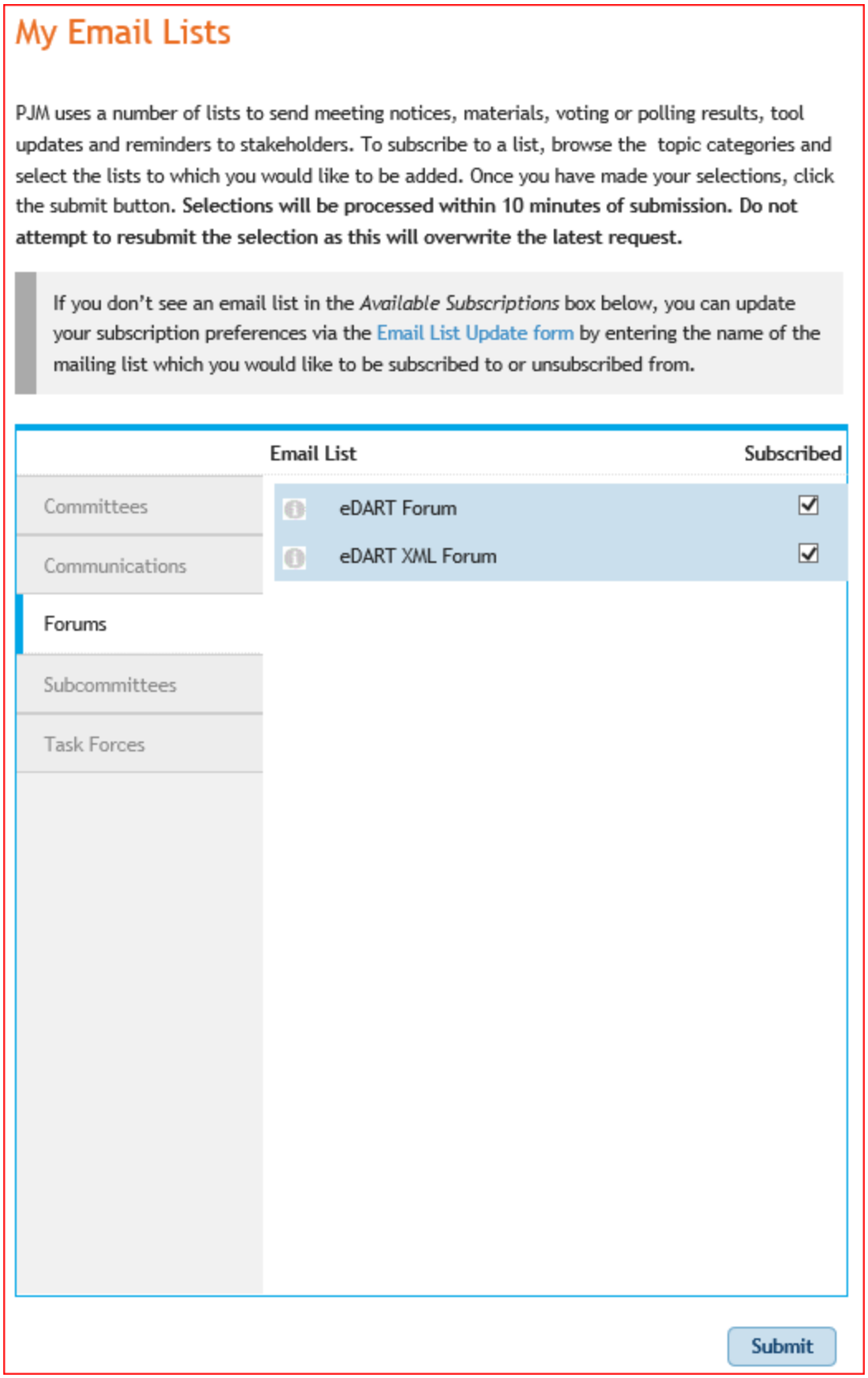
eDART Forum Notification

A user can register to receive emails sent to eDART Forum and eDART XML Forum members by logging into their PJM.com account and going to https://www.pjm.com/mypjm/newsletters.aspx.



On the "My Email Lists" page, select Forum and check the **Subscribed** box for either or both of "eDART Forum" or "eDART XML Forum".
Click **Submit**.
To remove subscriptions, uncheck the **Subscribed** box and click **Submit**.

Joining the email lists, in conjunction with occasional meetings, will serve as membership to the eDART Forum and eDART XML Forum.
Upcoming meetings can be found on the eDART Forum page.


My Email Lists
PJM uses a number of lists to send meeting notices, materials, voting or polling results, tool updates and reminders to stakeholders. To subscribe to a list, browse the topic categories and select the lists to which you would like to be added. Once you have made your selections, click the submit button. Selections will be processed within 10 minutes of submission. Do not attempt to resubmit the selection as this will overwrite the latest request.
If you don't see an email list in the Available Subscriptions box below, you can update your subscription preferences via the Email List Update form by entering the name of the mailing list which you would like to be subscribed to or unsubscribed from.
Email List
Subscribed
Committees
Communications
Forums
Subcommittees
Task Forces
eDART Forum
eDART XML Forum
Submit

Generator Tickets

PJM is responsible for coordinating and approving requests for outages of generation facilities for the reliable operation of the regional transmission organization (RTO).

The eDART (**e**lectronic **D**ispatcher **A**pplication and **R**eporting **T**ool) application provides communications with PJM Generation Operators (GOs) regarding unit outage requests, updates to reactive capability curves (D-curves), and voltage regulator statuses among other generation and transmission functionalities.

The eDART Generator Tickets functionality is used to record and schedule generator facility outages. PJM members use eDART to report requests for generation outages via a ticketing system.

Business Rules

PJM Members can request outages via the **Gen. Ticket** eDART tool. PJM may either accept or reject a specific outage request. However, PJM does not "schedule" when outages should take place. All outage requests are analyzed together, and PJM only rejects outage requests when they affect the reliability of the PJM Regional Transmission Organization. It is the responsibility of each PJM Member to determine its own best outage schedule. Outage requests are honored by PJM on a first-come first-serve basis.

Where a user is required to give PJM verbal notification, the following PJM personnel should be contacted:

- Master Coordinator
    - All outages
    - Clearing of outage tickets
- Generation Dispatcher
    - Outages of units on-line or scheduled to come on-line

Generator outages fall into the following categories:

- Forecasted Planned / Planned
- Maintenance
- Unplanned

Partial outages are outages where a unit is still operating, but is operating at less than full capacity. Partial outages can be Planned, Maintenance or Unplanned. All rules and regulations for Partial outages are the same as those for corresponding Full outages.

1. All MW outage tickets can only be started up to 1 hour in advance of the Est. Start Time.

E.g. if Est. Start Time = 10/10/2016 10:00, Switch Start Time cannot be before 10/10/2016 09:00.

- If rule is violated, eDART will return an error message: "Switch Start Time is more than 1 hour in advance of estimated start time. Please revise estimated start time".
- To start a ticket earlier than the allowed time, user can submit a revision to the Est. Start Time. If the outage is approved for the earlier Est. Start Time, an earlier Switch Start Time can be submitted.
  Using the example above, if GO wants to start the outage at 08:00, submit a revision to change Est. Start Time to 10/10/2016 08:00 and if approved, Switch Start End can be as early as 10/10/2016 07:00.

Note that this is to prevent outages from being started too far in advance of the period for which they were approved.

2. Planned outages cannot be started early if the Est. Start Time – 1 hour falls into peak period maintenance.

   E.g. if Est. Start Time = 09/09/2017 00:00, user will not be allowed to submit a Switch Start Time of 09/08/2017 23:00 as this falls into the 2017 Summer Peak Period Maintenance Margin Season (06/12/2017 to 09/08/2017).
   - If the rule is violated, eDART will return an error message: "Planned outages can't start during peak period maintenance"

3. Switch End dates will automatically close generator outage tickets without PJM user intervention.
   - Switch end date cannot be more than 1 hour into the future of estimated end time.
   - Switch end date cannot be more than 18 hours into the past of estimated end time.

4. When a generator eDART ODEP company (company responsible for submitting outage tickets in eDART) changes, eDART will automatically create a copy of the latest completed new default MVAR ticket from the old company to the new company.

Forecasted Planned / Planned

Planned outages are scheduled by the PJM Members well in advance and they usually occur during periods when the peak demand on the power system is lowest. Planned outages have flexible start dates, a predetermined duration, may last for several weeks, and occur only once or twice a year. Some instances in which a company may request a Planned or Forecasted Planned outage may include nuclear refueling and annual facility inspections, among others. This process applies *ONLY* to MW (megawatt) outages.

- The initial Planned outage request has to be submitted to PJM no later than 30 days prior to the Operating Day.

- If the Planned outage start date is greater than 31 days in the future, it is classified as a "Forecasted Planned" outage.
- Revisions to Forecasted Planned outage start/end dates and reductions can be submitted via eDART without PJM support.
- Every evening the eDART system will automatically change the status of all *"Forecasted Planned"* outages due to start in less than 31 days to "*Planned*" outages.
- Revisions to Planned outage reductions can be submitted in eDART without PJM support. Revisions to start early or end later requires PJM support.
- The approval process involves checking for conditions such as violation of Black Start power failure solution and Reliability scenarios, availability of adequate reserves and whether the outage is scheduled during the Peak Period Maintenance season, which occurs from the 24th Wednesday of the calendar year through the 36th Wednesday of the same year.
- A Planned outage is in Black Start Scenario violation if a station already has an outage for a critical Black Start unit during the same period. Some transmission zones may have other specific outage requirements that will be verified to prevent Black Start Scenario violations.
- If the request is denied, members re-evaluate their Planned outage schedule and submit a new outage request. This process is repeated until the request submitted is acceptable.
- PJM may withdraw its approval for a Planned outage by notifying members at least 24 hours in advance in order to ensure the adequacy of reserves or the reliability of the PJM RTO.
- Once a Planned Outage is active, it can be extended to complete the original scope of work. The PJM Manual M-10: Pre-Scheduling Operations (https://www.pjm.com/-/media/documents/manuals/m10.ashx) rules allow GOs to request extensions via eDART if done greater than 48 hours before the original end date/time. Once within 48 hours of end, PJM assistance is required to extend the outage.

Maintenance Outages

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.

- A Maintenance outage is an outage that may be deferred beyond the next weekend. In other words, it is an outage that can be postponed to the following Monday morning (0800 hrs).
- The duration of a Maintenance outage is generally unlimited except during the PJM Peak Period Maintenance *(PPM) Season during which approved Maintenance outages will be limited to a maximum duration of 9 consecutive days, 5 weekdays plus the included weekends. The Weekend Period is defined from Friday at 2200 hrs to Monday at 0800 hrs.
- A Maintenance Outage Extension is an extension beyond the originally estimated completion date which can only be used in instances when the original scope of work requires more time to complete than originally scheduled and not when unexpected

problems or delays are encountered. The request for a Maintenance outage Extension must be submitted before the original end date.

- If a Maintenance outage is extended beyond 9 days in PPM season, it becomes an "Unplanned" outage.
- If a company requests a Maintenance outage during the Peak Period Maintenance Season, and PJM denies the outage, and the company decides to take the outage anyway, the company has the option to enter the outage as an "Unplanned outage".

*Peak Period Maintenance (PPM) shall be defined as those weeks containing the 24th through the 36th Wednesdays of a calendar year. Each such week shall begin on a Monday and end on the following Sunday, except for the week containing the 36th Wednesday, which shall end on the following Friday.

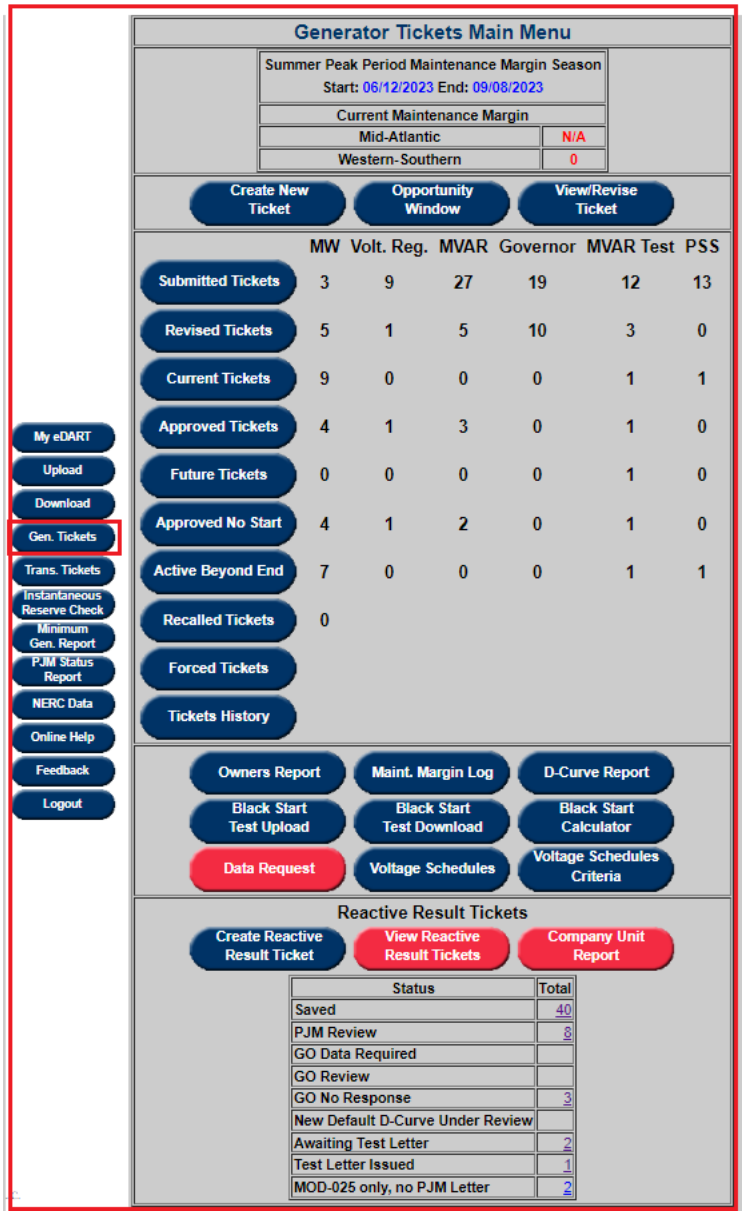
Unplanned Outages

In case of an Unplanned Outage, members are expected to do the following:

- Advise PJM of the Unplanned Outage suffered or anticipated as promptly as possible. This includes a verbal notification to the PJM Generation Dispatcher.
- Provide PJM with the expected date and time that the resource will be made available.
- Make and submit to PJM a record of the events and circumstances giving rise to the Unplanned outage.

Generator Outage Reporting

When logged into eDART, click on the **Gen. Tickets** button on the left menu to open the **Generator Tickets Main Menu** as shown in the example below:

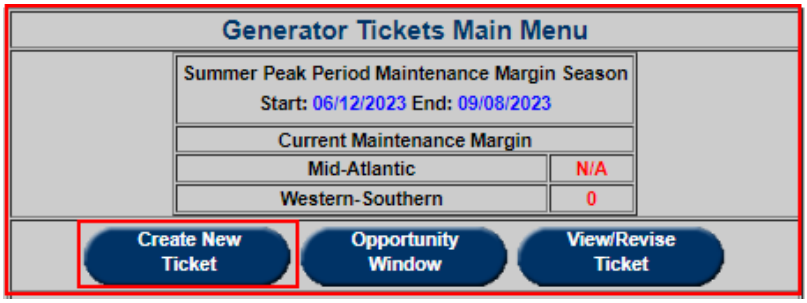

Generator Tickets Main Menu
Summer Peak Period Maintenance Margin Season
Start: 06/12/2023 End: 09/08/2023
Current Maintenance Margin
Mid-Atlantic N/A
Western-Southern 0
Create New Ticket
Opportunity Window
View/Revise Ticket
MW Volt. Reg. MVAR Governor MVAR Test PSS
Submitted Tickets 3 9 27 19 12 13
Revised Tickets 5 1 5 10 3 0
Current Tickets 9 0 0 0 1 1
Approved Tickets 4 1 3 0 1 0
Future Tickets 0 0 0 0 1 0
Approved No Start 4 1 2 0 1 0
Active Beyond End 7 0 0 0 1 1
Recalled Tickets 0
Forced Tickets
Tickets History
My eDART
Upload
Download
Gen. Tickets
Trans. Tickets
Instantaneous Reserve Check
Minimum Gen. Report
PJM Status Report
NERC Data
Online Help
Feedback
Logout
Owners Report
Maint. Margin Log
D-Curve Report
Black Start Test Upload
Black Start Test Download
Black Start Calculator
Data Request
Voltage Schedules
Voltage Schedules Criteria
Reactive Result Tickets
Create Reactive Result Ticket
View Reactive Result Tickets
Company Unit Report
Status Total
Saved 40
PJM Review 8
GO Data Required
GO Review
GO No Response 3
New Default D-Curve Under Review
Awaiting Test Letter 2
Test Letter Issued 1
MOD-025 only, no PJM Letter 2

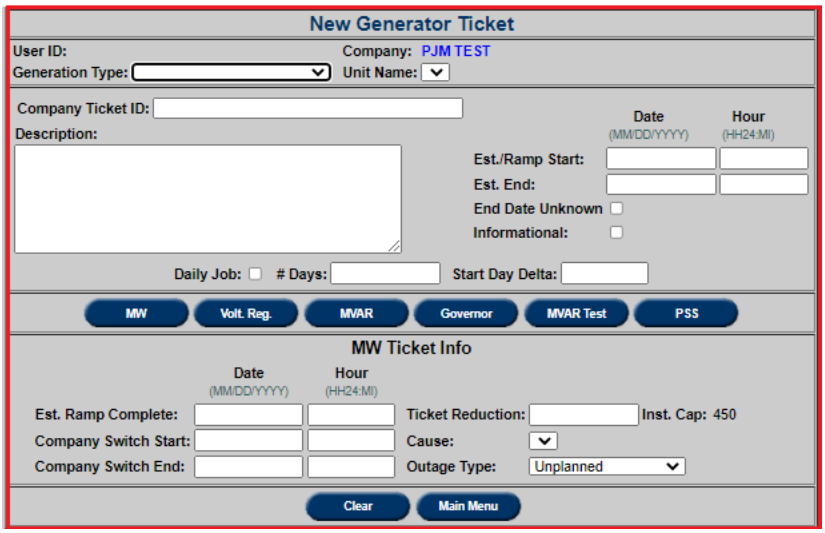
Create New Ticket

Tickets can be created for 6 types of Generator outages:

- Generator Megawatt (MW) Outages
- Voltage Regulator Outages
- MVAR Capability Changes
- Governor Outages
- MVAR Test
- Power System Stabilizer (PSS) Outages

In order to create any one of the above tickets, select the **Create New Ticket** button to open the **New Generator Ticket** form as shown in the example below:





Ticket Fields

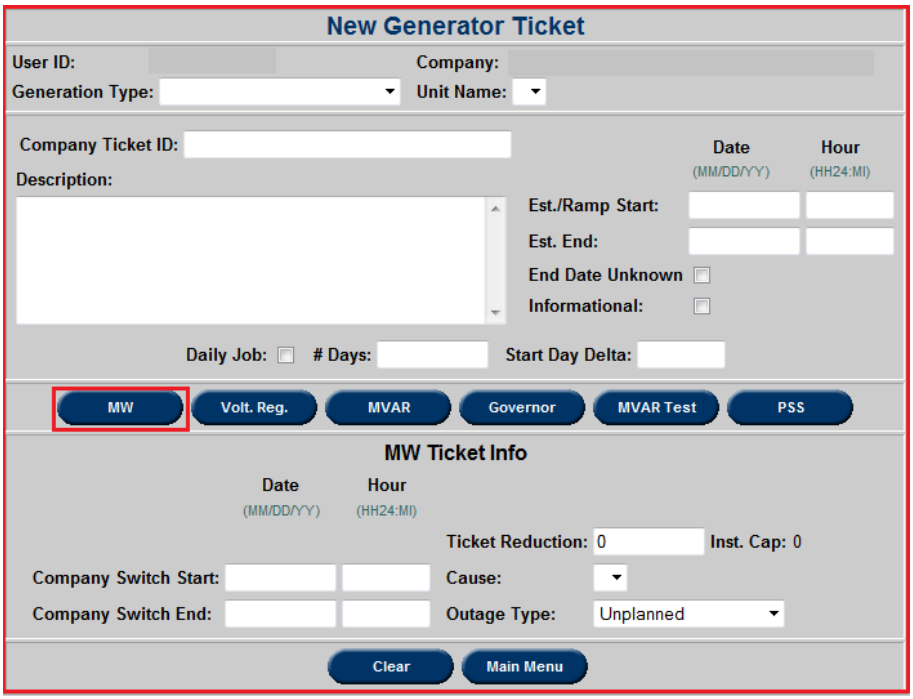
- The **User** and **Company** fields are system generated tags from login identifying the ticket's submitter and which company the user represents.
- **Generation Type**: The generation type includes the options Combined Cycle, Diesel/CT, Diesel/CT (small unit), Geothermal, Hydro, Hydro – pumped storage,

Nuclear, Nug, Solar, Fossil/Steam, Wind, etc. and refers to the method of generation the unit uses.

- **Unit Name**: Select unit from the drop-down menu based on the type already selected.
- **Company Ticket ID:** Optional field for the company's internal application ticket number. The ticket's submitter should review their own company policy to see if they should utilize this field.
- **Description**: Brief work description. In Unplanned outages and Emergency cases, this field should always provide information on the circumstance resulting in the outage.
- **Est. /Ramp Start**: Proposed ticket start date and time. All times should be entered in MM/DD/YY and HH24:MI (or 24 hour "military" style time). Ramp Start times are designed mainly for larger units, which could take hours to come off line.
- **Est. End**: Proposed ticket end date and time. Mandatory for *"Forecasted Planned"* and *"Maintenance*" outages.
- **End Date Unknown:** Can only be selected for *"Unplanned*" MW outages, or for MVAR "New Default" tickets.
- **Daily Job, #Days, Start Day Delta:** Necessary for multiple day tickets. See section **Multiple Day Data Entry.**

MW (Real Power) Ticket

MW (Megawatt) tickets are the most common generator outage tickets used in eDART. MW tickets are used to request outages for units that produce megawatts of energy. Select the **MW** button to create a ticket for a MW outage. This is the default ticket type on the **New Generator Ticket** form.



- **Company Switch Start Date and Hour:** Actual outage start date and time. Cannot

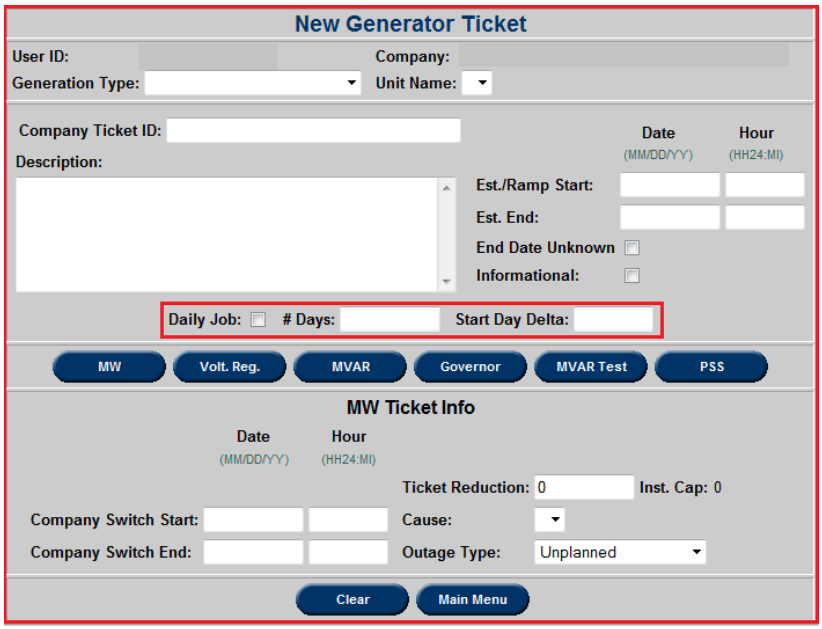
be more than 1 hour before the Est./Ramp Start time or 2 hours later than the Est./Ramp Start time.

- **Company Switch End Date and Hour:** Actual outage End date and time. Must be entered no later than 2 hours after the Est. End time.
  (***Note:*** *This is not meant to eliminate any verbal communications with the PJM Generation Dispatcher when a generating unit is coming on or off-line for an outage. Verbal notifications of unit status changes must still be provided to PJM Master Coordinator if it is a case of just clearing the ticket and the Generation Dispatcher if it is a case of clearing the ticket and bringing the unit online.)*
- **Informational:** Indicates that outage is "Info-only" (MW Reduction = 0). Only valid for Maintenance outages. When intending to create a new Informational ticket, check the "Informational" box and eDART will set reduction to 0 and change the type to "Maintenance."
  (***Note:*** *If a revision to an Informational ticket has a non-zero reduction, 'Informational' will change to 'No' but the outage type will remain as 'Maintenance.)'*
- **Ticket Reduction**: MW Reduction value. Cannot be zero for non-Informational tickets. Can be negative only if the "Cause" is Ambient Air and the "Outage Type" is Maintenance.
- **Inst. Cap.:** Installed capacity for the unit selected on the ticket.
- **Cause:** Reason for outage. Cannot be "Not Applicable." If cause is "Other," it is necessary to provide more information in the **Description**.
- **Outage Type:** Unplanned, Maintenance or Forecasted Planned.

Depending on the unit, a field for **Est. Ramp Complete** may appear under the **MW Ticket Info** section. Enter the estimated time at which the ramp procedure will end. This should fall between the **Est./Ramp Start** and **Est. End** times.

Daily Jobs

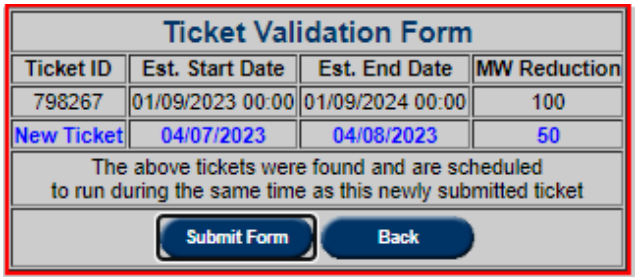
eDART has functionality to create a multiple day outage ticket by entering the data once without creating a separate ticket for each occurrence. This is called a **Daily Job**. ***Note:*** *Daily jobs are only permitted for Maintenance outages.*



- **Daily Job:** Check this box to designate whether a ticket will be a multiple day, multiple ticket outage.
- **# Days:** Enter the total number of days of labor required for the job.
- **Start Day Delta:** Enter the number of days separating each day of labor. If the job will occur on consecutive days, enter "1."

For example, if a user wants to create a ticket on 10/07/15 and wants to request a bi-daily job lasting three total days of labor, they would do the following: Create a new ticket. Enter all regular information. Check **Daily Job**. In the **# Days** field, enter the total number of days of labor necessary for the job. Enter "2" as the **Start Day Delta** to create a bi-daily schedule. (The user could also enter a Start Day Delta of "1" to have a daily schedule or "3" to have a tri-daily schedule.).

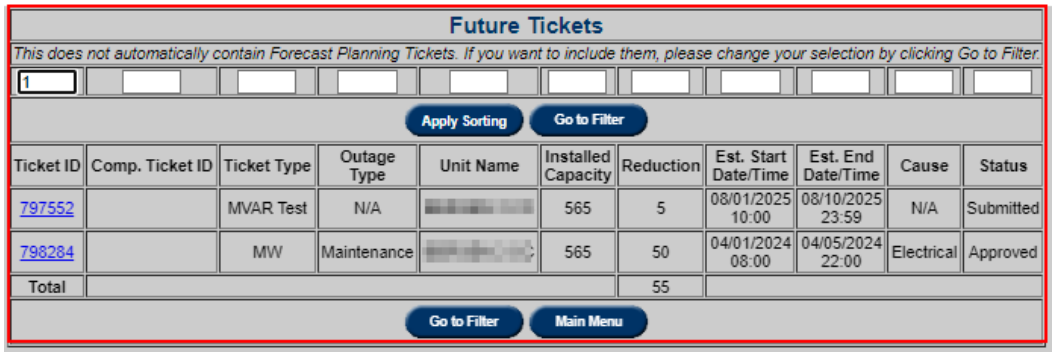
After entering the necessary data, the user would click the **Submit Form** button to open the **Ticket Validation Form**, which lists outages scheduled to occur in the same window as the newly created outage ticket. The result would be three tickets, each two days apart as shown in the example below:



To make changes, click **Back** button; to create the ticket, click **Submit form** button. ***Note:*** *New Ticket is the ticket that has just been created. If that is the only ticket displayed then no other*

outage is scheduled to occur at the same time as the new ticket.

After creating a set of Daily Jobs tickets, the tickets can found in the **Future Tickets** sections of eDART Generation:



Future Tickets

This does not automatically contain Forecast Planning Tickets. If you want to include them, please change your selection by clicking Go to Filter.

Apply Sorting | Go to Filter

Ticket ID	Comp. Ticket ID	Ticket Type	Outage Type	Unit Name	Installed Capacity	Reduction	Est. Start Date/Time	Est. End Date/Time	Cause	Status
797552		MVAR Test	N/A	[redacted]	565	5	08/01/2025 10:00	08/10/2025 23:59	N/A	Submitted
798284		MW	Maintenance	[redacted]	565	50	04/01/2024 08:00	04/05/2024 22:00	Electrical	Approved
Total						55				

Go to Filter | Main Menu

Cause Types

The following cause types are available for Generator MW tickets.
Voltage Regulator, MVAR, Governor, MVAR Test, and PSS tickets do not have a corresponding cause type.
For the most up to date list of cause types, an XML download is available via the Web and Browserless interfaces. For the Browserless interface, type=generationcause.

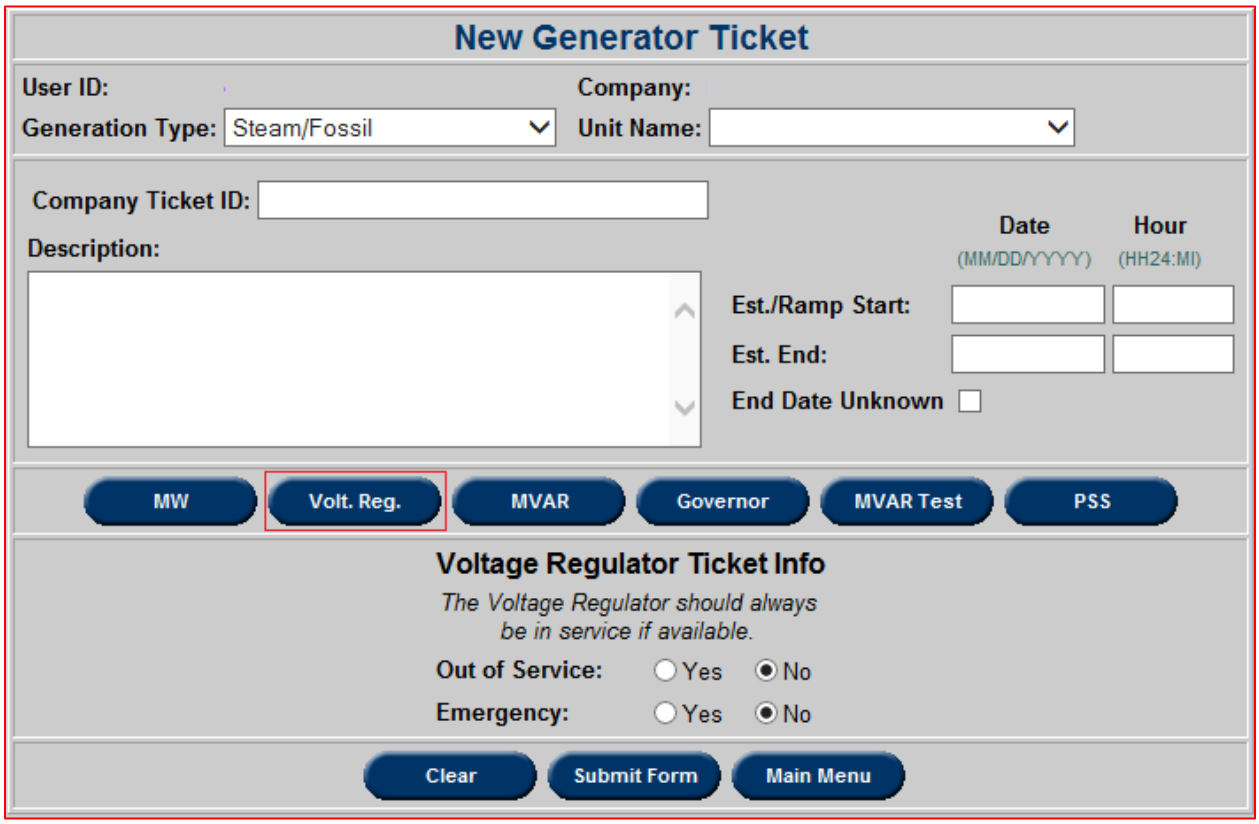
Cause ID	Description
-1	N/A
1	Air Heater
2	Annual Inspections
3	Annual Inspections/Refuel
4	Boiler Feed Pumps
5	Boiler Work
6	Breaker Problems
7	Breaker Work (Maintenance)
8	Chemistry Problem
9	Clean Intakes
10	Coal Feeder
11	Condenser System
12	Diver Safety
13	Electrical
14	Emissions
15	Engine Repair
16	Engine Work
17	Environmental

18	Fan Problem
19	Fan Work
20	Feed Pump
21	Fuel Problem
22	Fuel System
23	General Maintenance
24	Ground Problem
25	Inspections
26	Mill Problem
27	Mill Work
28	No Fuel
29	Opacity
30	Other
31	Precipitator
32	Pump Work/Problem
33	Rampdown
34	Rod Pattern Adjustments
35	Rod Swap
36	SCRAM Test
37	Start Failure
38	Substation/Yard
39	Testing
41	Transformer Problems
42	Transformer Work
44	Transmission Line
45	Transmission Problem
46	Tube Leak
47	Turbine Repair
48	Turning Gear
49	Unit Trip
50	Unknown
51	Vibrations
52	Water Chemistry
53	Wicket Gate
54	Ambient Air (Ambient Conditions)
55	Brush Inspection
56	Deslag
60	Ambient Conditions (Auto App.)
61	Turbine Deposits
62	Intake Screens
63	High Pressure Heaters

64	Valve Test/Work
65	Cranking Diesel
66	Black Start Auxiliary Equipment
67	Cold Weather Preparation Exercise
68	Black Start Testing
69	Emissions-CEJA

Voltage Regulator Ticket

eDART's outage request system includes ticketing for Voltage Regulators.
Select the **Volt. Reg.** button on the **New Generator Ticket** form to create a ticket for a VR outage.



Voltage Regulator Ticket Fields (See "Ticket Fields" under the sub-section "Create a Ticket" for explanations of the other fields on a Voltage Regulator ticket.)

- **Out of Service:** Indicate if the Voltage Regulator is Out of Service.
- **Emergency:** Indicate if it is an Emergency outage.

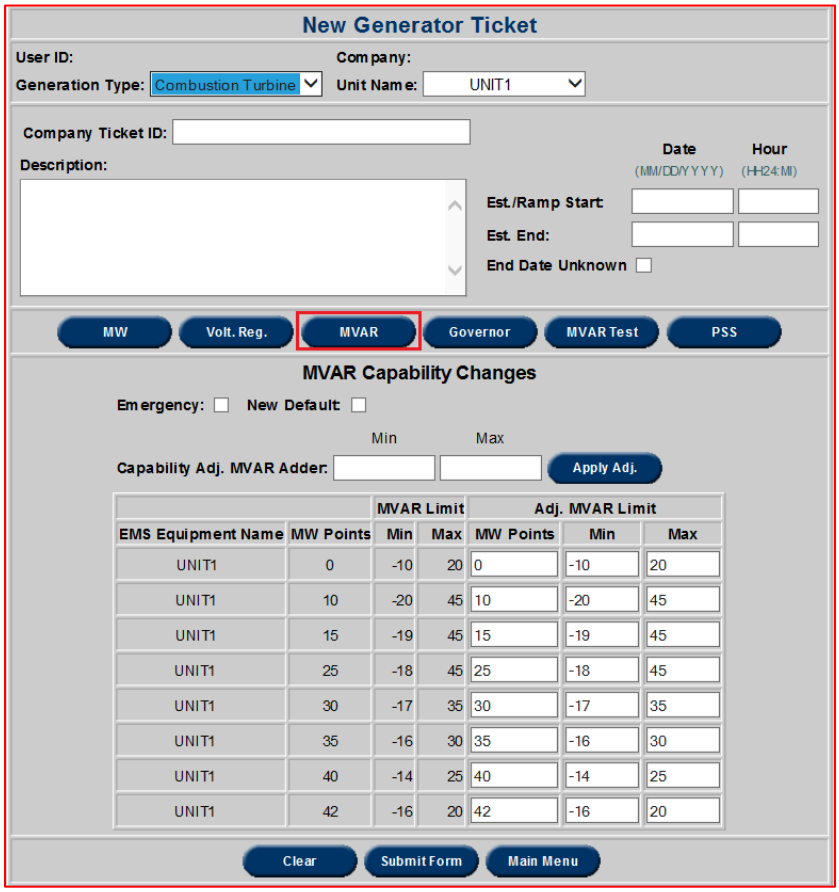
Note: *Voltage Regulator tickets should be created either when it is in the manual mode or if it is completely out of service.*

MVAR (Reactive Power) Ticket

Reactive power is necessary to maintain system voltages within safe operating limits. Reactive power controls the voltage in cases of disturbances and emergencies.

D-Curves (Reactive capability curves) give the maximum and minimum reactive power loadings corresponding to set MW values. This model is called a D-Curve because of its typical shape when plotted.

Select the **MVAR** button in the **New Generator Ticket** form to create an MVAR capability changes ticket. Tickets for reactive testing should be made using an **MVAR Test** Ticket, explained later in this document.



MVAR Ticket Fields (See "Ticket Fields" under the sub-section "Create a Ticket" for explanations of the other fields on a MVAR ticket.)

- **Emergency:** Indicate if it is an Emergency outage. Only applies if the change was unplanned.
- **New Default:** Indicate that the change to the D-curve is permanent and will be used as the default going forward.
- **Capability Adj. MVAR Adder:** Add or subtract a value from all entries at once

rather than changing values individually to shift the entire D-curve.

- **Max:** MVAR Max values should decrease or stay constant as MW Point value increases
- **Min:** MVAR Min values should increase or stay constant as MW Point value increases
- **Apply Adj.:** Apply adder value to MVAR values.
- **MVAR Limit:** The Min and Max columns under MVAR Limit display the existing minimum and maximum values respectively.
- **Adjusted MVAR Limit:** The MW points and the Min and Max columns under the Adjusted MVAR Limit field display the new values after the adder is applied.

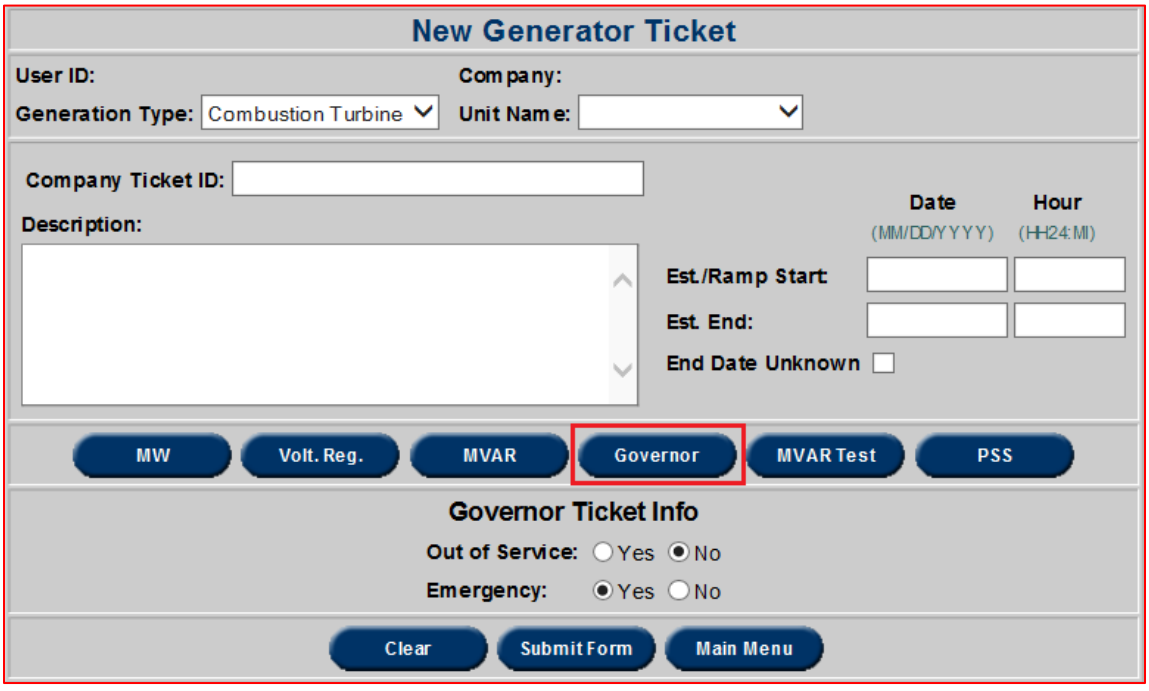
Note: *If either* ***Emergency*** *or* ***New Default*** *are checked,* ***End Date Unknown*** *can be checked if applicable.*

For additional information on the rules, please refer to the "Attachment D: PJM Generating Unit Reactive Capability Curve Specification and Reporting Procedures" of *Generator Operational Requirements – PJM Manual M14D.*

Governor Ticket

The Governor helps manage frequency in a generation unit. Governor tickets can be used to schedule outages for a unit's governor.

Select the **Governor** button in the **New Generator Ticket** form to create a ticket for a governor outage.



Governor Ticket Unique fields (See "Ticket Fields" under the sub-section "Create a Ticket" for explanations of the other fields on a Governor ticket.)

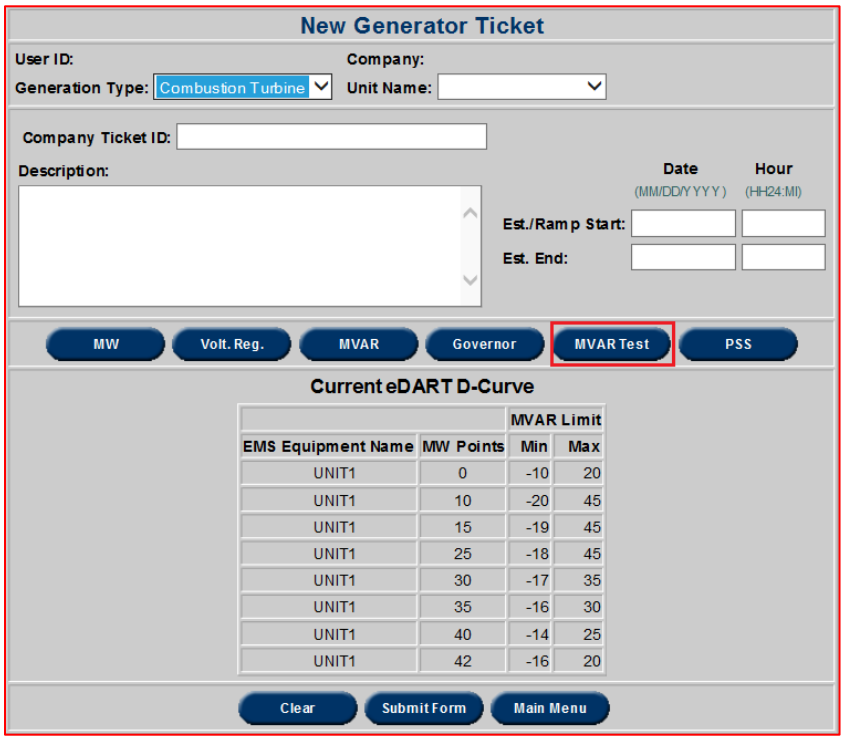
- **Out of Service:** Use this field to indicate if the governor is Out of Service.
- **Emergency:** Use this field to indicate if it is an Emergency outage.

MVAR Test (Reactive Power Test) Ticket

Companies are required to coordinate with PJM and inform PJM if they are planning to perform a test to vary the MVAR output and make sure the D-curve in eDART is accurate. Companies can create an **MVAR Test** ticket to schedule the test.

For more information on MVAR testing procedures, please refer to the "Attachment E: PJM Generator Reactive Capability Testing" of *Generator Operational Requirements – PJM Manual M14D.*

Note: *Changes to the MVAR capability as a result of MVAR test must be submitted through an* ***MVAR Ticket*** *(as explained previously).*

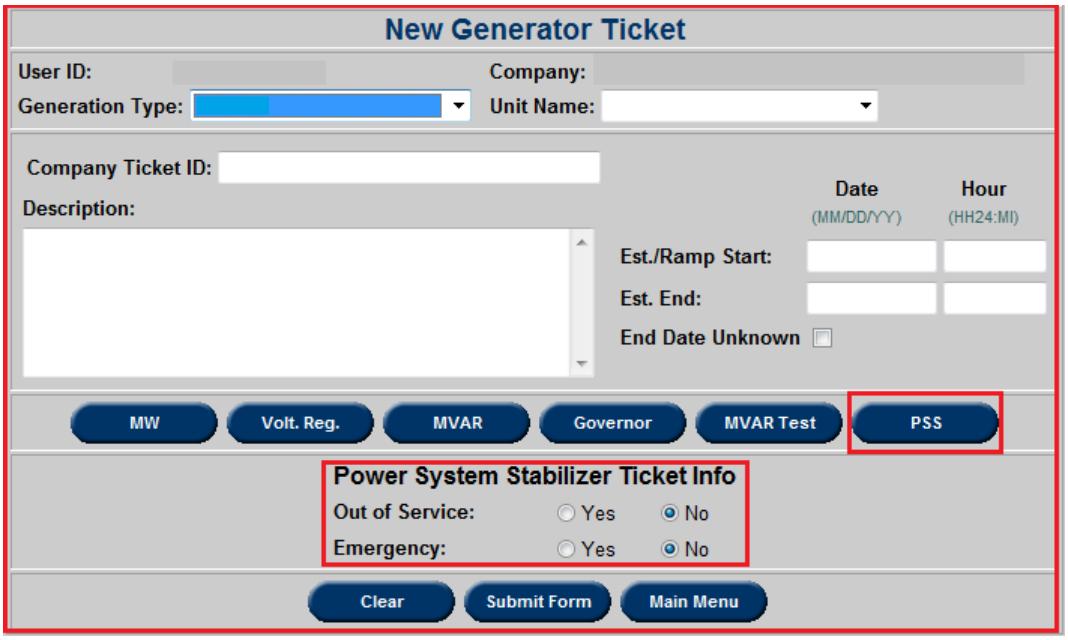


MVAR Test Ticket Unique fields (See "Ticket Fields" under the sub-section "Create a Ticket" for explanations of the other fields on a MVAR ticket.):

- **Current eDART D-curve:** This table displays the current D-Curve data for reference.

Power System Stabilizer (PSS) Ticket

PSS tickets can only be created for units designated as having a Power System Stabilizer (PSS). Power System Stabilizers are used to help larger units control their voltage levels. If a PSS ticket cannot be made for a unit with a PSS, contact the PJM Generation Department GenOutageSupport@pjm.com or the eDART team eDartHelp@pjm.com to update the unit properties. Select the **PSS** button in the **New Generator Ticket** form to create the ticket.



PSS Ticket Unique fields (See "Ticket Fields" under the sub-section "Create a Ticket" for explanations of the other fields on a Governor ticket.):

- **Out of Service:** Indicate if the PSS unit is Out of Service.
- **Emergency:** Indicate if it is an Emergency outage.

Filtering Options

eDART offers a great array of filtering options that range from simply searching for the Ticket ID to searching the Unit Type and the Start or End Dates of the desired outage, among other filtering options. The options for a standard ticket search using the **View/Revise Ticket** button in the **Gen. Tickets** menu are listed and detailed below. Other areas of eDART's generation suite that use filtering include all of the options in the **Trans. Tickets** menu, the **D-Curve Report** search function and the **Owners Report** search function. The same basic principles apply to all eDART filtering functions. However, other sections with filtering capabilities may include different fields. The only type of field not covered below is a field with a checkbox. To use a

checkbox, simply click the box to designate whether the field applies.

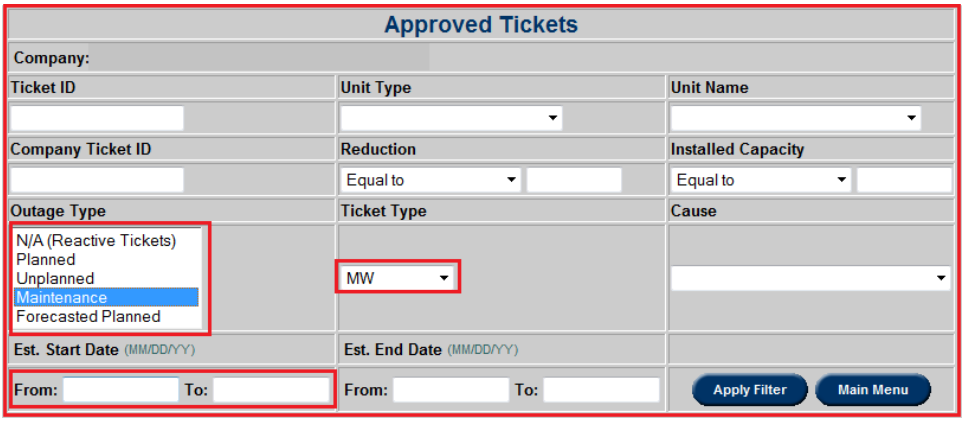
- **Ticket Type:** Select what kind of ticket to filter on; options range from MW, Volt. Reg., MVAR, Governor, MVAR Test or PSS.
- **Ticket ID:** Using this field, the user can filter for a specific ticket by entering the unique Ticket ID corresponding to the initial outage request ticket.
- **Company Ticket ID:** This field allows the user to use a company's own designated ticket ID. Individual companies may have differing ticket reference policies. This filter can be useful for users who are more familiar with their company's ticket ID scheme. Because company policies are often different, this ID could range from letters to numbers and depends entirely on the company's own categorical policy.
- **Outage Type:** This field enables the user to select specific outage types, including Planned, Unplanned, and Maintenance. Please keep in mind that Forecasted Planned is unselected by default, and users must specifically include "Forecasted Planned" in order to see "Forecasted Planned" results. For multi-select, hold the Ctrl key and click on desired Outage Types.
- **Unit Type:** The unit type includes the options Combined Cycle, Diesel/CT, Diesel/CT (small unit), Geothermal, Hydro, Hydro – pumped storage, Nuclear, Nug, Solar, Fossil/Steam or Wind and refers to the method of generation the unit uses. Selecting a Unit Type will affect which Unit Names are available to select. Including Unit Type typically creates more effective and efficient searches.
- **Unit Name:** Select a specific unit based on type already selected. Only units of the selected type will be available to choose from.
- **Reduction:** MW Reduction value. This can only be negative only if the "Cause" is Ambient Air and the "Outage Type" is Maintenance. Using this will likely result in a relatively narrow filter.
- **Installed Capacity:** This field allows the user to choose the range or value of installed capacity of the outaged units.
- **Cause:** This field allows the user to filter for the cause of outages. Depending on which cause is selected, the filter may be very narrow.
- **Ticket or Revision Status:** This field allows the user to filter for the status of tickets. This may be used to filter for active tickets, for completed tickets and for denied or canceled tickets. The user can combine this field with other fields to see the status of tickets with different qualities.
- **Submission Date:** This field allows the user to search for tickets submitted on s specified date or during a specified date range. A user may use this field to look at what has been submitted, or to confirm when they submitted a ticket during a period of time, among other functions.
- **Est. Start/End Date:** This field allows the user to search for tickets that have a specified estimated start date. Users may use this field to get an idea of what tickets they have planned for the future.
- **Actual Start/End Date:** This field allows the user to search for tickets that have a specified actual start date. Users may use this to review when different tickets occurred or to find a ticket that they know occurred at a specific time, among other uses.

- **Occurring During:** This field allows the user to search for tickets that are occurring during a specified date. Users may use this to get a snapshot of what outages are requested or planned during a certain period of time, among other uses.

All these can be combined and selected in any manner to create a search tailored to meet individual needs. For example, a user may want to find the **Approved** tickets for any upcoming **MW Maintenance** outages with **Testing** as their cause that their company has scheduled for September 2012 that were submitted during May 2012. The following is an example of a filter that would meet those needs. Notice how only the fields relevant to the user's search are filled.

To filter for those criteria, the user would select **MW** from the **Ticket Type** drop-down menu and highlight **Maintenance** in the **Outage Type** box (***Note:*** *The Outage Type box is a multi-select field, and to select more than one option the user would hold the CTRL key while clicking as many options as desired.*) while also selecting **Approved** in the **Ticket Status** drop-down menu and **Testing** from the **Cause** drop-down menu. The user would then enter the range of dates in May (5/1/12 to 5/31/12) in the **Submission Date** box and the range of dates in September (9/1/12 to 9/30/12) in the **Occurring During** box.

The user would then hit **Apply Filter**. This would bring the user to the **Sorting** screen. If the user does not wish to sort their results beyond the default settings, the user can hit **Apply Sorting** to see their filter results. For more on **Sorting**, go to the ***Sorting*** section of this guide.

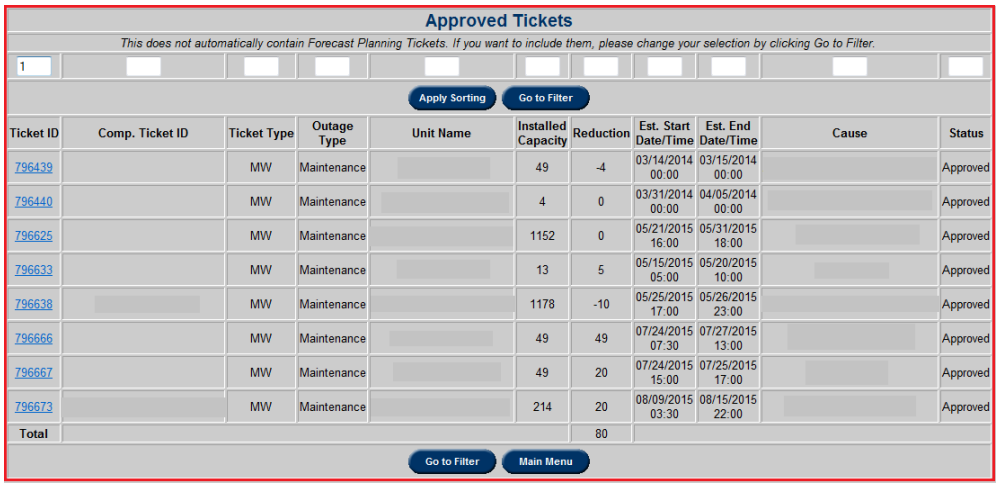


By using this filter, the user will only get results that meet the following criteria:

- Must be a MW ticket; **AND**
- Must be either a Maintenance ticket; **AND NOT** a Reactive Ticket, Planned Ticket, Unplanned ticket or Forecasted Planned ticket; **AND**
- Must have be caused by Test; **AND**
- Must have had a Ticket Status of Approved; **AND**
- Must have been submitted from February 1st, 2012 (02/01/12) to September 12th , 2012 (09/12/12);

This is a pretty narrow filter. If a ticket does not fulfill any of those criteria it will not be listed in

the filter. Below is an example of results for this filter:



Approved Tickets

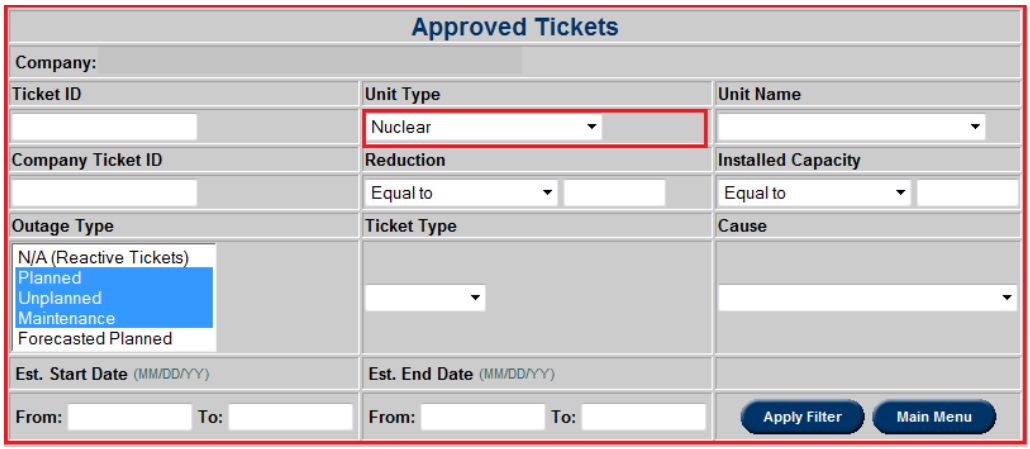
This does not automatically contain Forecast Planning Tickets. If you want to include them, please change your selection by clicking Go to Filter.

1 | Apply Sorting | Go to Filter

Ticket ID	Comp. Ticket ID	Ticket Type	Outage Type	Unit Name	Installed Capacity	Reduction	Est. Start Date/Time	Est. End Date/Time	Cause	Status
796439		MW	Maintenance		49	-4	03/14/2014 00:00	03/15/2014 00:00		Approved
796440		MW	Maintenance		4	0	03/31/2014 00:00	04/05/2014 00:00		Approved
796625		MW	Maintenance		1152	0	05/21/2015 16:00	05/31/2015 18:00		Approved
796633		MW	Maintenance		13	5	05/15/2015 05:00	05/20/2015 10:00		Approved
796638		MW	Maintenance		1178	-10	05/25/2015 17:00	05/26/2015 23:00		Approved
796666		MW	Maintenance		49	49	07/24/2015 07:30	07/27/2015 13:00		Approved
796667		MW	Maintenance		49	20	07/24/2015 15:00	07/25/2015 17:00		Approved
796673		MW	Maintenance		214	20	08/09/2015 03:30	08/15/2015 22:00		Approved
Total						80				

Go to Filter | Main Menu

A user may desire a simpler filter. For instance, a user may want to see all of their company's **Completed Hydro** tickets during any period of time. This would be a comparatively broad filter. The user would just select **Nuclear** in the **Unit Type** field and **Complete** in the **Ticket Status** field and hit **Apply Filter**.



Approved Tickets

Company:

Ticket ID	Unit Type	Unit Name
	Nuclear	
Company Ticket ID	**Reduction**	**Installed Capacity**
	Equal to	Equal to
Outage Type	**Ticket Type**	**Cause**
N/A (Reactive Tickets) Planned Unplanned Maintenance Forecasted Planned		
Est. Start Date (MM/DD/YY)	**Est. End Date** (MM/DD/YY)	
From: To:	From: To:	Apply Filter | Main Menu

For this filter, the results would just have to meet the following criteria

- Must be either a Planned Ticket, Unplanned ticket or Maintenance ticket; **AND NOT** a Reactive Ticket or a Forecasted Planned ticket (***Note:*** *This is the default for the Outage Type filter field*) **AND**
- Must be a ticket for a Nuclear unit; **AND**
- Must have a Ticket Status of Complete.

This is an example of a very broad filter.

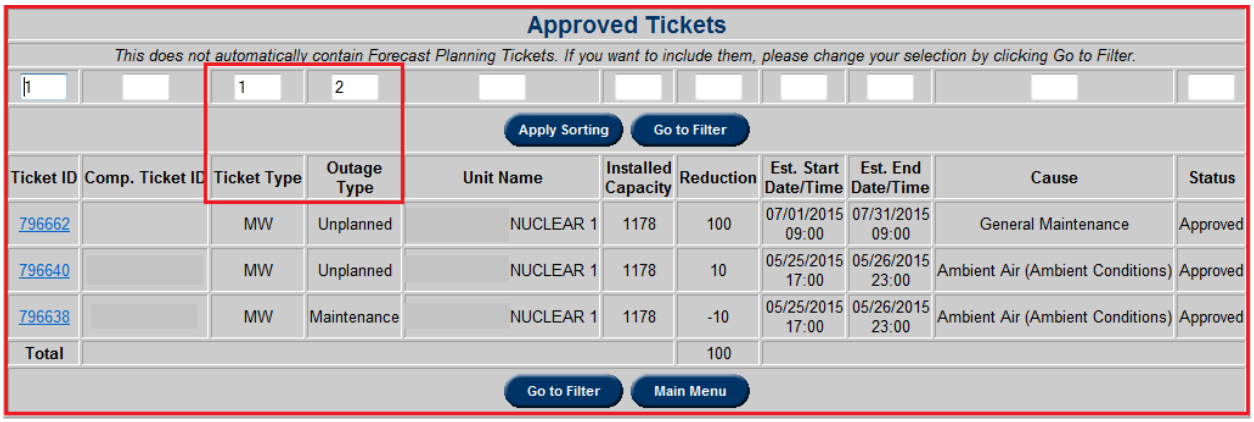
A user can also use filtering to search for individual tickets if a user has either the Ticket ID or

their Company's Ticket ID. In either instance, the user would just enter the ID into either the **Ticket ID** or **Comp. Ticket ID** field respectively, and hit **Apply Filter**. Because these IDs are unique, the user should only see one result.

Using filtering, a user can present outage reports in a variety of ways. Filtering can be combined with eDART's sorting function to create highly customized results presentations.

Sorting

Sorting is a simple way to further organize outage search results. By default, tickets are sorted in ascending order of the **Ticket ID**, but the user can sort results based on any field. It is also possible to sort on multiple columns based on a user defined sort order. The columns will be sorted in the numerical order as specified in the text box under each column name. For example, to sort by **Ticket Type** first, and then **Outage Type**, enter the digit "1" in the box under **Ticket Type** and "2" under **Outage Type**, and then click on the **Apply Sorting** button at the top of the window. The results will be displayed in the desired sort order as shown in the example below. It is necessary to delete numbers that are over any columns that are not to be used in a sort. Sorting can be done on any reports where there are text boxes under each column name.



Approved Tickets

This does not automatically contain Forecast Planning Tickets. If you want to include them, please change your selection by clicking Go to Filter.

		1	2							

Apply Sorting | Go to Filter

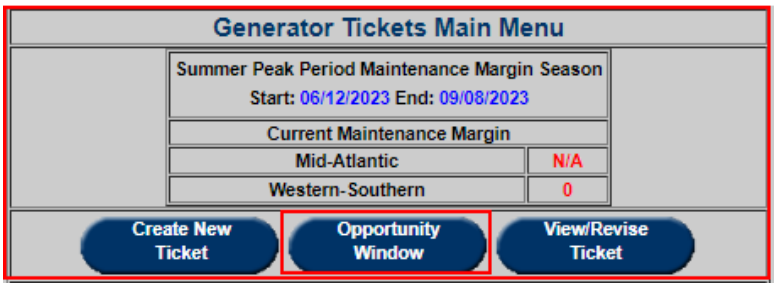
Ticket ID	Comp. Ticket ID	Ticket Type	Outage Type	Unit Name	Installed Capacity	Reduction	Est. Start Date/Time	Est. End Date/Time	Cause	Status
796662		MW	Unplanned	NUCLEAR 1	1178	100	07/01/2015 09:00	07/31/2015 09:00	General Maintenance	Approved
796640		MW	Unplanned	NUCLEAR 1	1178	10	05/25/2015 17:00	05/26/2015 23:00	Ambient Air (Ambient Conditions)	Approved
796638		MW	Maintenance	NUCLEAR 1	1178	-10	05/25/2015 17:00	05/26/2015 23:00	Ambient Air (Ambient Conditions)	Approved
Total						100				

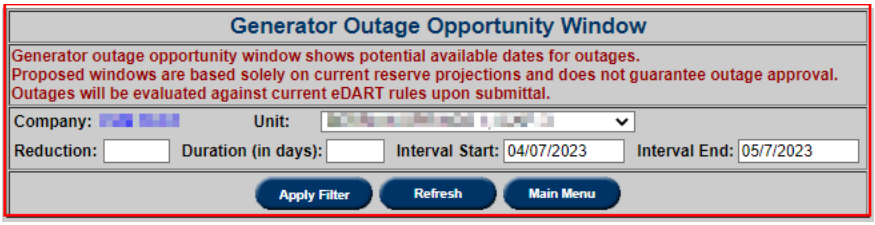
Go to Filter | Main Menu

Opportunity Window

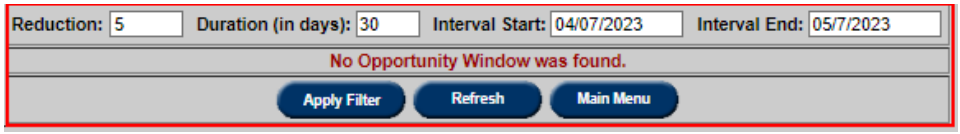
Outage **Opportunity Window** tool can be used to facilitate scheduling of generator outages to maintain reserves.

User will select unit, outage duration, outage reduction and a start and end window. Tool will then provide availability between dates.

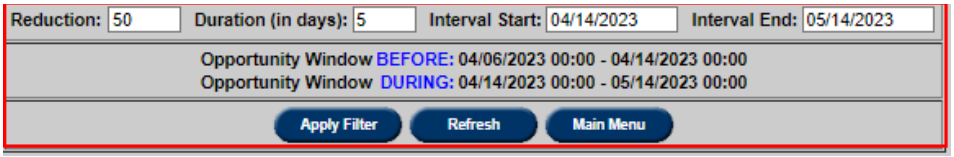




Message displayed in red text if no opportunity window is found for the parameters entered.

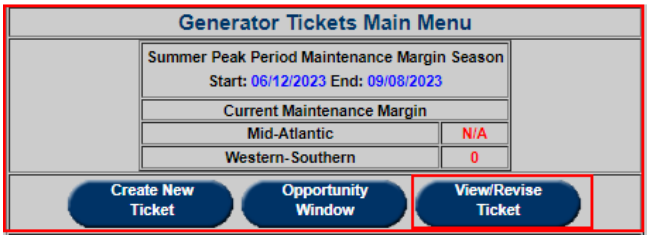


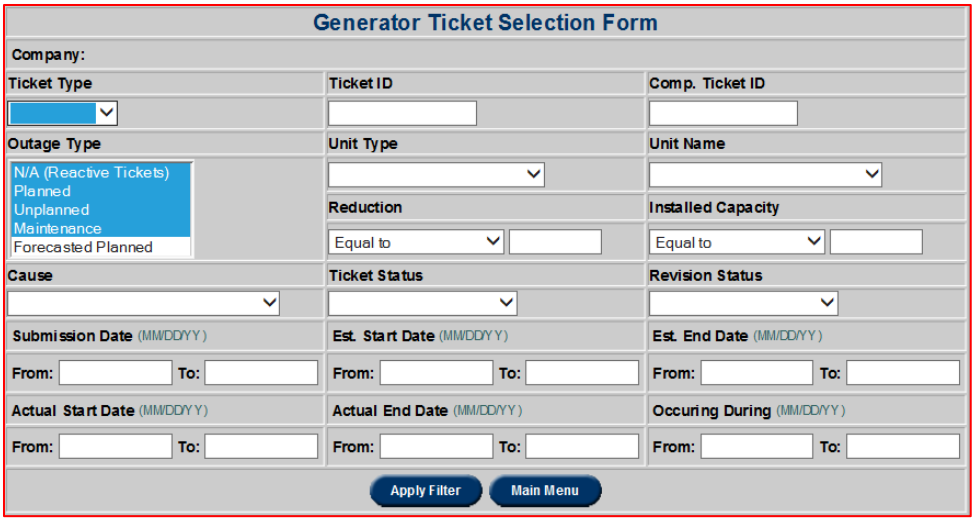
Outage date range displayed if opportunity window is found.



View / Revise Ticket

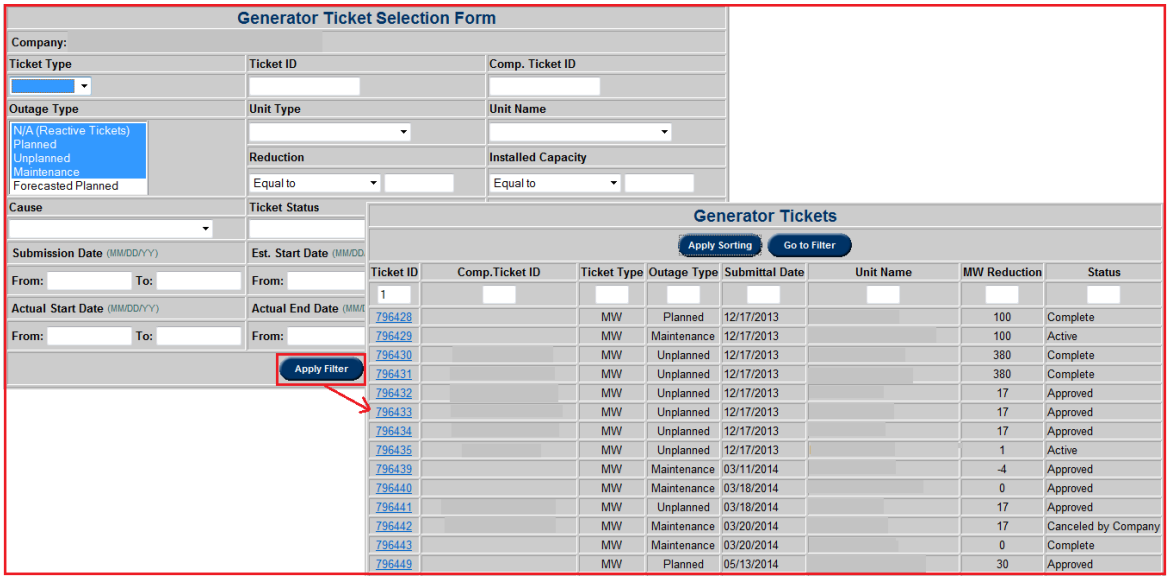
In order to view or revise any existing tickets, select the **View/ Revise Ticket** button on the **Generation Tickets Main Menu** to open the **Generator Ticket Selection Form**.



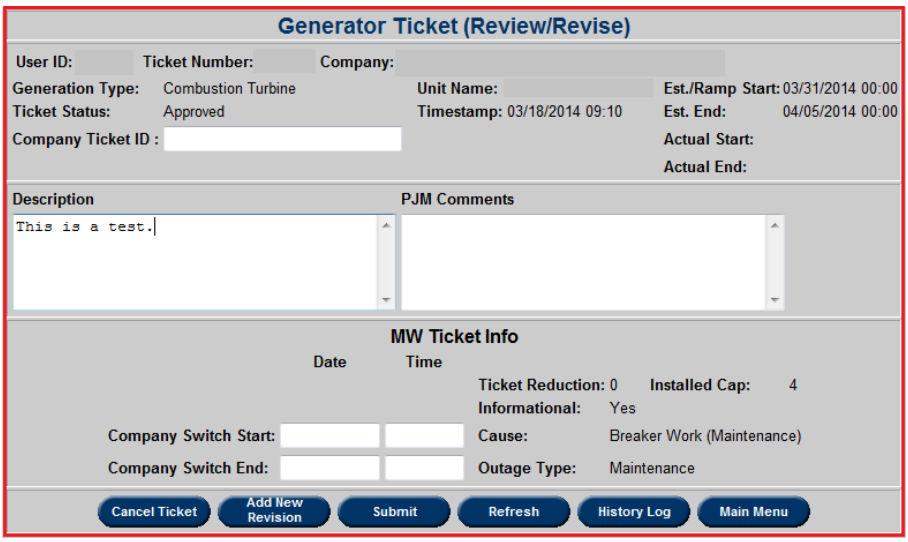


Use the **Apply Filter** button to apply any selected filter criteria. The default filter setting selects all tickets except *"Forecasted Planned."* "Forecasted Planning" tickets are omitted in the default filter settings because these tickets can be scheduled up to 3 years in the future, and therefore inclusion would provide excessive results. In order to view **"Forecasted Planned"** tickets, the user must explicitly select it from the options under **Outage Type** field. The filters can be used in any combination; however, the data displayed will need to meet the criteria selected in order to be included in any filtered search.

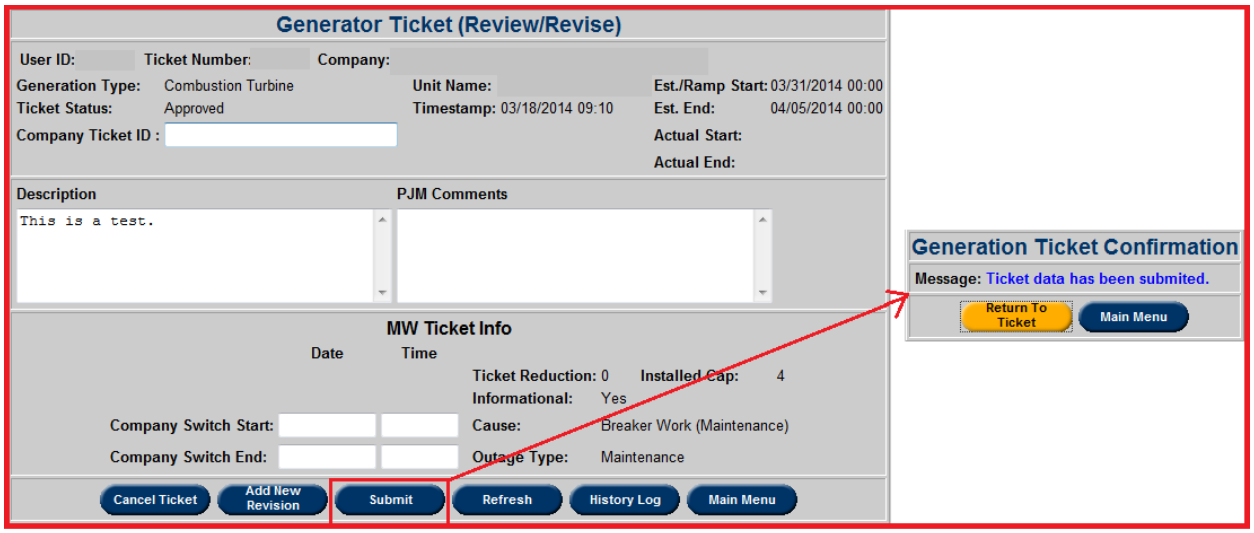
Below is an example of results from a default use of the **Apply Filter** button:



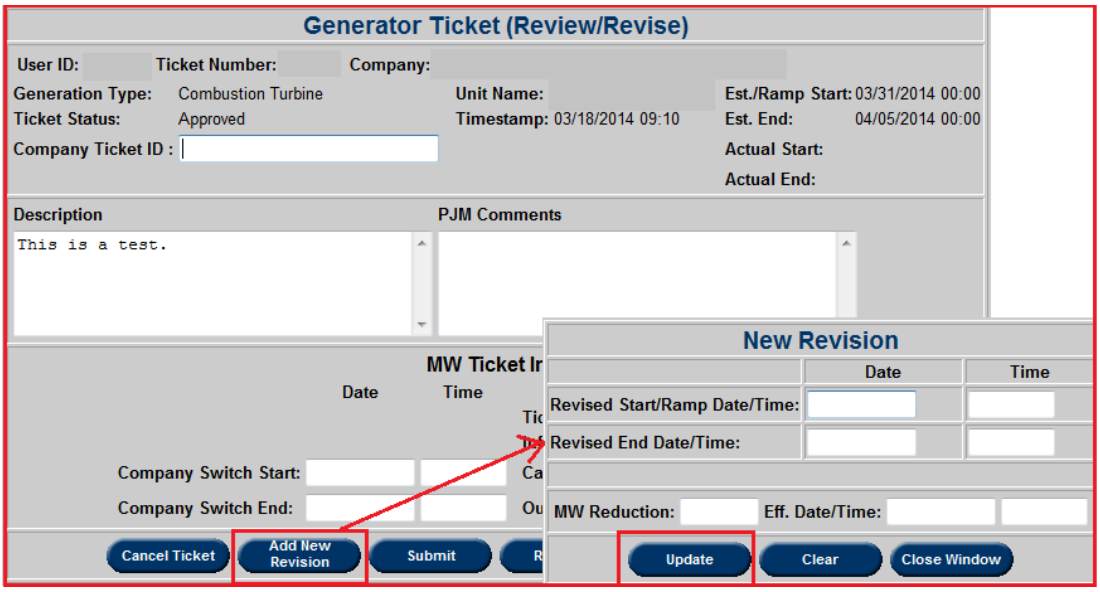
Click on **Go To Filter** button to return to the previous page for filtering. In order to open a specific ticket, click on the **Ticket ID** field for the desired ticket and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:



The only fields that can be updated are the ones that have a corresponding valid text box next to them. In case of a MW ticket (as shown in the example above), the fields that can be edited are **Company Ticket ID**, **Description**, **Company Switch Start and End Date /Time**. The same rules apply for **Company Switch Start /End** as explained earlier in the ***Create New Ticket*** section. When finished updating the desired fields, select the **Submit** button and a confirmation message will appear as shown in the example on the next page:



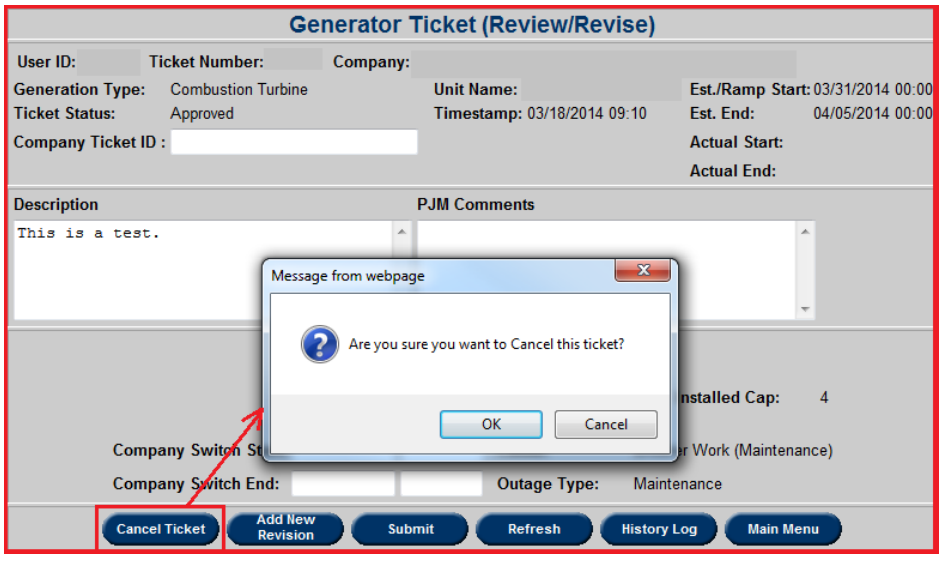
It is also possible to change the **Est. /Ramp Start** and **End Date and Time** and **MW Reduction** by selecting the **Add New Revision** button which opens the **New Revision** form as shown in the example below:



Enter the **Revised Start and End Date/ Time**, which should adhere to the rules as explained earlier for Est. Start and End Date. It is also possible to update the **MW Reduction**; the corresponding Date /Time when the Reduction should take effect can be provided in the **Eff. Date/Time** field. When finished updating the desired fields, select the **Update** button as shown in the example above.

Note: *When submitting a revision to an Informational ticket, if the revision has a non-zero reduction, 'Informational' field will change to 'No' but the outage type will remain as 'Maintenance.'*

In order to delete a ticket, select the **Cancel Ticket** button. A confirmation dialog box will appear enabling ticket cancelation, as shown in the example below:



After clicking **"Ok**," the following confirmation message will appear:

The ticket status will now be changed to **Cancelled by Company.** A ticket cannot be canceled if the Ticket Status is **Active.**

eDART Ticket Status

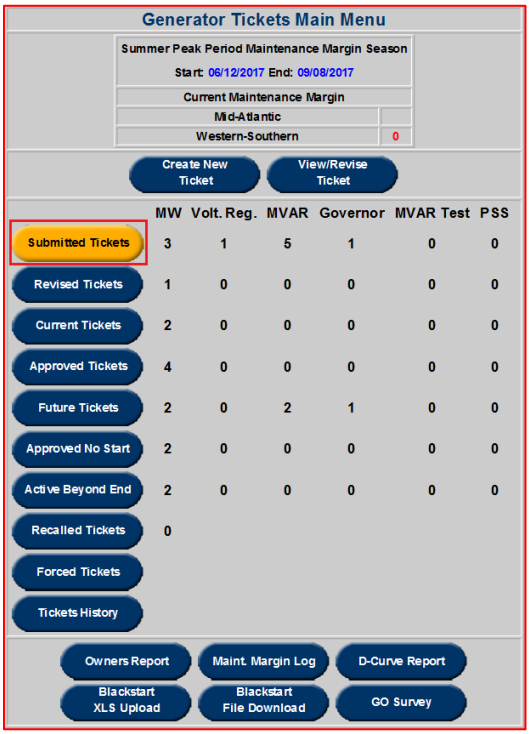
- **Submitted:** This is the original status of the ticket upon submittal
- **Approved**:
  - **MW Ticket –** The ticket status is changed to **Approved** by PJM upon review and approval.
  - **Reactive Ticket –** The ticket status is changed to **Received by PJM** upon receipt of this type of ticket by PJM PD. The status is displayed as **Approved** on the menu.
- **Active:** The ticket status is changed to **Active** upon input of an actual outage "start" date by PJM.
- **Complete:** The ticket status is changed to **Complete** upon input of an actual outage "end" date by PJM.
- **Denied**:
  - **MW Ticket –** The ticket status is changed to **Denied** by PJM upon review and denial.
  - **Reactive Ticket –** The ticket status *cannot* be changed to **Denied**.
- **Cancelled by Company:** The ticket status is changed to **Cancelled by Company** if the company initiates cancellation of the ticket. ***Note:*** *A verbal notification to PJM is required if the change affects current or the next operating day.*
- **Cancelled by PJM:** The ticket status is changed to **Cancelled by PJM** if PJM initiates cancellation of the ticket. A verbal notification is given to the company.
- **Pending Evaluation:** Tickets can be auto-approved by eDART if they meet certain criteria. Tickets that require manual review and approval are set to **Pending Evaluation**.

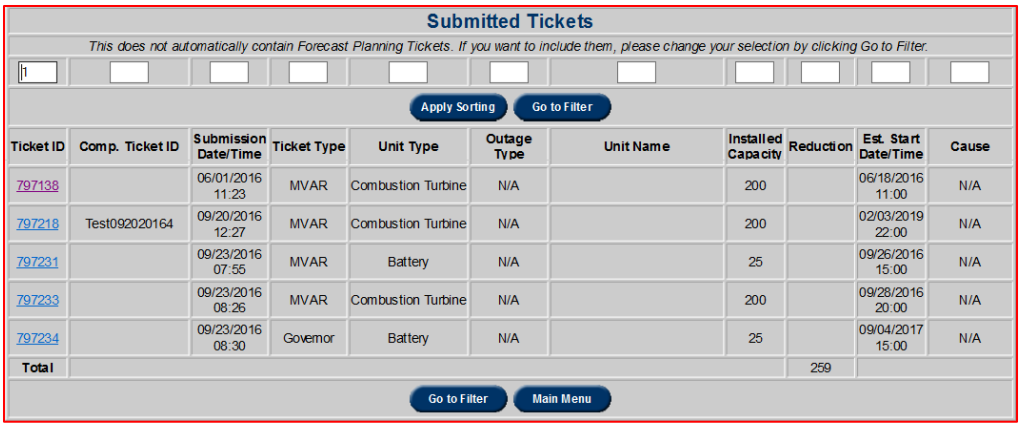
Generator Outage Ticket Reports

Submitted Tickets Report

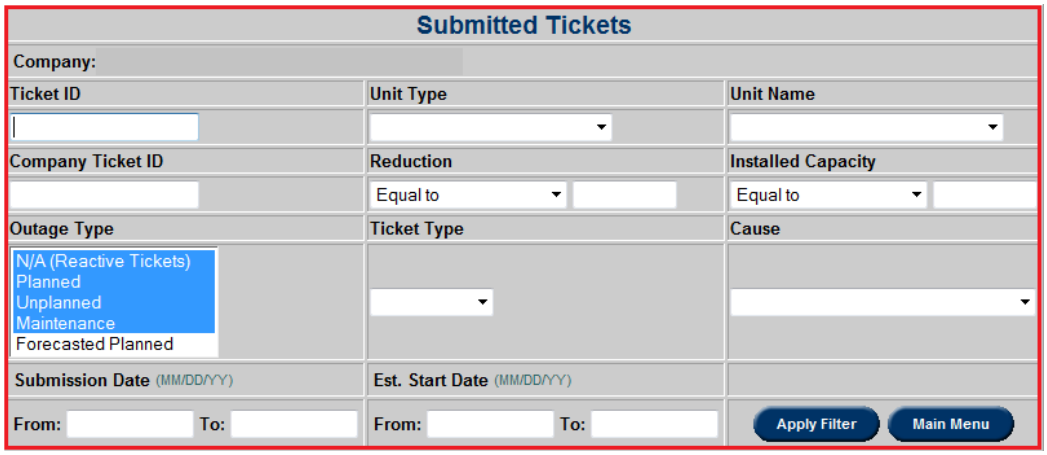
In order to view a report for Submitted tickets, select the **Submitted Tickets** button on the main

menu, and this opens the **Submitted Tickets** report page that displays a list of all the Submitted tickets (except Forecasted Planning).



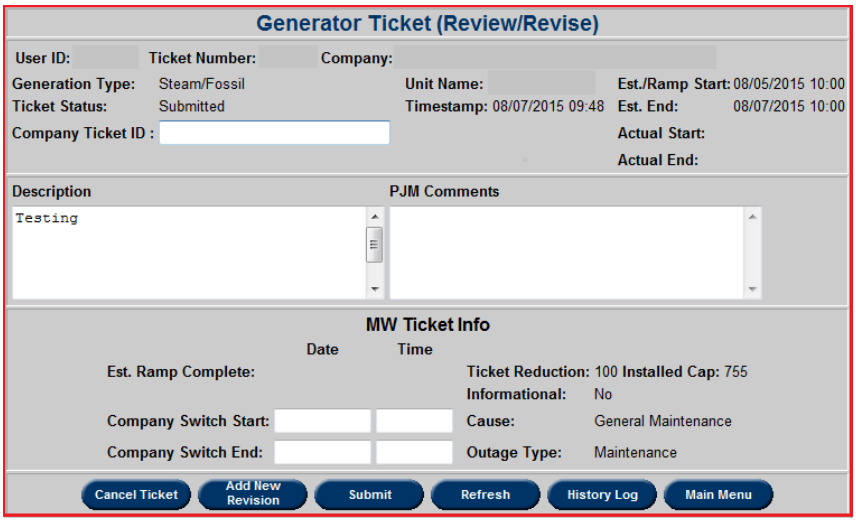


The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. In order to filter the results based on search criteria, select the **Go To Filter** button and this will open the **Submitted Ticket Report Filter** as shown in the example below:



After specifying the search criteria, click the **Apply Filter** button and this opens the **Submitted Tickets report** with filtered results. *(**Note:** "Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under **Outage Type**.)*

In order to open a specific ticket, click on the **Ticket ID** field on the filtered reports page and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:

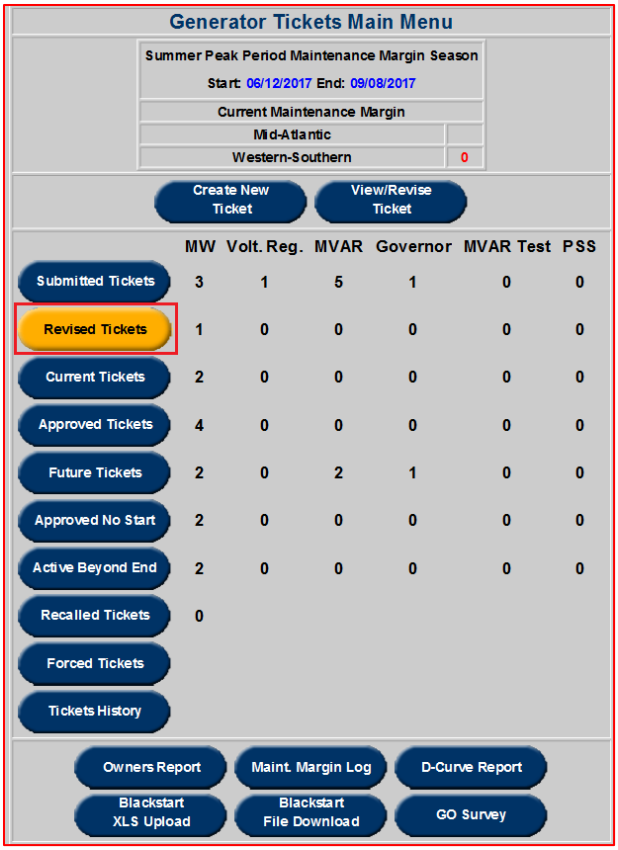


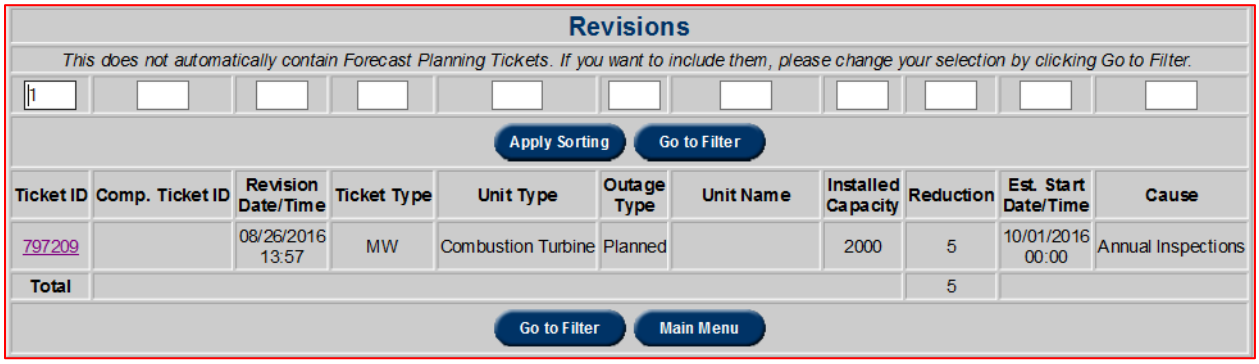
This form is the same as the one described in the ***View/ Revise ticket*** section. (***Note:*** *This is a MW ticket and the fields will vary based on the ticket type.)* The only addition is a ***Revisions*** table displayed at the bottom (as shown in the example above) that shows a list of all the revisions that have been added to a ticket.

Revised Tickets Report

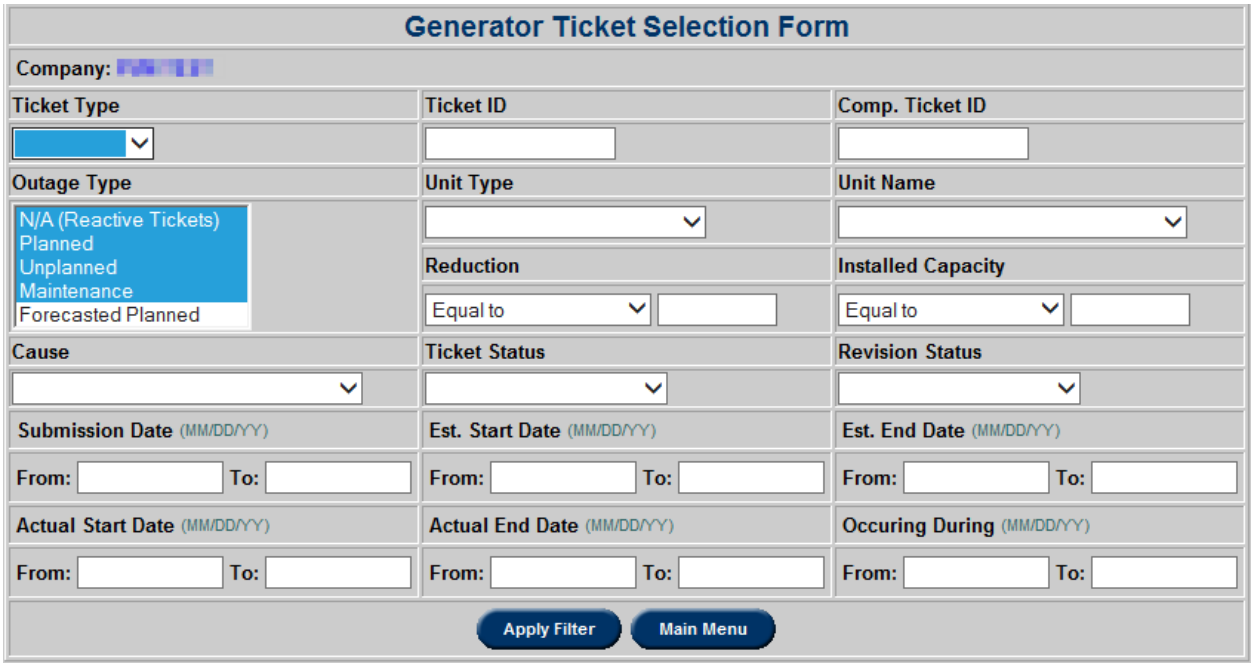
In order to view a report for Revised tickets, select the **Revised Tickets** button on the main menu and this opens the **Revisions** report that displays a list of all the Revised tickets (except

Forecasted Planning).

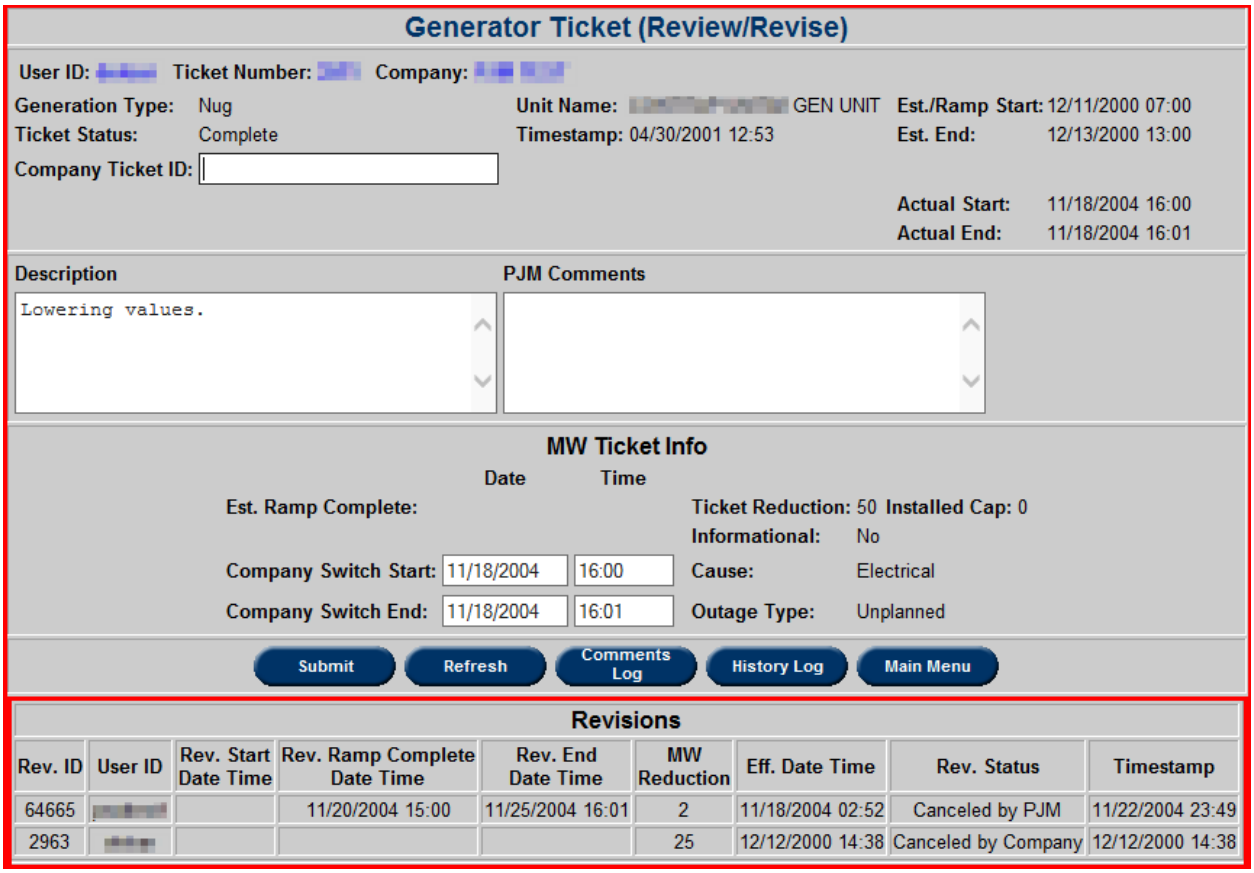




The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. In order to filter the results based on search criteria, select the **Go To Filter** button and this will open the **Revisions** report filter as shown in the example below:



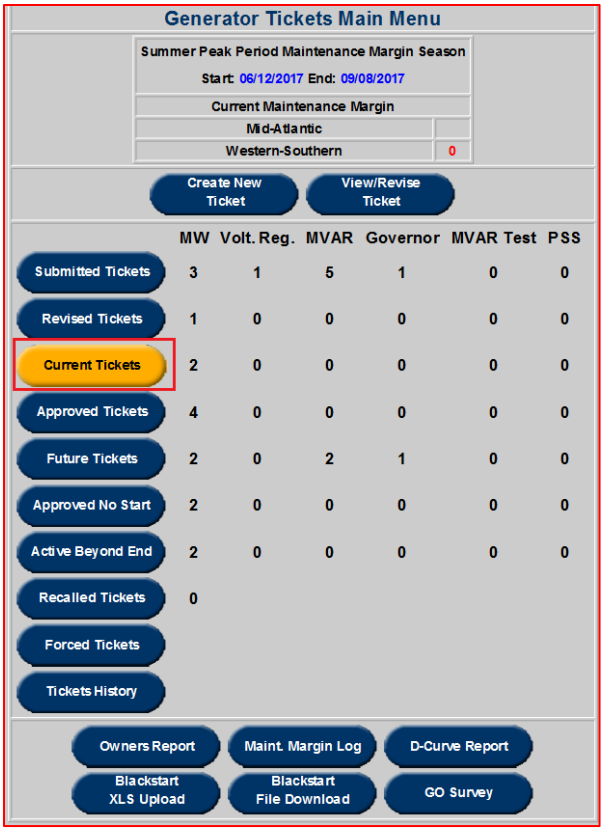
After specifying the search criteria, click the **Apply Filter** button and this opens the **Revisions Tickets report** with filtered results. (***Note:*** *"Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under* ***Outage Type.)***
In order to open a specific ticket, click on the **Ticket ID** field in the filtered reports page and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:

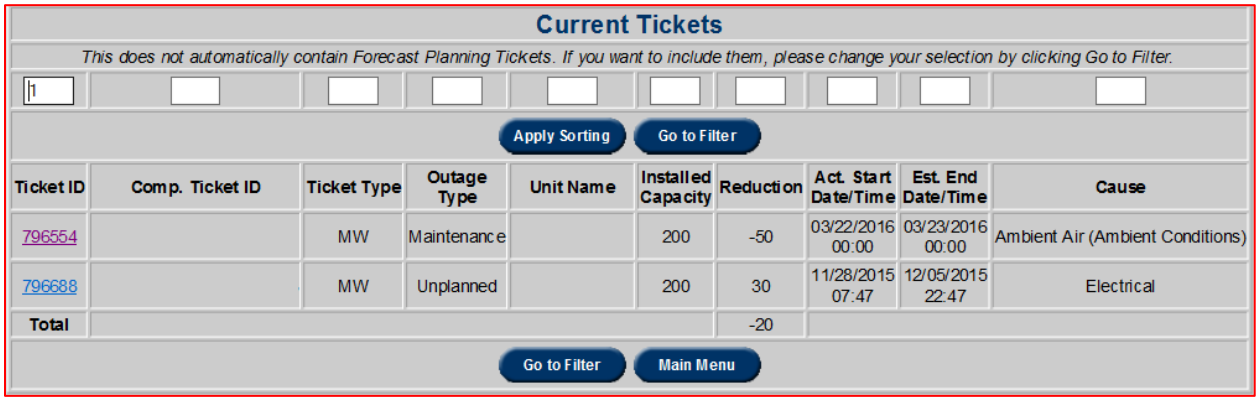


This form is the same as the one described in the ***View/ Revise Ticket*** section. (***Note:*** *This is a MW ticket and the fields will vary based on the ticket type).* The only addition is that the ***Revision*** table is displayed at the bottom (as shown in the example above) which shows a list of all the revisions that have been applied to this ticket.

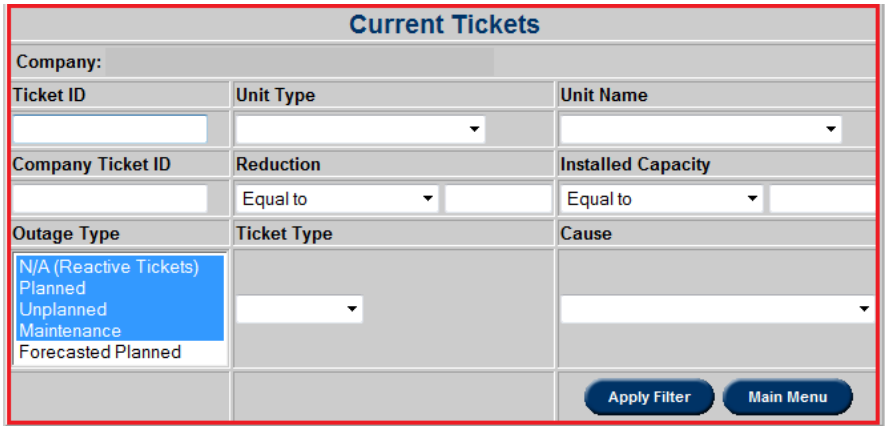
Current Tickets Report

In order to view a report for Current tickets, select the **Current Tickets** button on the main menu and this opens the **Current Tickets report** that displays a list of all the active tickets (except Forecasted Planning).



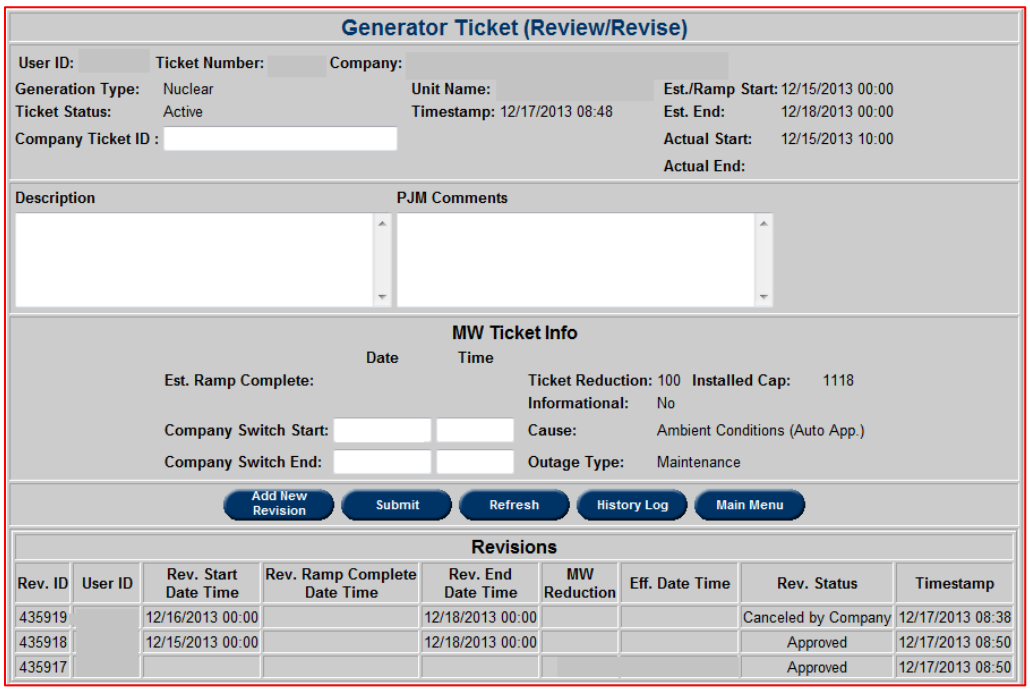


The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. In order to filter the results based on search criteria, select the **Go To Filter** button and this will open the **Current Ticket Report Filter** as shown in the example below:



After specifying the search criteria, click the **Apply Filter** button and this opens the **Current Ticket Report** with filtered results. (***Note:*** *"Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under* ***Outage Type.***)

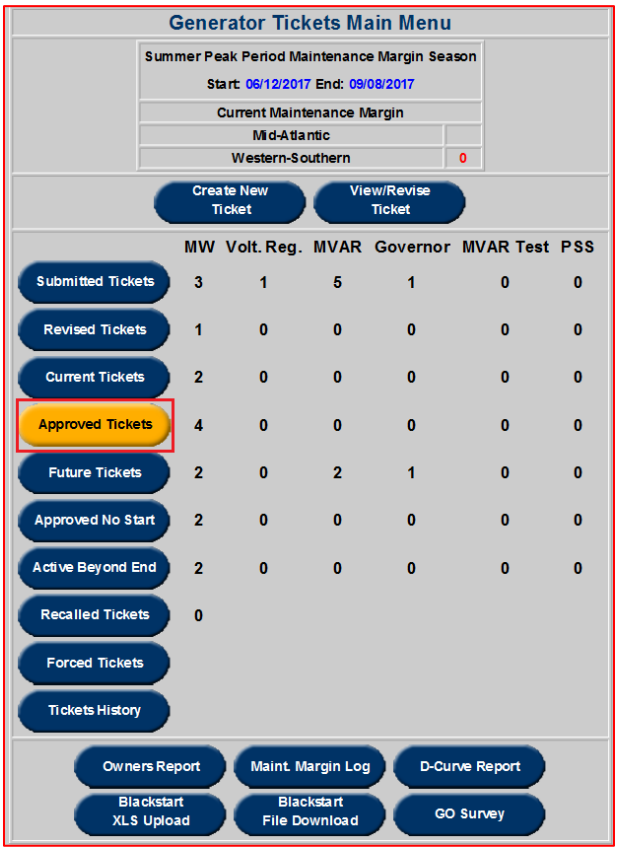
In order to open a specific ticket, click on the **Ticket ID** field on the filtered reports page and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:

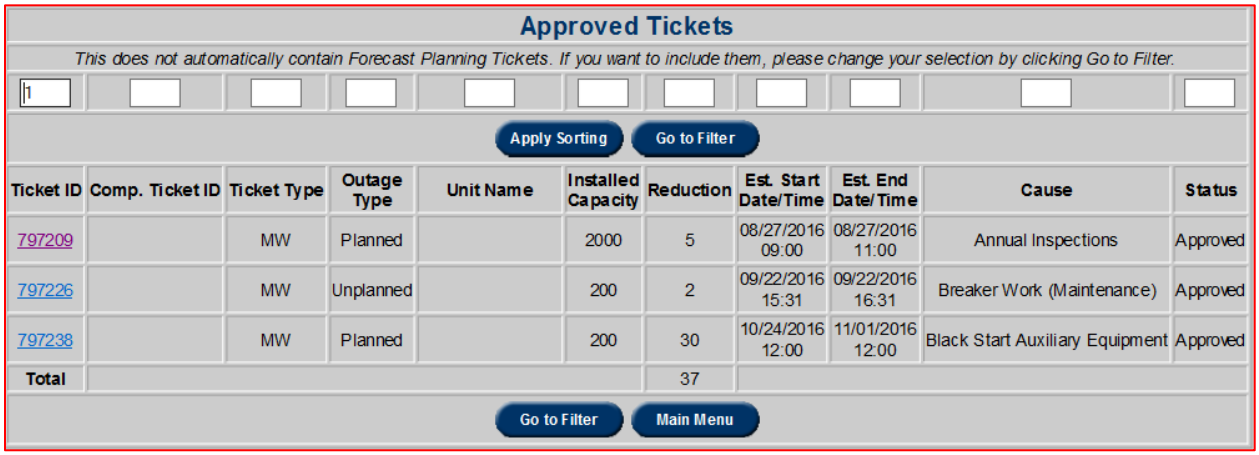


This form is the same as the one described in the ***View/ Revise ticket*** section for a MW ticket. (***Note:*** *This is a MW ticket and the fields will vary based on the ticket type).* The only addition is that the ***Revision*** table is displayed at the bottom (as shown in the example above) which shows a list of all the revisions that have been applied to this ticket.

Approved / Received Tickets Reports

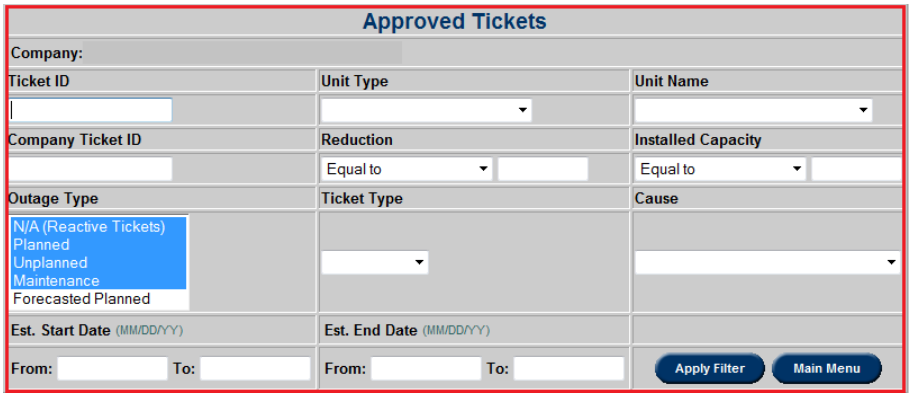
In order to view a report for Approved/Received tickets, select the **Approved Tickets** button on the main menu and this opens the **Approved Tickets report** that displays a list of all the Approved/Received tickets (except Forecasted Planning).





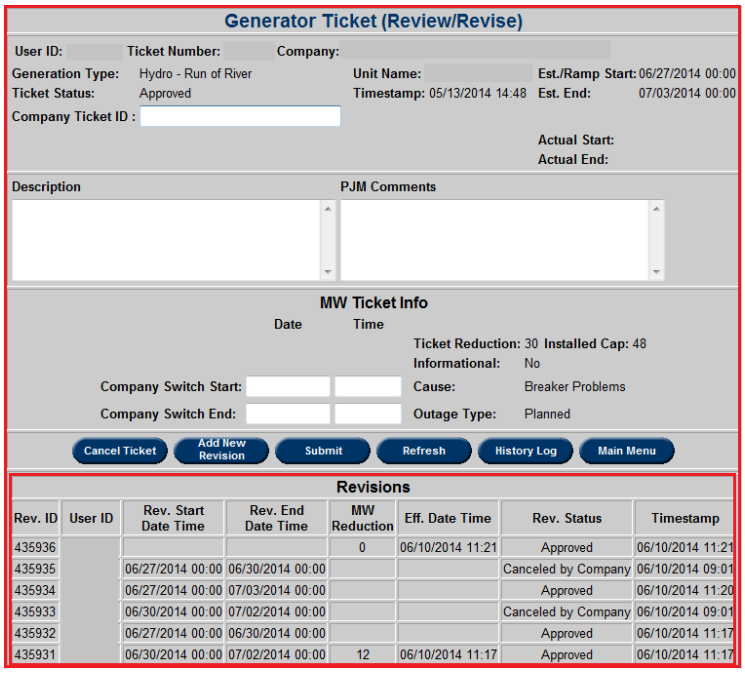
The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. In order to filter the results based on search criteria, select the **Go To**

Filter button and this will open the **Approved Ticket Report Filter** as shown in the example below:



After specifying search criteria, click the **Apply Filter** button and this opens the **Approved Ticket Report** with filtered results. (***Note:*** *"Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under* ***Outage Type.)***

In order to open a specific ticket, click on the **Ticket ID** field on the filtered reports page and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:

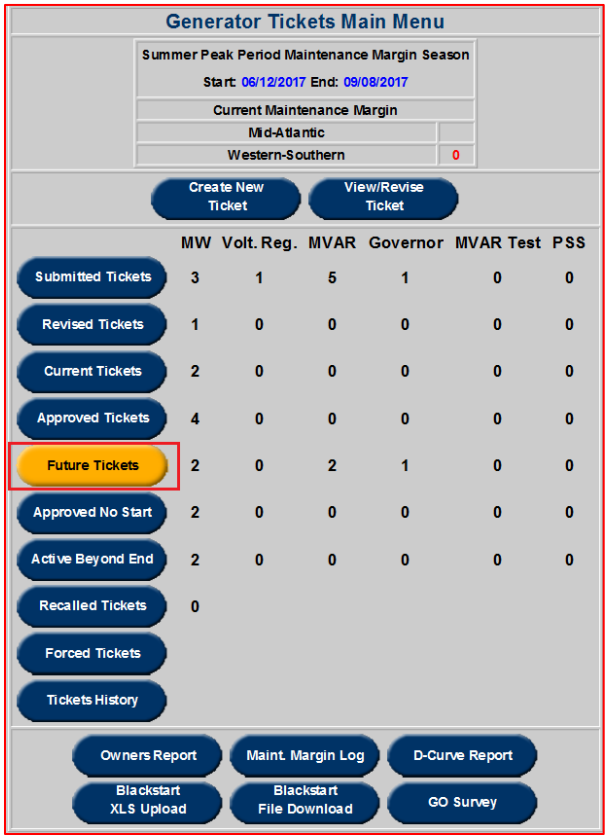


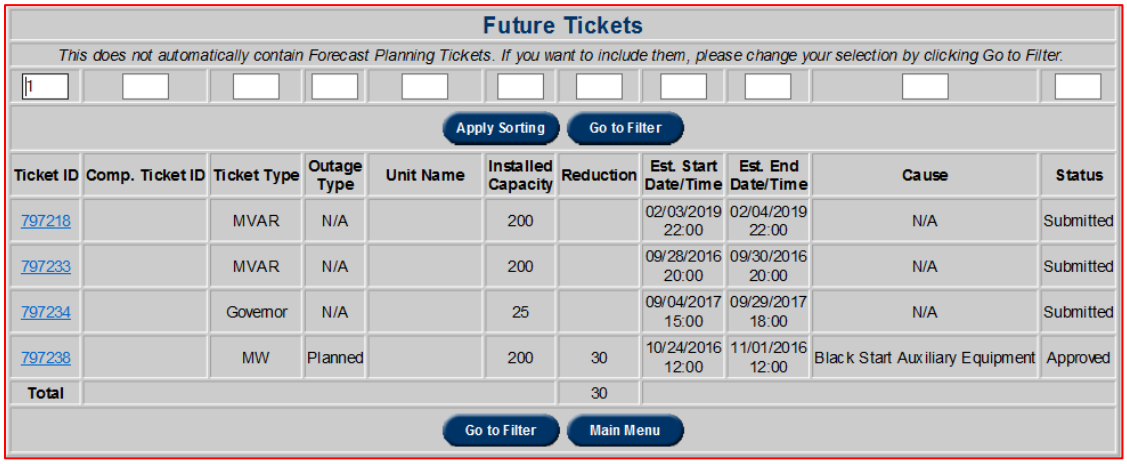
This form is the same as the one described in the ***View/ Revise ticket*** section for a MW ticket. . (***Note:*** *This is a MW ticket and the fields will vary based on the ticket type).* The only addition is that the ***Revision*** table is displayed at the bottom (as shown in the example above) which shows a list of all the revisions that have been applied to this ticket.

Future Tickets Report

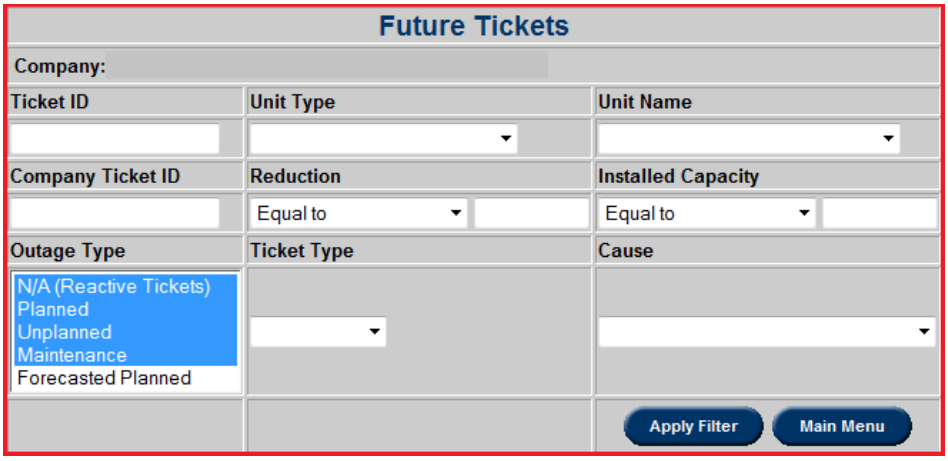
Future tickets are tickets that are scheduled to start in a later date and may be in any status except **Cancelled by Company**, **Cancelled by PJM** or **Denied**.

In order to view a report for Future tickets, select the **Future Tickets** button on the main menu and this opens the **Future Tickets** report that displays a list of all the Future tickets (except Forecasted Planning).



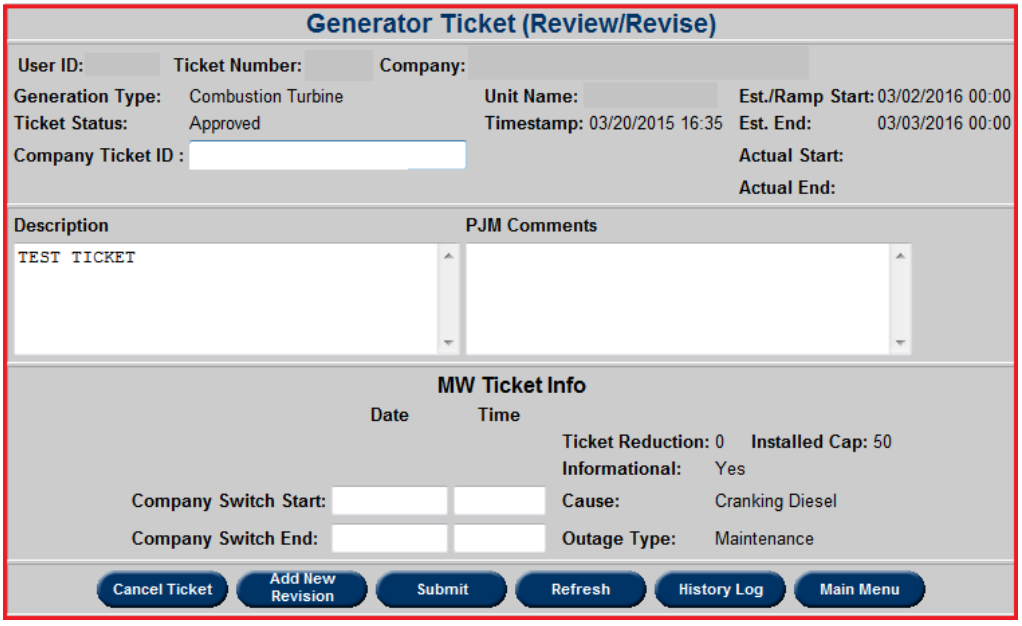


The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. In order to filter the results based on search criteria, select the **Go To Filter** button and this will open the **Future Ticket Report Filter** as shown in the example below:



After specifying the search criteria, click the **Apply Filter** button and this opens the **Future Ticket** report with filtered results. (***Note:*** *"Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under* ***Outage Type.)***

In order to open a specific ticket, click on the **Ticket ID** field on the filtered reports page and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:



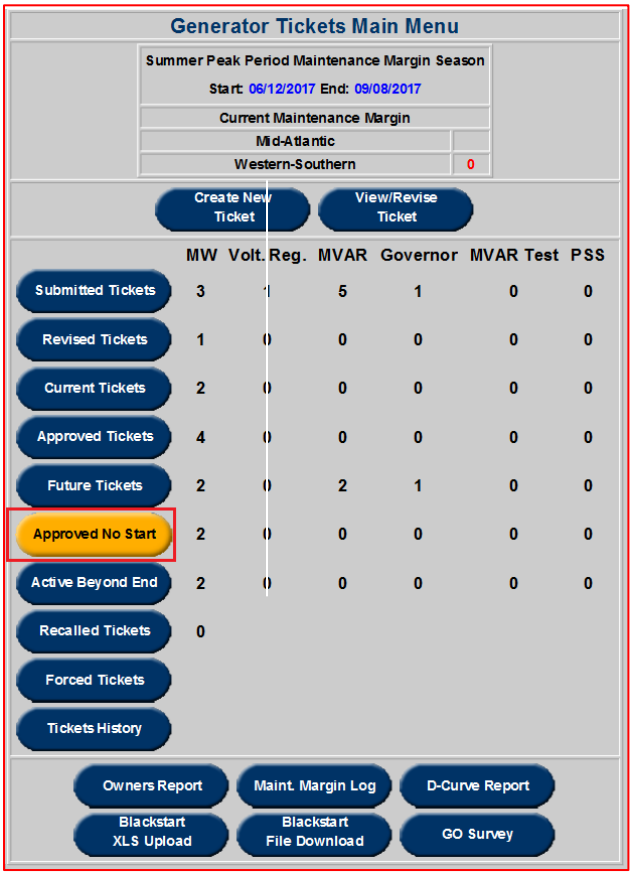
This form is the same as the one described in the ***View/ Revise ticket*** section for a MW ticket. .

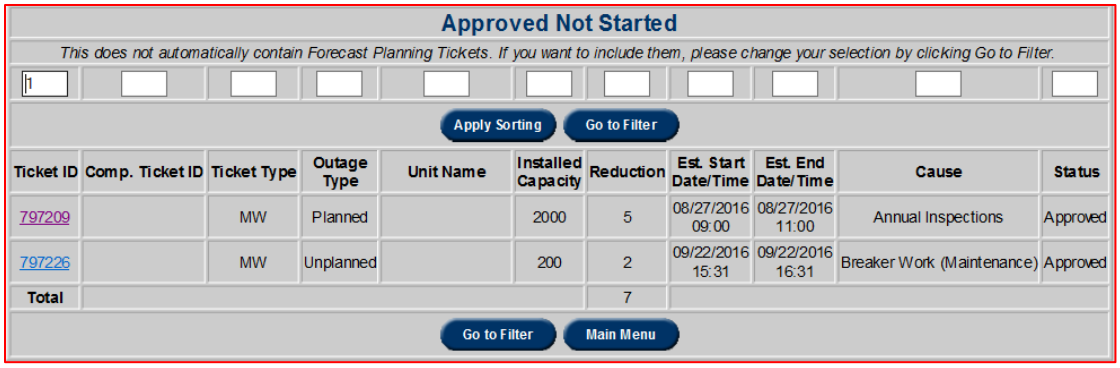
(***Note:*** *This is a MW ticket and the fields will vary based on the ticket type).* The only addition is that the ***Revisions*** table is displayed at the bottom (as shown in the example above) which shows a list of all the revisions that have been applied to this ticket.

Approved Not Started Report

Approved Not Started tickets are tickets that were scheduled to start in an earlier date and may be in an Approved/Received Status.

In order to view a report for Approved Not Started tickets, select the **Approved No Start** button on the main menu and this opens the **Approved Not Started** report that displays a list of all the Approved No Start tickets.





Approved Not Started

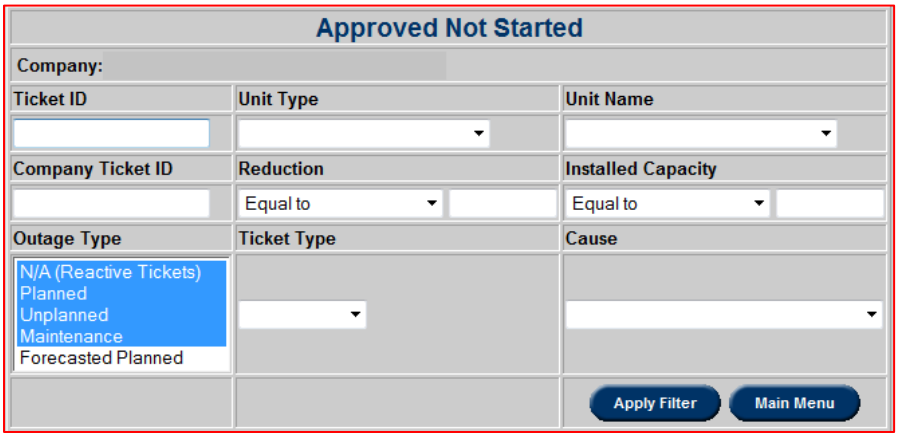
This does not automatically contain Forecast Planning Tickets. If you want to include them, please change your selection by clicking Go to Filter.

Apply Sorting | Go to Filter

Ticket ID	Comp. Ticket ID	Ticket Type	Outage Type	Unit Name	Installed Capacity	Reduction	Est. Start Date/Time	Est. End Date/Time	Cause	Status
797209		MW	Planned		2000	5	08/27/2016 09:00	08/27/2016 11:00	Annual Inspections	Approved
797226		MW	Unplanned		200	2	09/22/2016 15:31	09/22/2016 16:31	Breaker Work (Maintenance)	Approved
Total						7				

Go to Filter | Main Menu

The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. In order to filter the results based on search criteria, select the **Go To Filter** button and this will open the **Approved Not Started Filter** as shown in the example below:



Approved Not Started

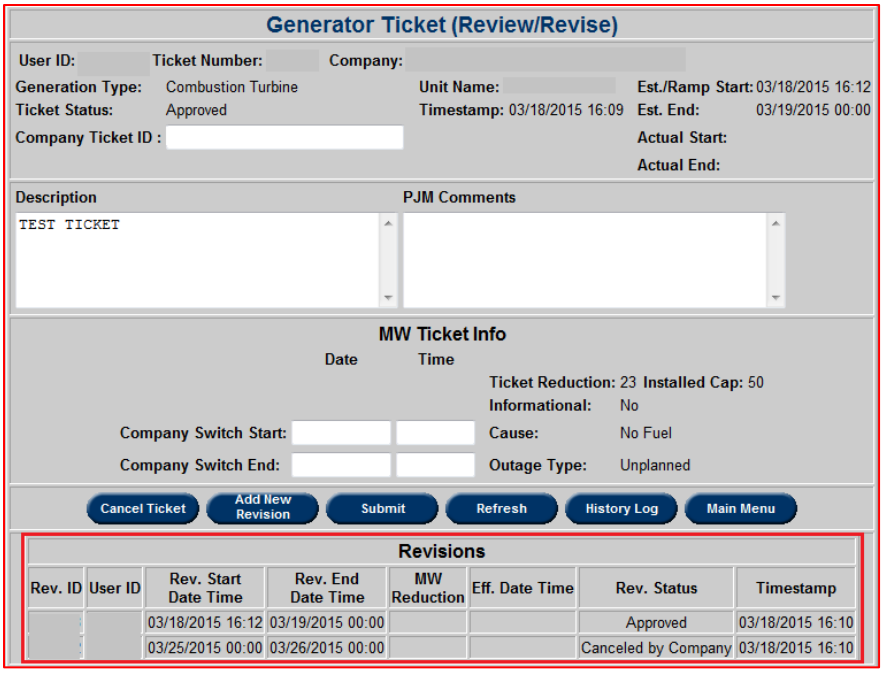
Company:

Ticket ID	Unit Type	Unit Name
Company Ticket ID	**Reduction**	**Installed Capacity**
	Equal to	Equal to
Outage Type	**Ticket Type**	**Cause**
N/A (Reactive Tickets) Planned Unplanned Maintenance Forecasted Planned		

Apply Filter | Main Menu

After specifying the search criteria, click the **Apply Filter** button and this opens the **Approved Not Started** report with filtered results. (***Note:*** *"Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under* ***Outage Type.)***

In order to open a specific ticket, click on the **Ticket ID** field on the filtered reports page and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:

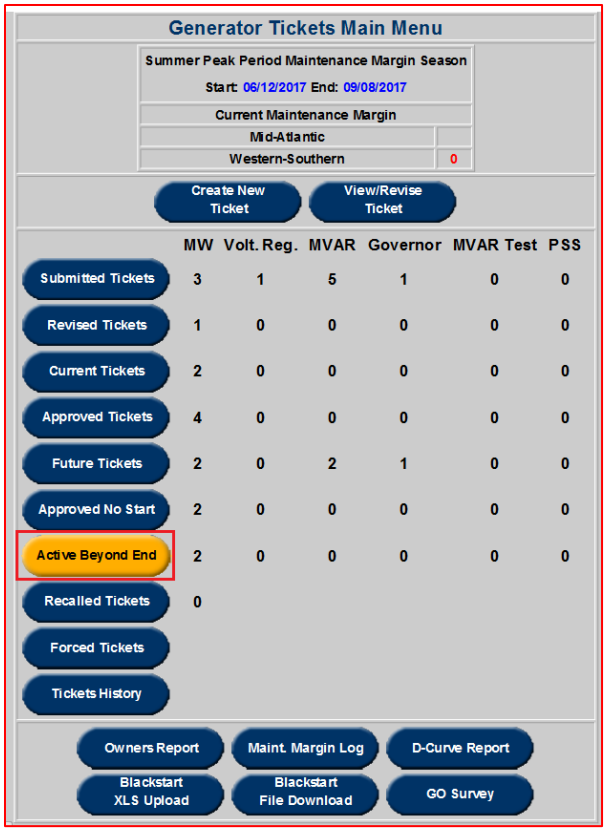


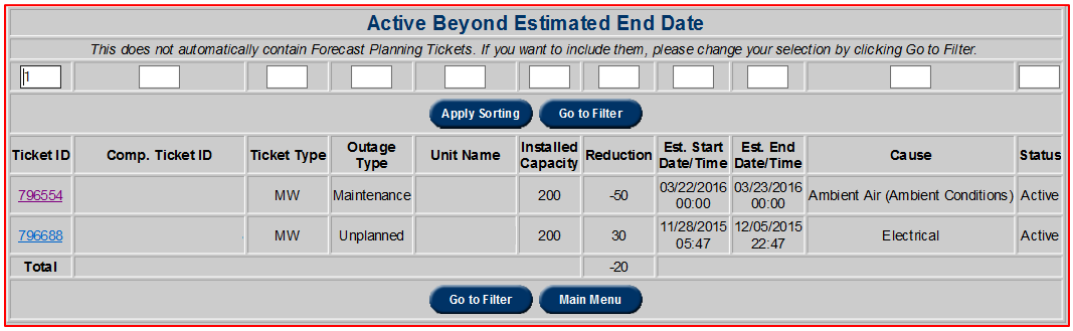
This form is the same as the one described in the ***View/ Revise ticket*** section for a MW ticket. . (***Note:*** *This is a MW ticket and the fields will vary based on the ticket type).* The only addition is that the ***Revisions*** table is displayed at the bottom (as shown in the example above) which shows a list of all the revisions that have been applied to this ticket.

Active Beyond Estimated End Date Report

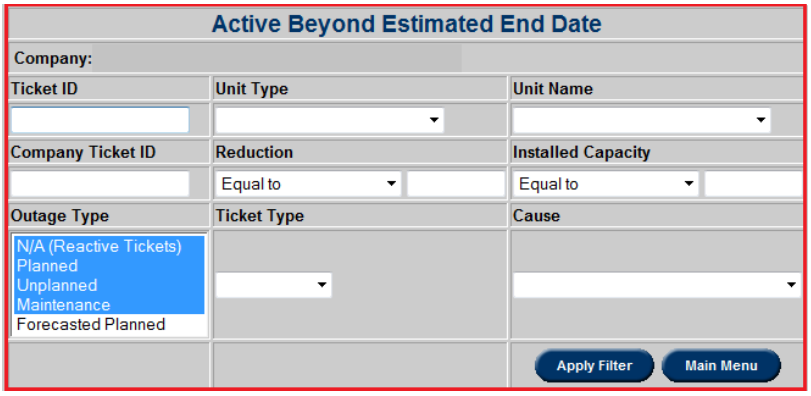
Active Beyond Estimated End tickets are tickets that were scheduled to end on an earlier date and have an active status.

In order to view a report for Active Beyond End tickets, select the **Active Beyond End** button on the main menu and this opens the **Active Beyond Estimated End Date** report that displays a list of all the Active Beyond End tickets.



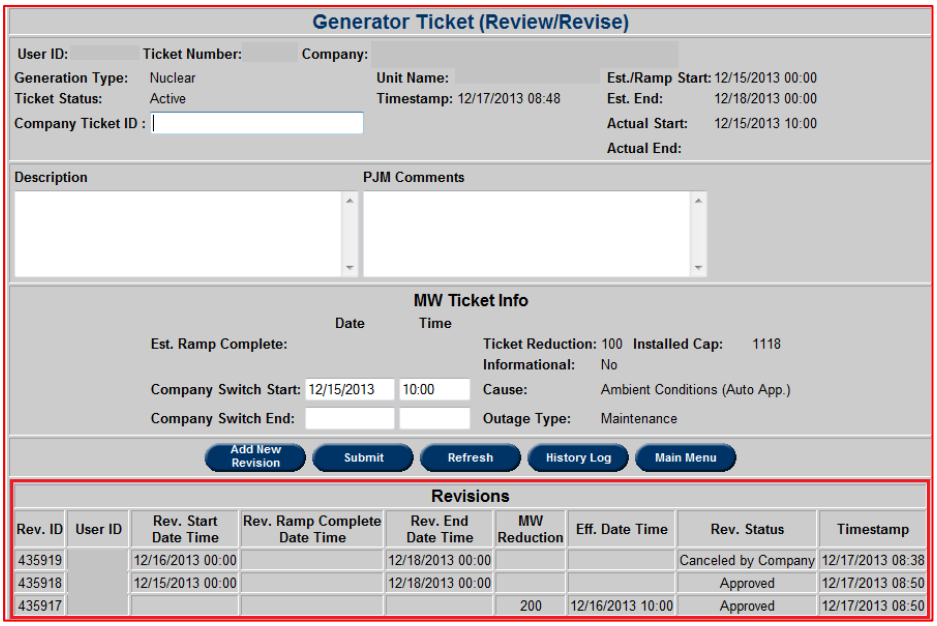


The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. In order to filter the results based on search criteria, select the **Go To Filter** button and this will open the **Active Beyond Estimated End Date Filter** as shown in the example below:



After specifying the search criteria, click the **Apply Filter** button and this opens the **Active Beyond Estimated End Date** report with filtered results. (***Note:*** *"Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under* ***Outage Type.)***

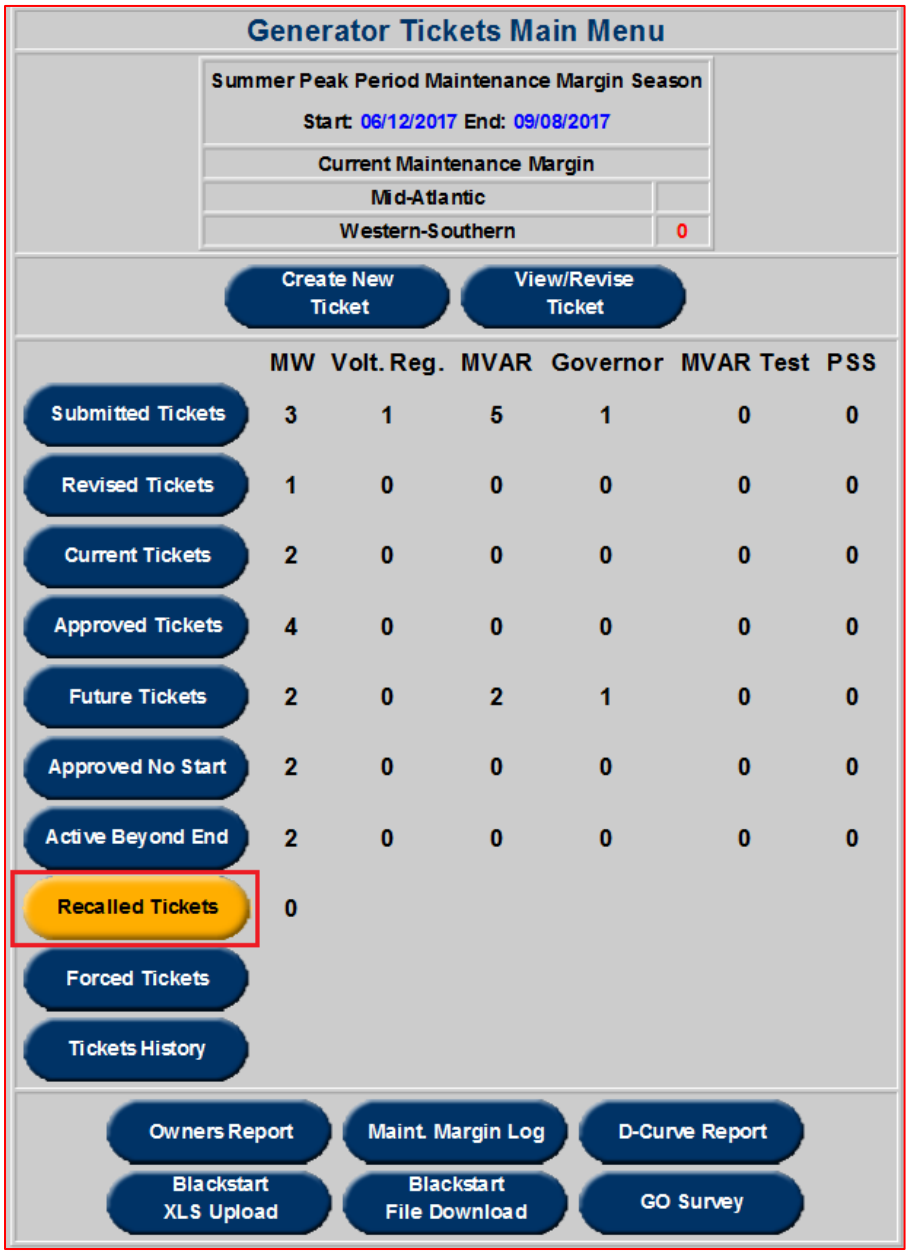
In order to open a specific ticket, click on the **Ticket ID** field on the filtered reports page and this will open the **Generation Ticket (Review/ Revise)** form as shown in the example below:



This form is the same as the one described in the ***View/ Revise ticket*** section for a MW ticket. . (***Note:*** *This is a MW ticket and the fields will vary based on the ticket type).* The only addition is that the ***Revisions*** table is displayed at the bottom (as shown in the example above) which shows a list of all the revisions that have been applied to this ticket.

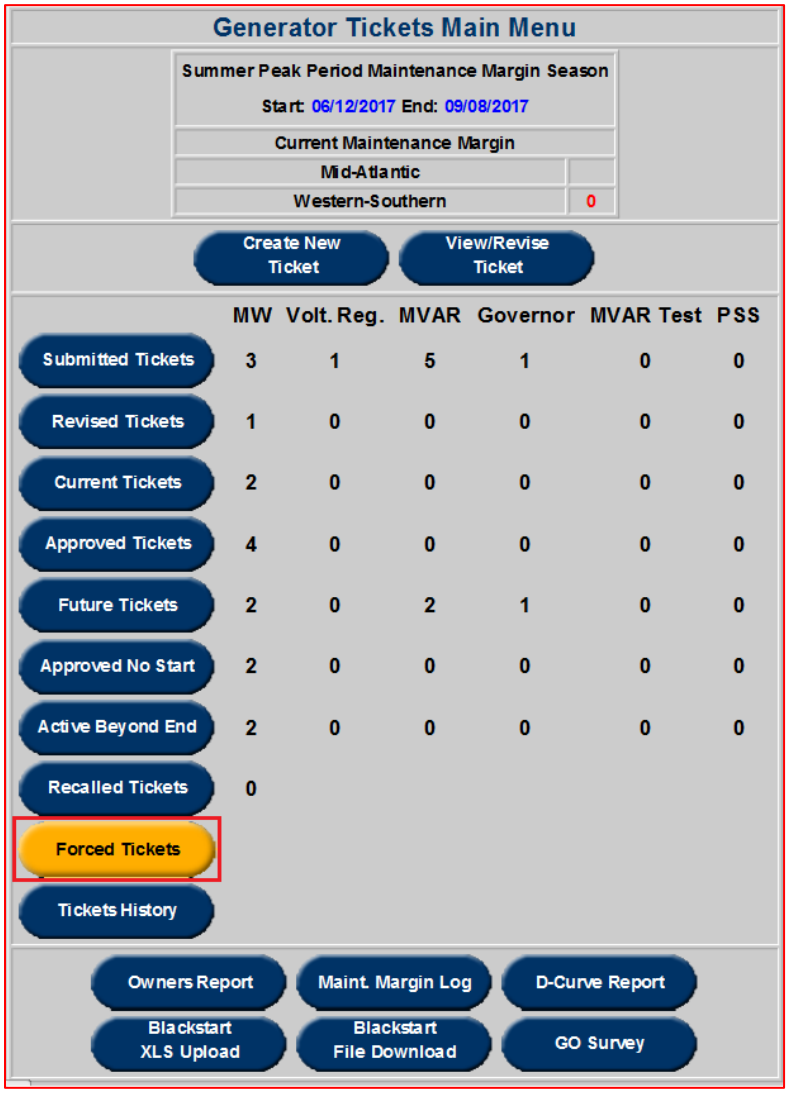
Recalled tickets

This button shows a list generator outage tickets that have been recalled by PJM. Outage tickets that are not completed prior to the recall date will be treated as unplanned outages and marked with a “Forced Date”. Tickets in this list includes both active and approved tickets.



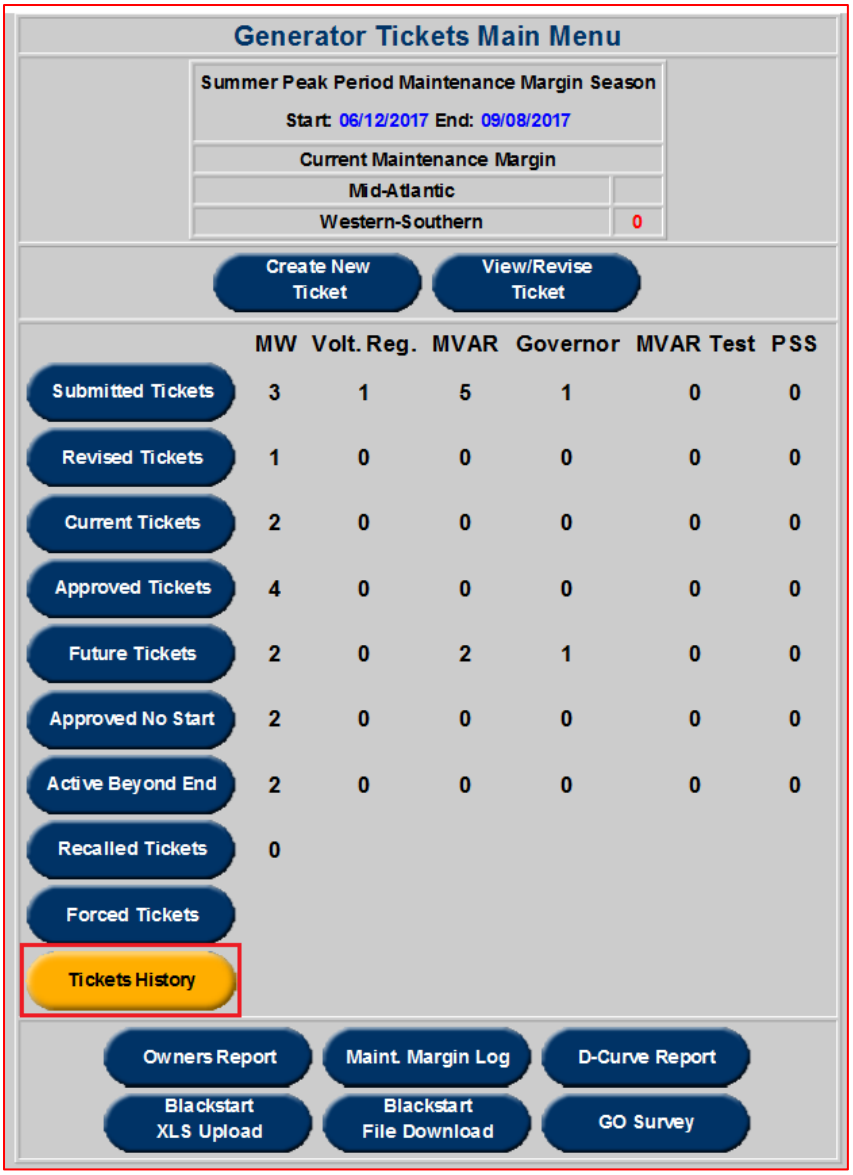
Forced Tickets

This button identifies tickets that are treated as forced outages. Forced tickets can either be tickets that were not completed prior to a recall date or it can be from tickets that have not been completed 24 hours after the estimated end date.



Tickets History

This button will allow users to search for a summary of historical generator tickets. Filter options will be available when the button is accessed. See **Filtering** section for detailed instructions on how to filter.

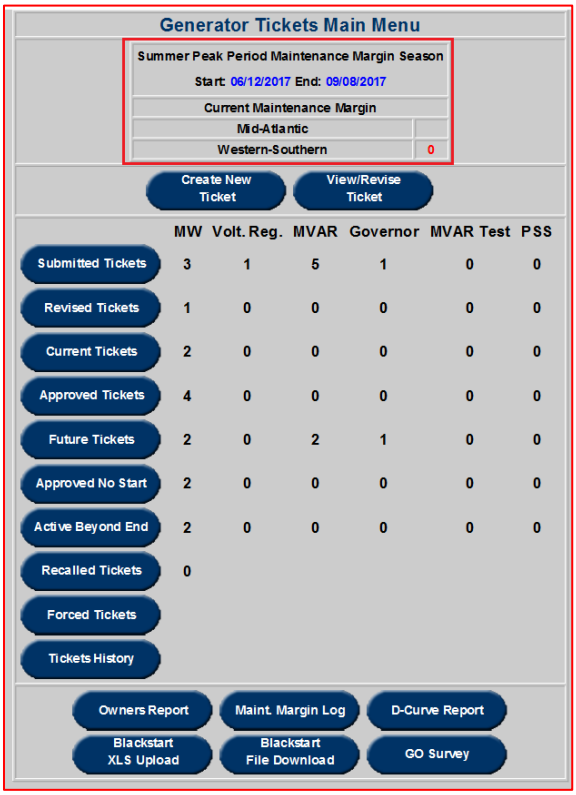


Peak Period Maintenance Margin

Peak Period Maintenance (PPM) season is defined as *those weeks containing the 24th through the 36th Wednesdays of a calendar year*. Each such week shall begin on a Monday and end on the following Sunday, except for the week containing the 36th Wednesday, which shall end on the following Friday. The Peak Period Maintenance season is the period during which demand for electricity is highest. PJM seeks to minimize maintenance during the PPM to promote economic efficiency.

On the main menu, the **PPM Margin Start** and **End Dates** for the current or next cycle are displayed under "Summer Peak Period Maintenance Margin Season." *(**Note**: During this season, there are limitations on the Maintenance and Forecasted Planned outages).* Based on the results

of the margin calculations, a value of 0, N/A or the actual PPM MW value is displayed under the "Current Maintenance Margin" for the Mid-Atlantic and Western Southern region as shown in the example below. This value represents the amount of margin available for scheduling outages for the current day. As long as this value is above the set threshold, it means there is sufficient availability to accommodate outages in which case the current maintenance margin would show up as "N/A." Once load gets too close to the margin, the actual PPM MW value which represents the remaining available margin is displayed. If the current maintenance margin value is less than the lower limit of the threshold, "0" is displayed.

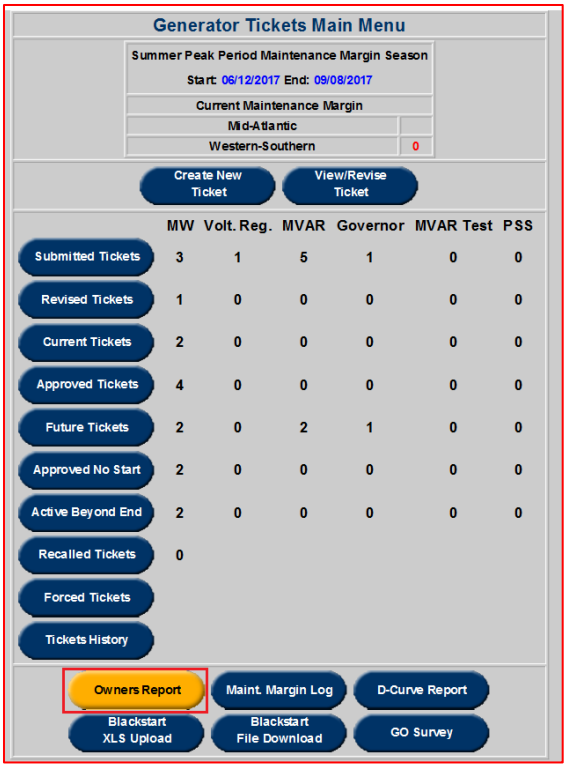


Note: *The Maintenance Margin is analyzed throughout the year and not just during peak periods.*

Owners Report

Some units have joint ownership rights in which case there are multiple capacity owners for that unit. However, only one company will report outages on that unit. The purpose of the Owners Report is to provide access to other companies to view any outages created by the company that that has the right to report outages on the unit they jointly own.

Click on the **Owners Report** button on the main menu and this opens the **Generation Owners Report Filter** as shown in the example below:



Once clicked, users will have the option to view and edit current owners maintenance by selecting the **Owners Maintenance** button, search for reports by selecting **Owners Report**, or go back to the Main Menu.

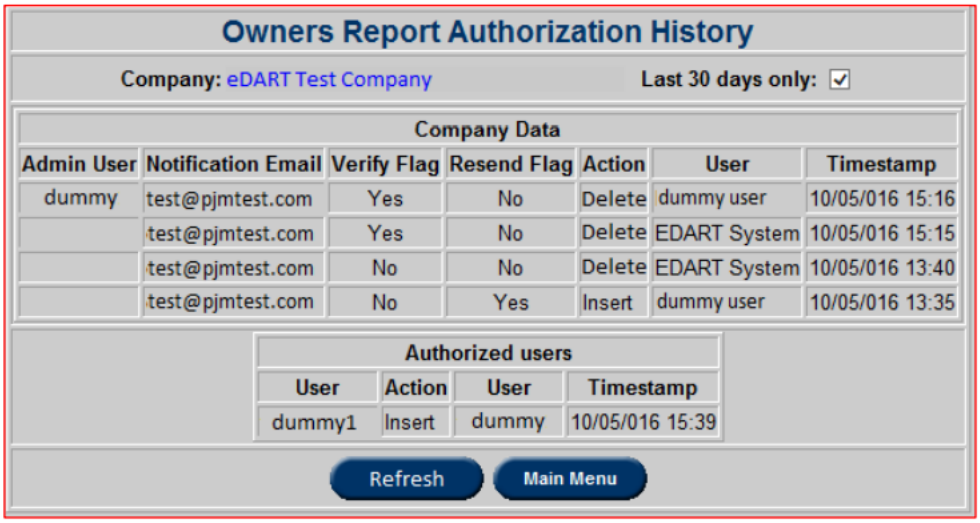
On the Owners Report, use the **Apply Filter** button to create a **Generation Owners Report** filtered for any desired criteria. (***Note:*** *"Forecasted Planned" tickets will not show up in the filtered search results unless it is specifically selected from the list under* ***Outage Type.***)

The user defined sort order (as explained in the "*Sorting*" section) can also be applied here to sort on multiple columns. To modify the search criteria, select the **Go To Filter** button, which leads back to the Generation Owners Report Filter.

Owners Report can also be used to grant read-only access for generator outages to other Generation Owners for select units in eDART. To use this functionality, an authorized representative of the company must complete and submit the eDART Email Group for Generation Owner Report Notification Request Form (https://pjm.com/-/media/etools/edart/generation-owner-report-notification-request-form.ashx?la=en). Companies who have this set up will have additional functionality under Owners Report available to the

company admin and authorized users. Non-authorized users will have read only access to the additional reports.

Companies who have this set up will have additional functionality under Owners Report available to the company admin and authorized users. Non-authorized users will have read only access to the additional reports.

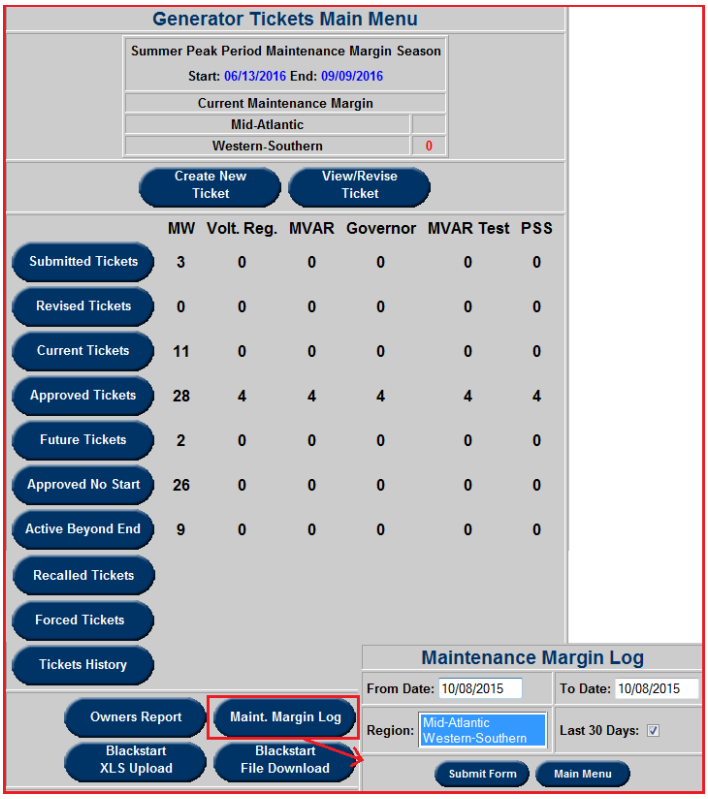


To grant access under Owners Maintenance, select unit, select company and Submit Form.

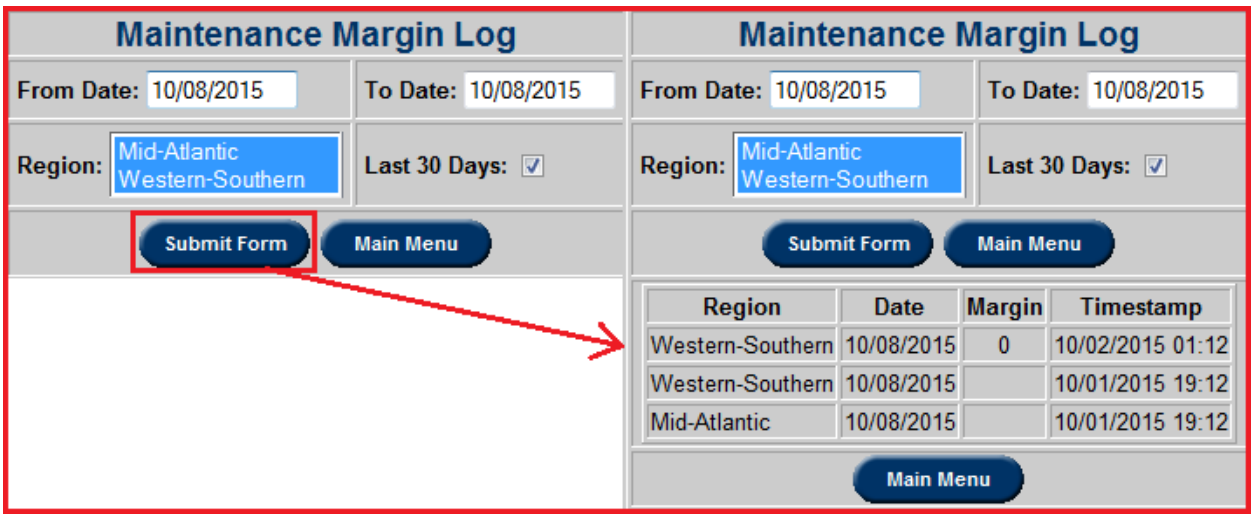
To remove access, check Delete as desired and Submit Form.

Maintenance Margin Log

In order to view the margin values for longer durations rather than the current day, click on the **Maint. Margin log** button on the Main Menu and this will open the Maintenance Margin Log window as shown in the example below:

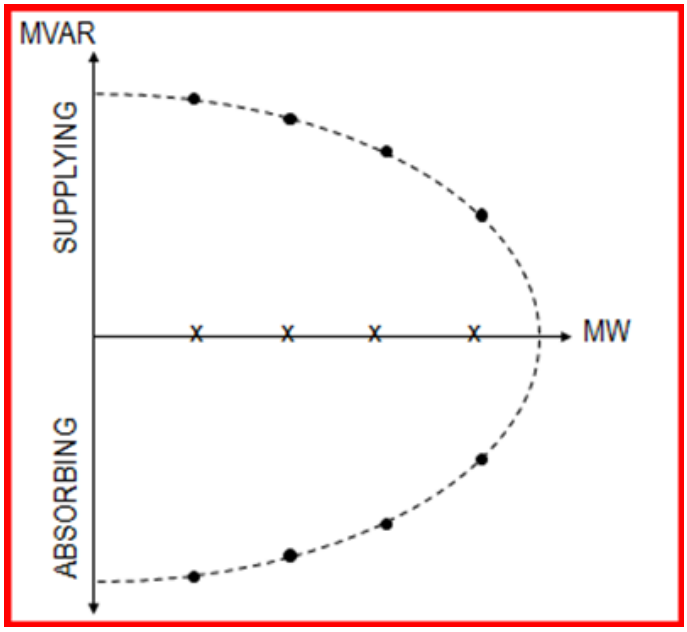


It is possible to filter the results based on the Start and End date and the Region. By default, the results for both the Mid-Atlantic and Western Southern region are displayed. Use the **Last 30 days** option to search for the results in the last 30 days. After specifying search criteria and clicking the **Submit Form** button, the filtered results are displayed as shown in the example below:



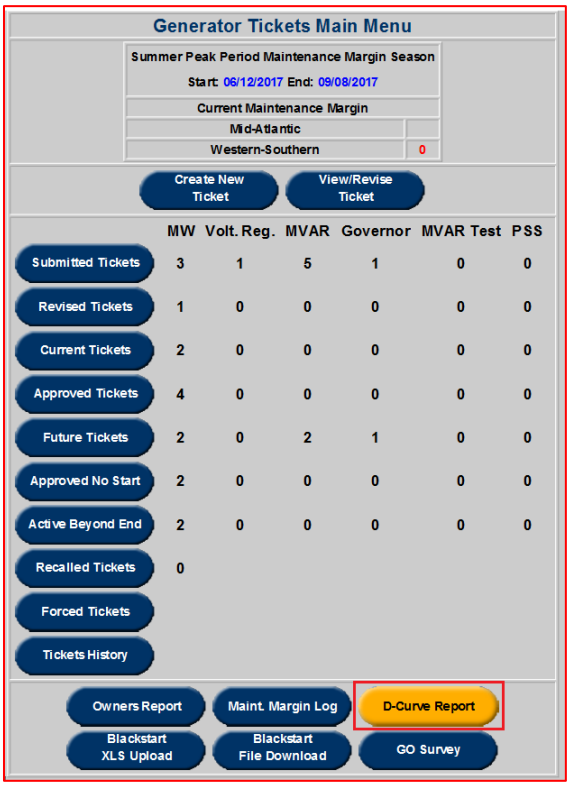
D-curve Reports

The D-Curve Reports section shows the D-Curve values for each unit. D-curves are used to identify the necessary levels of reactive power a unit needs. The following is an example of a D-Curve.

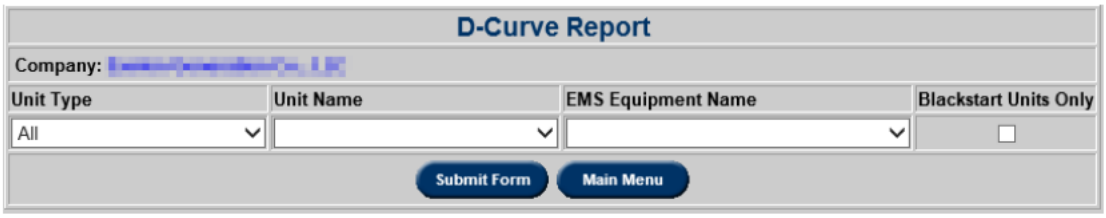


This process was added to keep all the Generation Owners, Transmission Owners and PJM Dispatch in sync with the reactive capability of the system. Generation owners can review curves for accuracy and EMS (Energy Management System) update. After the company reviews it, they can click **Acknowledge** on D-Curve report.

To access this application, select **Gen. Tickets** and under Generation Reports click on **D-Curve Report**.



In the following window, **Unit Type**, **Unit Name**, and **EMS Equipment Name** are mandatory.

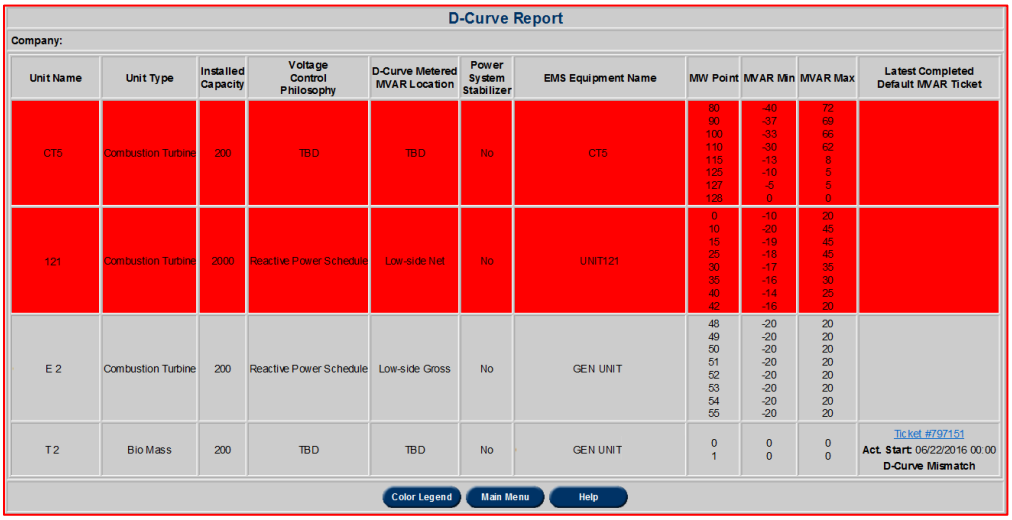


To download the desired reports, select **Download All** and then select a destination for the file. To view the desired reports, click **Submit Form**.

When a Generation or Transmission Owner is asked to review capability curves, a notification message will be posted to the log-in screen labeled, “Application Message.” Generation and

Transmission Owners will update D-Curve information in their systems. **D-Curve Report** button will change to **RED** on the Transmission Menu and remain so until company completes the review process by updating the information in their system.

Once the information is entered for all units, the Generation or Transmission Owner can acknowledge the report by clicking the **Acknowledge** button on the D-Curve Report. The **D-Curve Report** button will then return to its **BLUE** color.



D-Curve Report

Company:

Unit Name	Unit Type	Installed Capacity	Voltage Control Philosophy	D-Curve Metered MVAR Location	Power System Stabilizer	EMS Equipment Name	MW Point	MVAR Min	MVAR Max	Latest Completed Default MVAR Ticket
CT5	Combustion Turbine	200	TBD	TBD	No	CT5	80 90 100 110 115 125 127 128	-40 -37 -33 -30 -13 -10 -5 0	72 69 66 62 8 5 5 0	
121	Combustion Turbine	2000	Reactive Power Schedule	Low-side Net	No	UNIT121	0 10 15 25 30 35 40 42	-10 -20 -19 -18 -17 -16 -14 -16	20 45 45 45 35 30 25 20	
E 2	Combustion Turbine	200	Reactive Power Schedule	Low-side Gross	No	GEN UNIT	48 49 50 51 52 53 54 55	-20 -20 -20 -20 -20 -20 -20 -20	20 20 20 20 20 20 20 20	
T 2	Bio Mass	200	TBD	TBD	No	GEN UNIT	0 1	0 0	0 0	Ticket #797151 Act. Start: 06/22/2016 00:00 D-Curve Mismatch

Color Legend | Main Menu | Help

This is a report of the reactive capability of the generators in a Generation Owner's fleet or Transmission Owner's transmission zone. To get all units, search by either name only or no criteria and click **D-Curve Report**.

- **Unit Name:** The name given to the unit by the company.
- **Unit Type:** Refers to the kind of generator the unit is. Examples: Steam/Fossil, Nuclear, Hydro.
- **Installed Capacity:** Refers to the amount of MW a unit can put out.
- **Voltage Control Philosophy:** How voltage support is assigned for the unit; Voltage Schedule or Reactive Power Schedule.
- **Metered MVAR Value:** The point/side from which PJM receives telemetry or metering information; Low-side Gross, Low-side Net or High-side Net.
- **Power System Stabilizer:** Indicates whether GO has designated the unit as PSS or

not.

- **EMS Equipment Name:** Unit name as displayed in PJM's EMS.
- **MW Point/MVAR Min/MVAR Max:** Capability of unit to supply (max) or absorb (min) VARS based on MW loading.

D-Curve values are reviewed every year in April and October. In May and November, TOs and GOs will review eDART data and their EMS systems. To ensure accuracy of generator reactive capabilities that may result from planned unit modifications, a critical input to PJM and Transmission Owner security analysis packages,

PJM requires that each Generation Owner/Operator review and confirm their unit reactive capability data via eDART on a bi-annual basis. PJM and the Transmission Owners should then verify accuracy of unit reactive capabilities modeled in their respective EMS systems.

The bi-annual review periods are defined as follows:

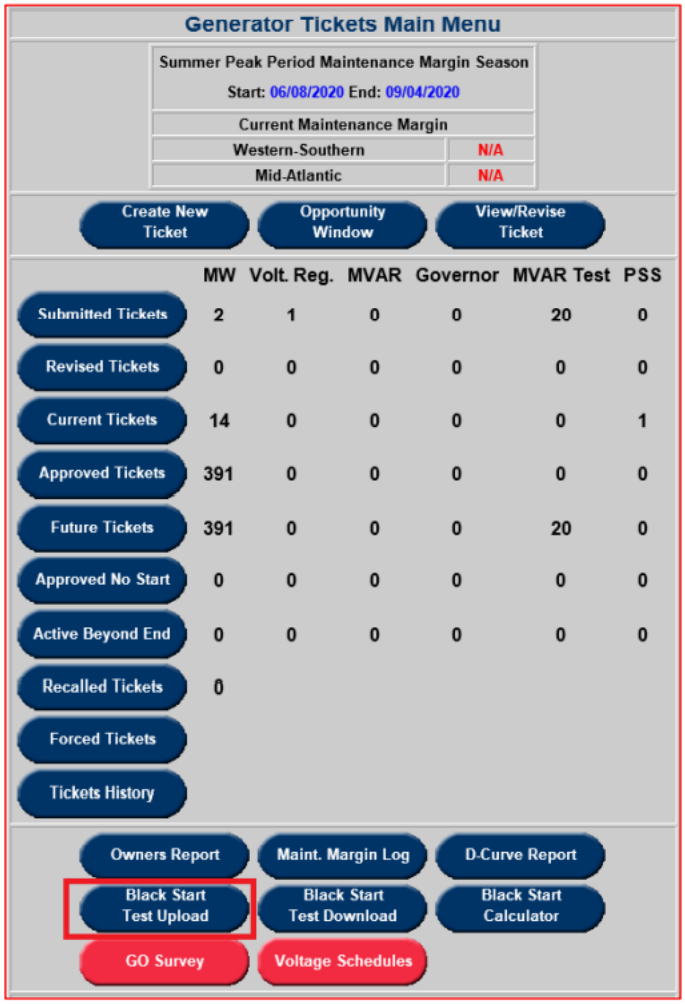
- **Pre-Summer Review:** From April 1 through April 30, Generator Owners should review their unit reactive capabilities in eDART. From May 1 through May 31, PJM and Transmission Owners should review and update EMS reactive capabilities based on the updated data in eDART.
- **Pre-Winter Review:** From October 1 through October 31, Generator Owners should review their unit reactive capabilities in eDART. From November 1 through November 30, PJM and Transmission Owners should review and update EMS reactive capabilities based on the updated data in eDART.

BlackStart Test Upload

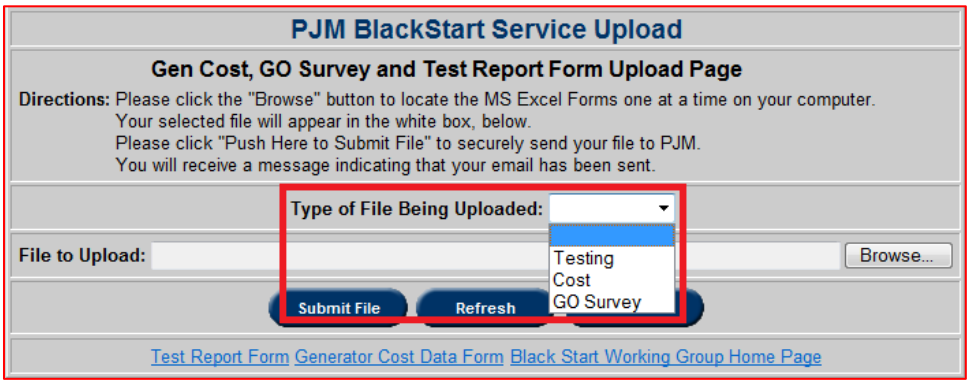
BlackStart is a system in which some generators are selected based on location and capabilities and are necessary to re-energize the transmission system following a system-wide blackout. As a result of the importance of having enough BlackStart units available in black-out scenarios, PJM closely monitors outages for BlackStart units.

BlackStart Test Upload functionality allows users to better identify the BlackStart file type and verify successful receipt of the file by PJM. This feature acts as a resolution to the prior issue that it was difficult to verify successful submission of BlackStart files.

Click on the **BlackStart Test Upload** button on the main menu and this will open the **PJM BlackStart Service Upload** as shown in the example below:



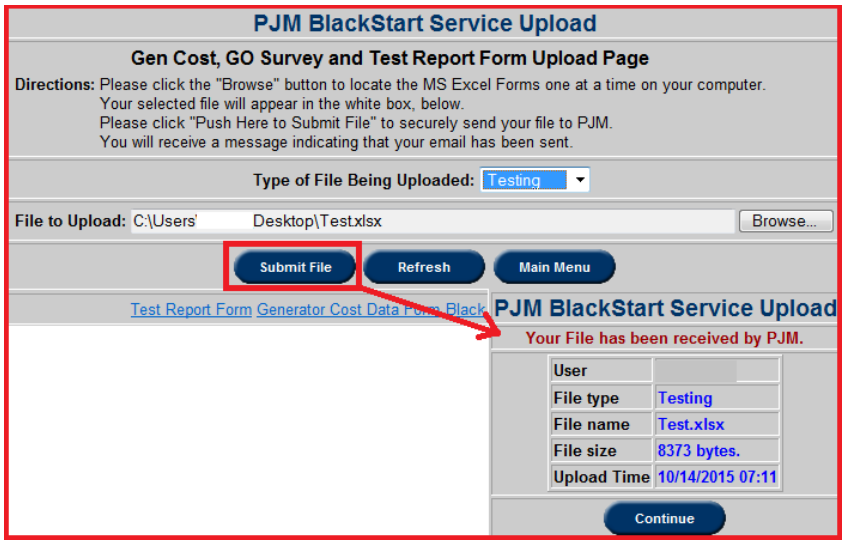
Select the type of file from the **"Type of File Being Uploaded"** drop-down menu**.** There are two options – "Testing" and "Cost" as shown in the example in the screen below:



Click the **Browse** button and a Choose File Dialog box opens. Choose an appropriate file to upload and click **Open.** The file name along with its path gets displayed in the **File to Upload** textbox.

Click on **Submit File** and this opens a new file verification window as shown in the example below stating that the upload was successful and displays the following information:

- **User Id:** Displays the user ID of the person who uploaded the file.
- **Type of File:** Lists the file type which is either "Testing" or "Cost."
- **Name of the File:** Lists the file name.
- **File Size:** Lists the size of the file in bytes.
- **Upload Time:** Lists the date and time the file was submitted to this window.

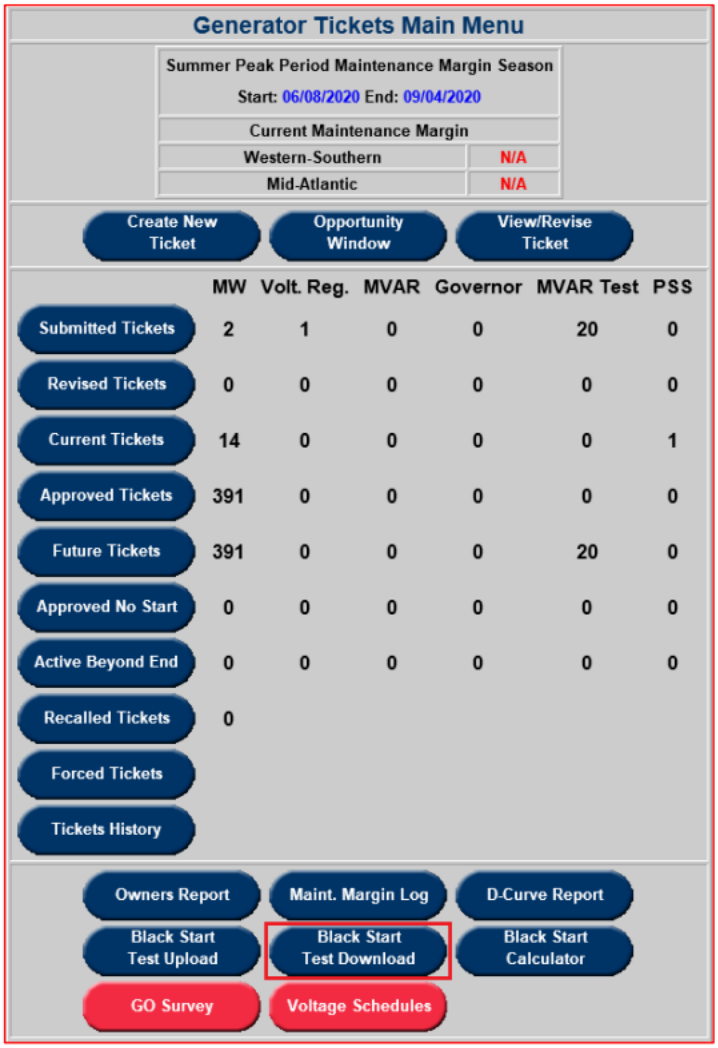


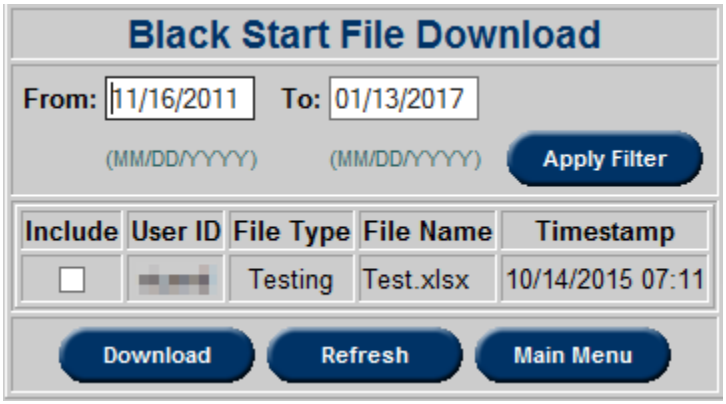
- **Test Report Form:** Link to the BlackStart Testing forms that can be downloaded, completed, saved and uploaded in eDART.
- **Generator Cost Data Form:** Link to the BlackStart Generator Cost Data form that can be downloaded, completed, saved and uploaded in eDART.
- **BlackStart Working Group Home Page:** Link to the BlackStart Service Task Force page.

BlackStart File Download

BlackStart File Download feature allows the user to review previously submitted files by listing all the files that have been submitted and allows the user to download either a single file or multiple files.

Click on **BlackStart File Download** button and this opens a screen as shown in the example below:





The BlackStart File Download window lists all files submitted by the company the user represents, along with all the fields as mentioned in the previous section under Blackstart XLS Upload. Files are sorted in descending order of timestamp.

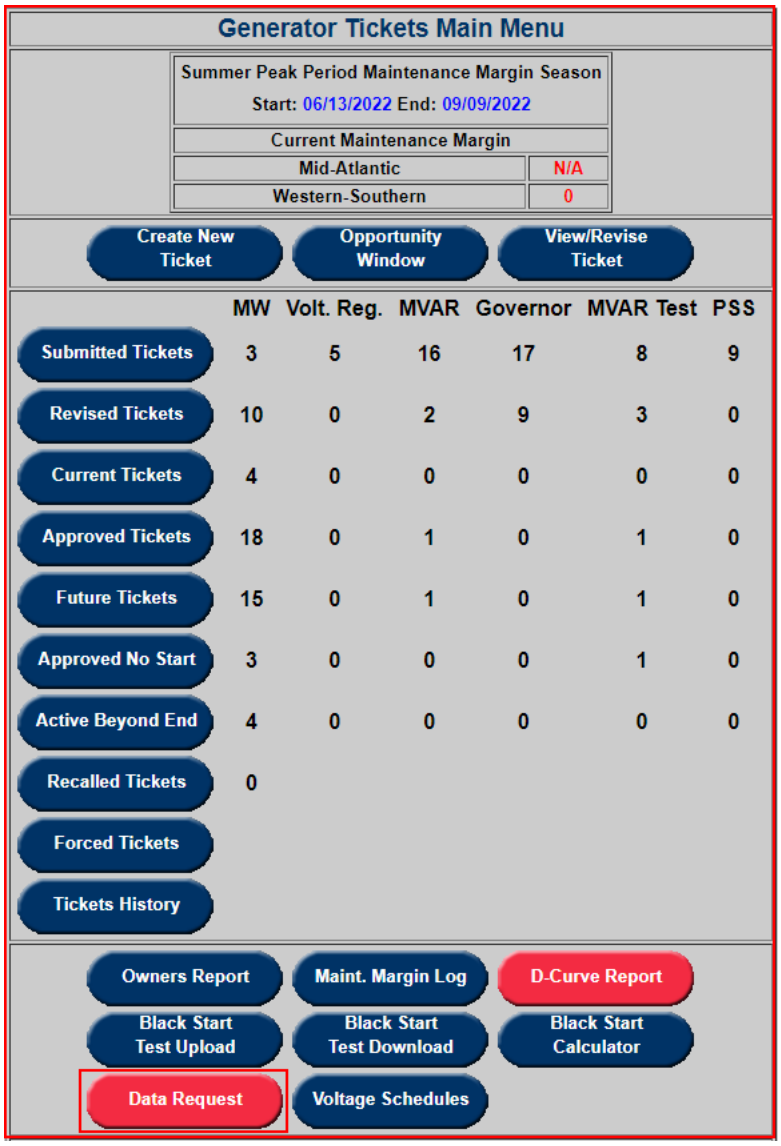
The **From/To** Date filter allows the user to select a timeframe. The default filter is set to 14

months. The default value for **To** field is Today and that for **From** field is (Today – 14 months). Check the **Include** box for each desired file and click the **Download** button. The resulting file will be a .zip file with all desired files.

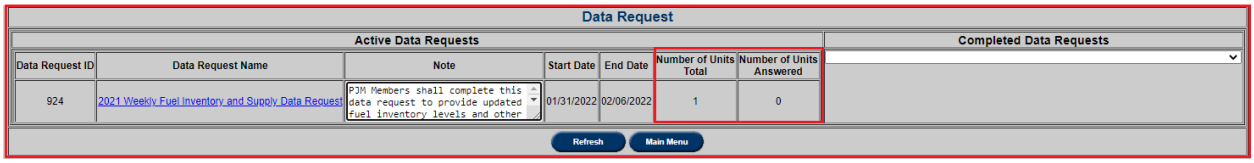
Data Request

PJM Generation Department initiates various data requests (seasonal fuel, winter checklist, contact info, etc.) in eDART. This information is needed for, but not limited to, operational planning and communication purposes. Members can view active and previously completed data requests by clicking the Data Request button.

The Data Request button will turn red to inform GOs that a data request must be completed. Note that the GO Survey for Contact Information is always open to allow GOs to update contact information as needed. The Data Request button will not be red if the only active data request is the contact GO survey.



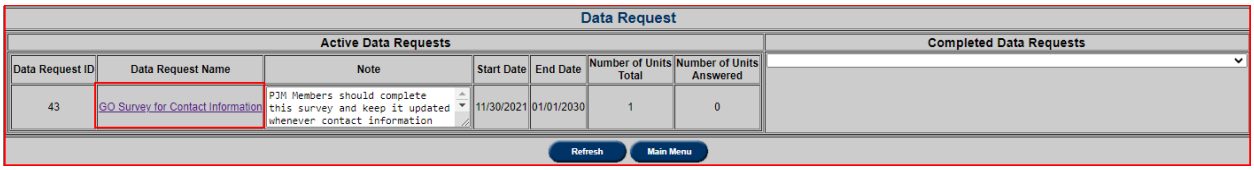
Click on the red **Data Request** button from the main menu; **Active Data Request** are listed on the left hand side.



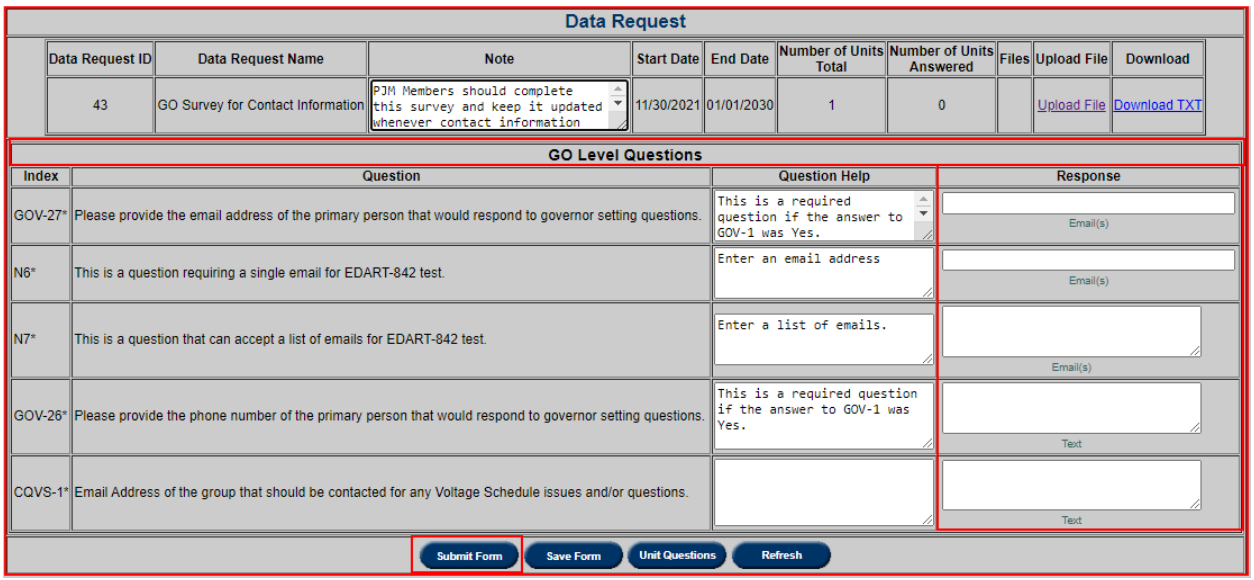
Data Request start and end dates are provided as well as the number of units that need to answer vs. the number of units answered.
Data Request is completed when the total number of units equals the total number of units answered.

Respond to Data Request

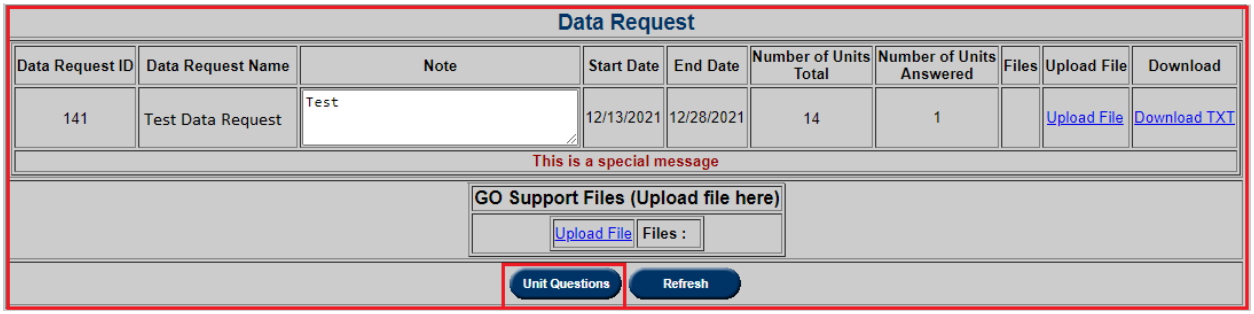
Click on the **Data Request Name** to open the data request. The resulting page will be different depending on the type of data request questions.



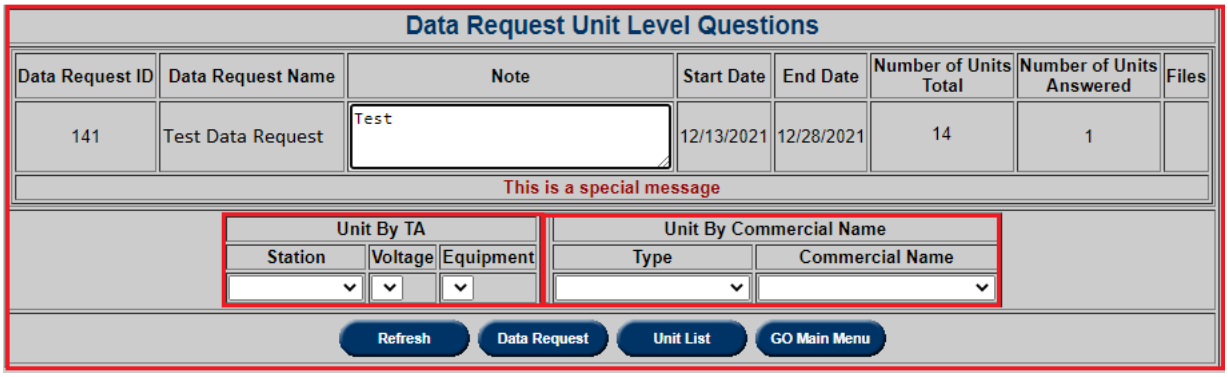
GO Level Questions are to be answered for the company.



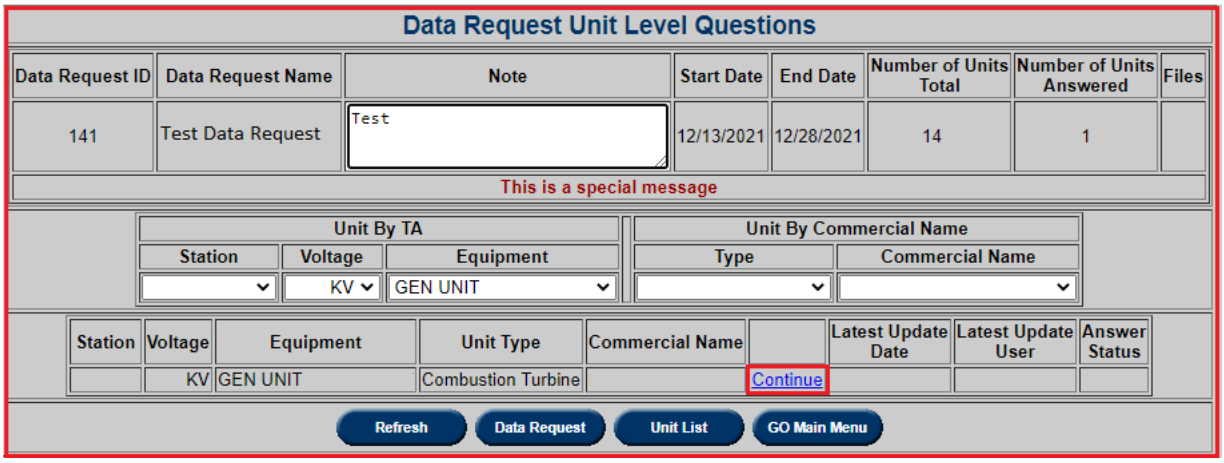
Unit Questions are to be answered per unit. For Unit Level Data Requests, select **Unit Question**s.



Select a unit by **TA** (EMS unit information) or by **Commercial Name** and respond to the questions as displayed.

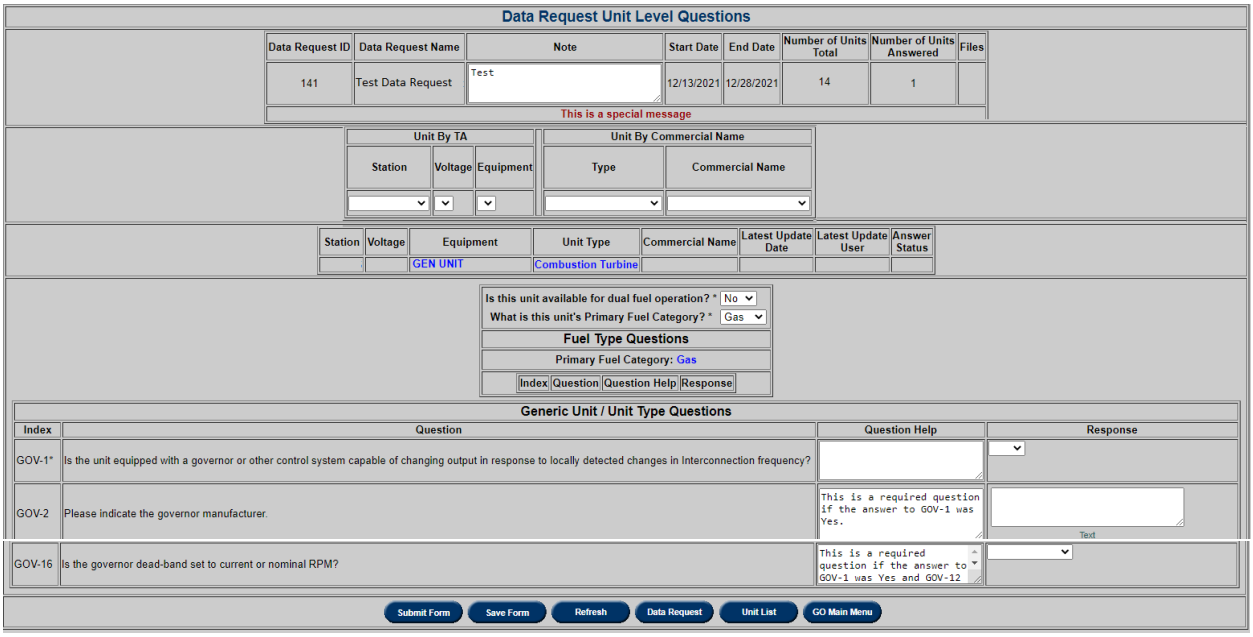


After selecting the unit, click **Continue** to proceed to the unit question list.



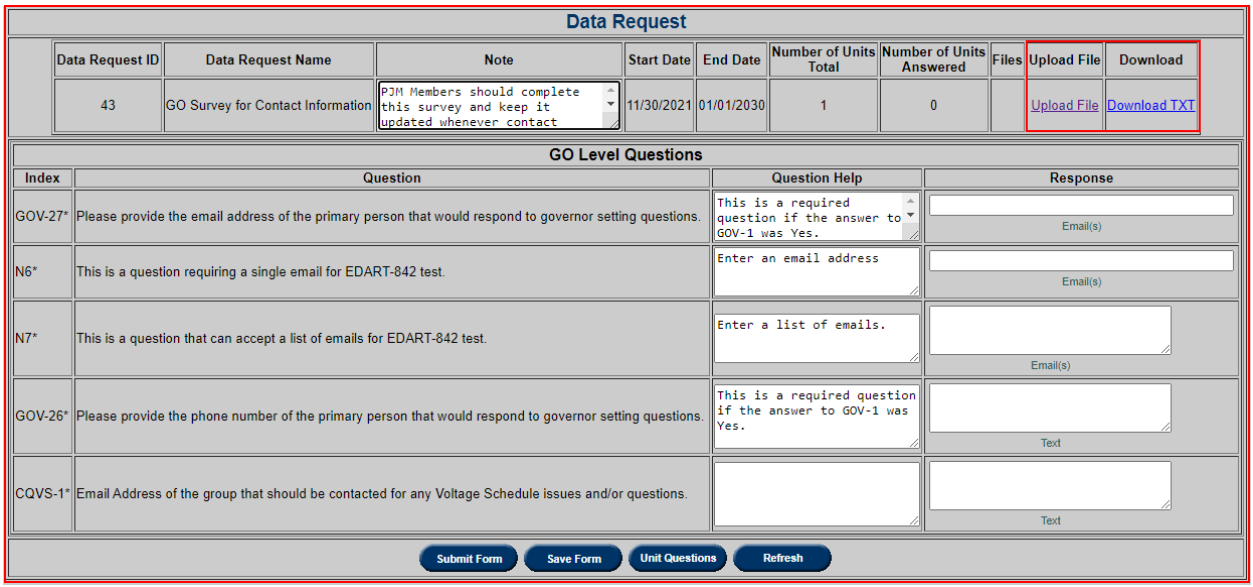
Users have the option to save progress on a data request and complete it later by clicking **Save Form**. Note that PJM does not see the data request response until the user submits by clicking **Submit Form**.

Some questions depend on answers to preceding questions and the options to submit or save the data request response will not be available until all questions are displayed.



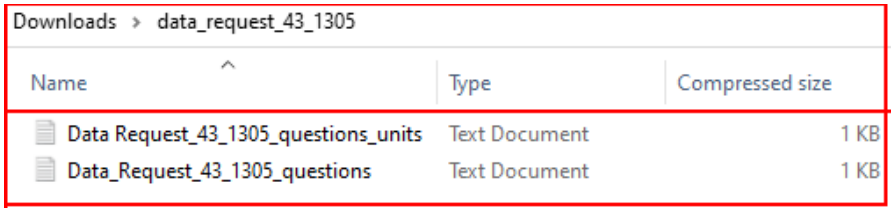
Submit Data request form by Uploading TXT file

Chose a Data Request by clicking on Data Request Name button.



Data Request page has a hyperlink **Download TXT** that generates a *data_request_ XXX_*** zip file. The ZIP file includes two text files.

The first file *Data_Request_XXX_***_questions_units.txt* contains the pre-populated unit answers from previous Data Request and the second file *Data Request_XXX_***_questions.txt* contains the Data Request questions.

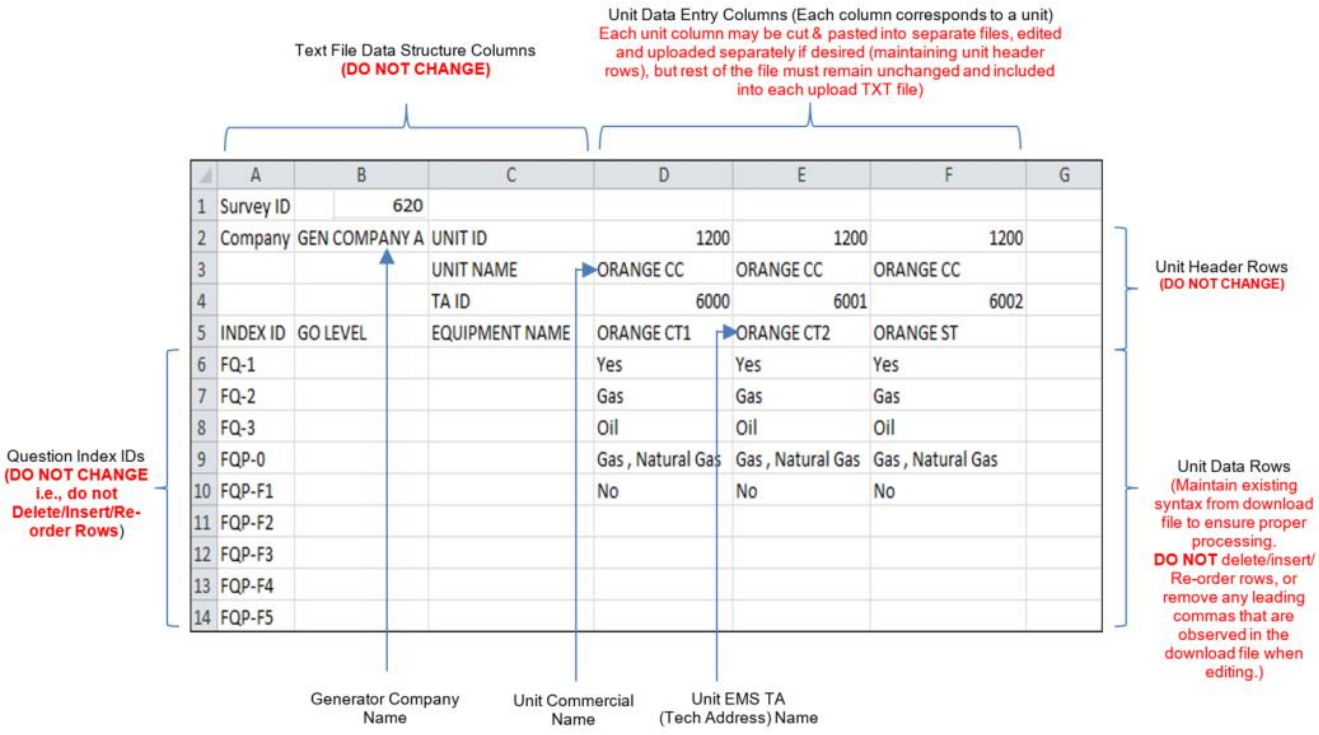


Do NOT attempt to open the TXT files by double-clicking – they **must be opened using Excel**.
Start Excel, choose "File" then "Open" and navigate to the location where you saved the TXT files that were extracted from the ZIP file downloaded from eDART.
Alternate method: open the Excel spreadsheet and click the Data tab. In the Get External Data group, click From Text. Select the TXT file and click Import.

Two files can be joined within Microsoft Excel for one combined file with questions and answers, as they have the same number of rows.

IMPORTANT: If planning to upload the Data Request responses into eDART, the file to be uploaded must only contain unit answers based on the downloaded unit answer file (Data Request_XXX_***_questions_units.txt).

Example: Unit Answer .TXT File Format & Update Instructions:



	A	B	C	D	E	F	G
1	Survey ID	620					
2	Company	GEN COMPANY A	UNIT ID	1200	1200	1200	
3			UNIT NAME	ORANGE CC	ORANGE CC	ORANGE CC	
4			TA ID	6000	6001	6002	
5	INDEX ID	GO LEVEL	EQUIPMENT NAME	ORANGE CT1	ORANGE CT2	ORANGE ST	
6	FQ-1			Yes	Yes	Yes	
7	FQ-2			Gas	Gas	Gas	
8	FQ-3			Oil	Oil	Oil	
9	FQP-0			Gas , Natural Gas	Gas , Natural Gas	Gas , Natural Gas	
10	FQP-F1			No	No	No	
11	FQP-F2						
12	FQP-F3						
13	FQP-F4						
14	FQP-F5						

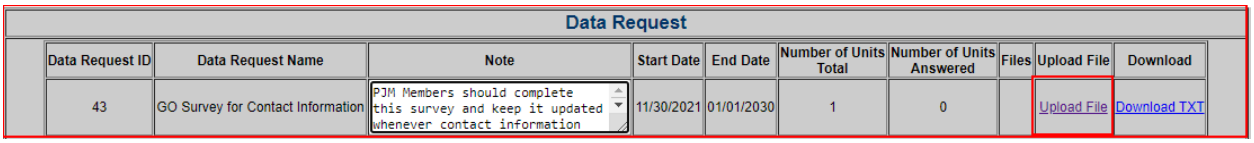
DO NOT upload the questions file, or a combined file with questions and answers, as these cannot be processed by eDART. The upload file may be renamed, but it must remain in tab-delimited format and MUST be saved with a .TXT file extension (not an .XLS or other file extension).

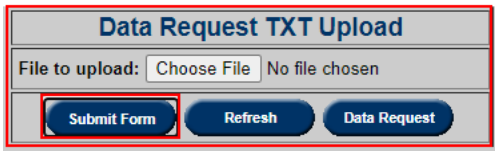
Additionally, while preparing the upload file, **do NOT insert/delete rows, or remove any leading commas or special characters** that were part of the download file; these are needed to ensure file is processed properly in eDART.

If there are errors in your uploaded file, error message(s) will display in red. These need to be corrected and then file must be uploaded again.

For companies with multiple units, you may upload multiple unit answer files at a time with one, some, or all of your units within each file, entered as single columns. However, each of these unit answer files must follow downloaded unit answer file format. Partial responses for any unit in the answer file will result in validation errors for the partially answered unit.

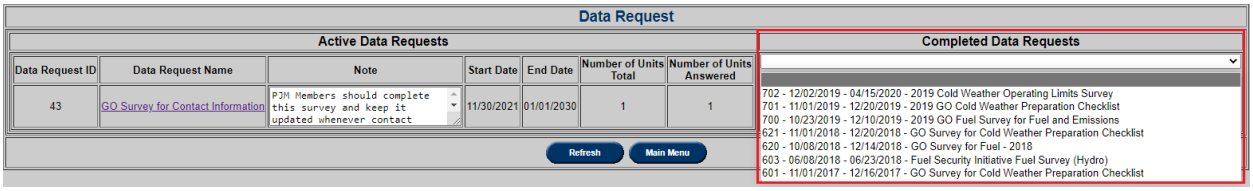
To upload TXT file with answers, select Upload File button, click on Choose File, select file and click on Submit Form.





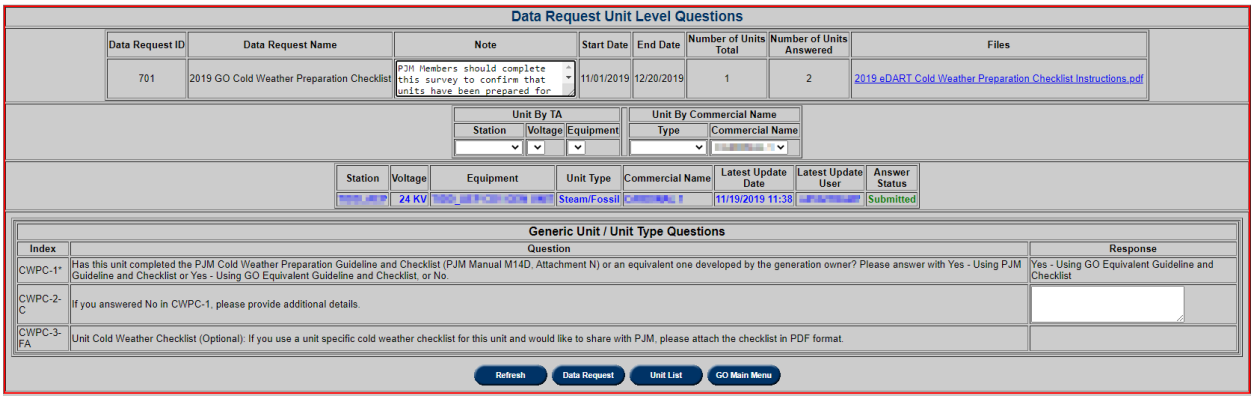
View Completed Data Requests

Click on the **Completed Data Requests** drop down from the Data Request main menu and select completed data request.



Responses to **GO Level Questions** will be immediately displayed; click **Unit Questions** to display responses per unit for the unit level data requests.

Select a unit by **TA** (EMS unit information) or by **Commercial Name** then click Continue to proceed to the unit question list.



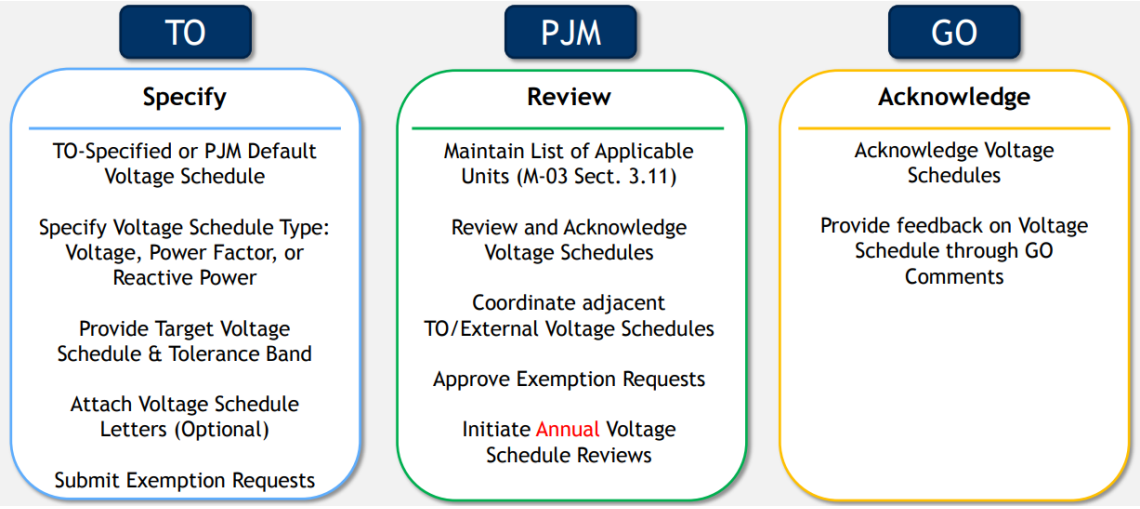
Voltage Schedules

eDART Voltage Schedules allows Transmission Owners (TO) to specify voltage schedules for each applicable generator in the form of a Voltage Schedule ticket containing:

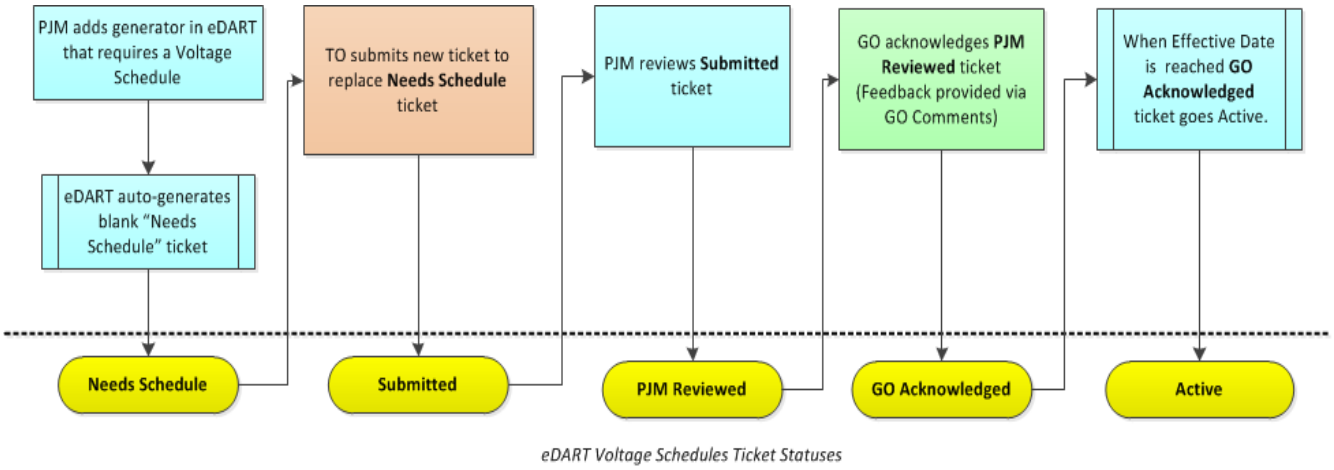
- Target voltage schedule
- Upper and lower bandwidths

Regulated transmission bus

Generation Owners (GO) are able to view and acknowledge the voltage schedules in eDART.



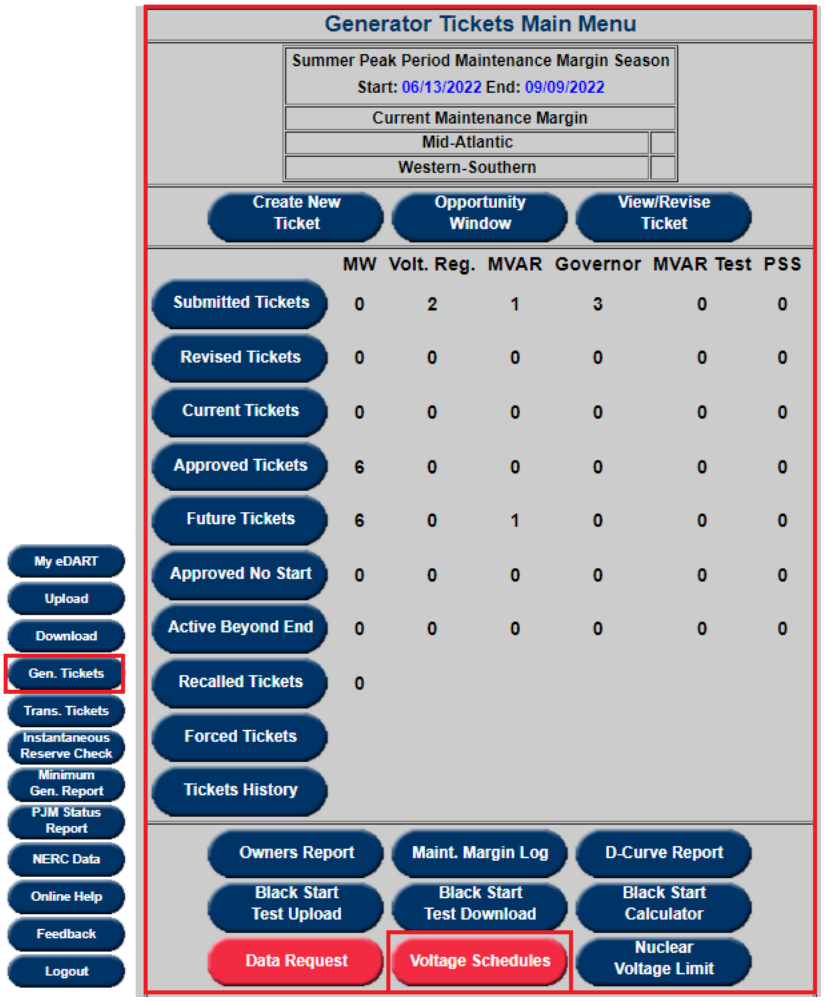
Voltage Schedules Ticket Process Flow is presented below.

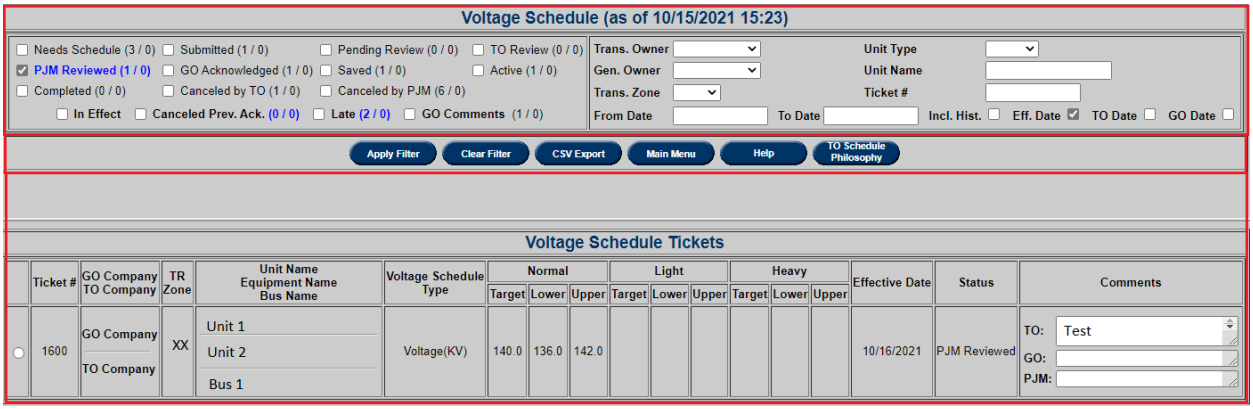


eDART Voltage Schedules Ticket Statuses

eDART Voltage Schedules ensures that all applicable generators have either a specified voltage schedule or an approved exemption (based on a TO exemption request). Each generator voltage schedule or exemption request will be submitted by the TO in eDART, followed by PJM's technical review, and should be acknowledged by the GO.

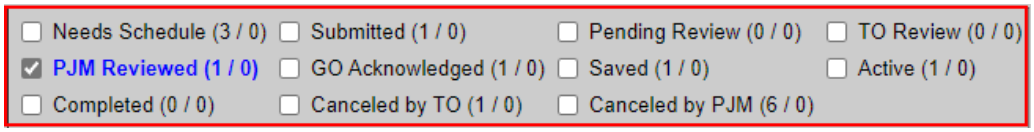
Voltage Schedule is accessible via the Generation Tickets Main Menu. The button will be red if there is a required action by the GO.





Ticket Status

Ticket Statuses in Blue Text represent the default ticket status filters selected when the Voltage Schedules Main screen is opened. These default selections are based on the ticket statuses that require action from the user. For GO users, the default ticket status selected is PJM Reviewed.



The following are definitions for the Voltage Schedule Ticket Statuses selectable from the filter menu:

- **Needs Schedule** – Initial status for all generator voltage schedule tickets. Voltage schedule tickets in this status will generate required action notifications for TO users.
- **Saved** –TO user may place ticket in Saved status while ticket is still being created. PJM will not review Saved tickets.
-
- **Submitted** - indicates that ticket is ready for PJM's review
- **Pending Review** - indicates that a submitted voltage schedule ticket is currently under PJM's technical review
- **TO Review** - indicates that following PJM's technical review of the voltage schedule ticket, PJM is requesting that the TO perform additional review on the proposed voltage schedule.
- **PJM Reviewed** - indicates that the ticket is now ready for the GO's review and acknowledgement.
- **GO Acknowledged** - indicates the GO has reviewed and acknowledged the proposed voltage schedule. The GO user may also enter comments in the GO comments section of the voltage schedule ticket.
- **Active** – indicates that the voltage schedule is in effect for the unit (the Effective Date for the ticket has been reached).
- **Completed** - Indicates completion of a previously Active ticket following its replacement by a new voltage schedule ticket that has become Active. Only one Active ticket at a time is permitted for each generator.
- **Canceled by TO** - Indicates that a ticket has been canceled by the associated TO.
- **Canceled by PJM** - Indicates that a ticket has been canceled by PJM.

Voltage Schedule Ticket Filters

- **In Effect** - Indicates tickets that reflect the current effective voltage schedule for each generator, and are either in Needs Schedule status (for new units without an active voltage schedule) or Active status.
- **Canceled Prev. Ack.** –indicates tickets recently canceled by the TO or PJM that were already in PJM Reviewed or GO Acknowledged statuses.
- **Late Tickets** - Indicates tickets that are not yet in GO Acknowledged status but have reached their Effective Date. The Effective Date for these tickets will be automatically extended by one day on a daily basis until they are acknowledged.

- **GO Comments** – Indicates that a GO has provided feedback via the GO comments field on a PJM Reviewed or GO Acknowledged voltage schedule ticket.

Date Filters

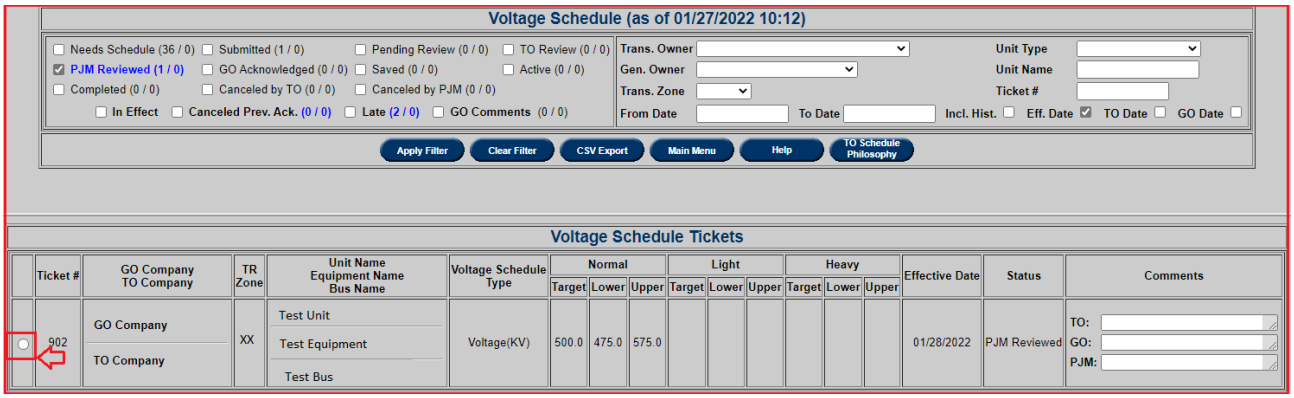
These filters allow selection of voltage schedule tickets based on a specified date range using the following parameters:

- **From Date and To Date** – Returns tickets within the date range between the From and To Date parameters.
- **Include Historical** – Returns historical (tickets in final status for more than 40 days in the past) as well as current and future tickets.
- **Effective Date** – Returns tickets with Effective Dates within the From Date and TO Date parameters.
- **TO Date** – Returns tickets that were reviewed and acknowledged by the Transmission Owner (TO) as part of an Annual Review conducted within the date range specified by the From and To Date parameters.
- **GO Date** – Returns tickets that were reviewed and acknowledged by the Generation Owner (TO) as part of an Annual Review conducted within the date range specified by the From and To Date parameters.
- If more than one of Effective Date, TO Date, and GO Date checkboxes are selected, the date search will be performed with an AND condition for all selected date type

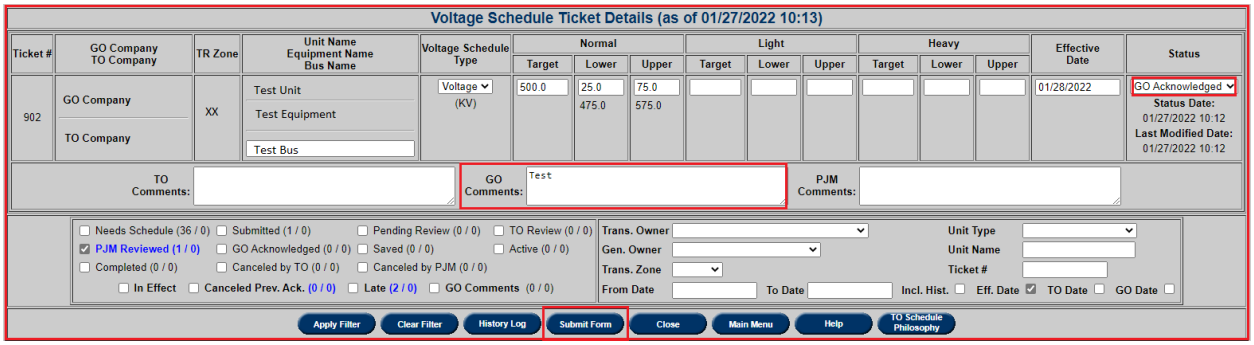
TO Schedule Philosophy - Opens a pop-up table displaying each Transmission Owner and their associated schedule philosophy , i.e. normal, light, heavy load condition definitions and associated timeframes, generator AVR mode/status requirements, required notifications, bandwidths, and other TO-specific voltage schedule details.

Acknowledging Voltage Schedule Ticket

Select the radio button to open the Voltage Schedule Ticket Details to make updates.

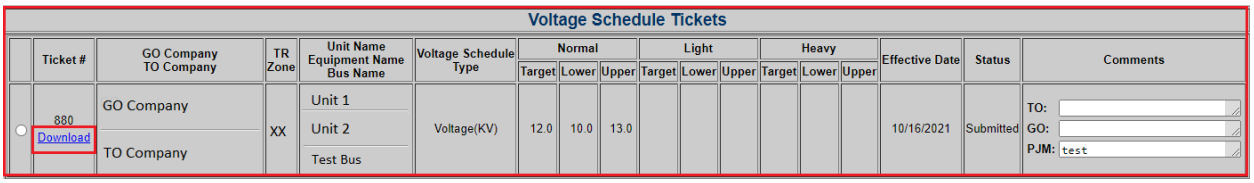


Change the Status to GO Acknowledged. Enter GO Comments as needed and Submit Form.



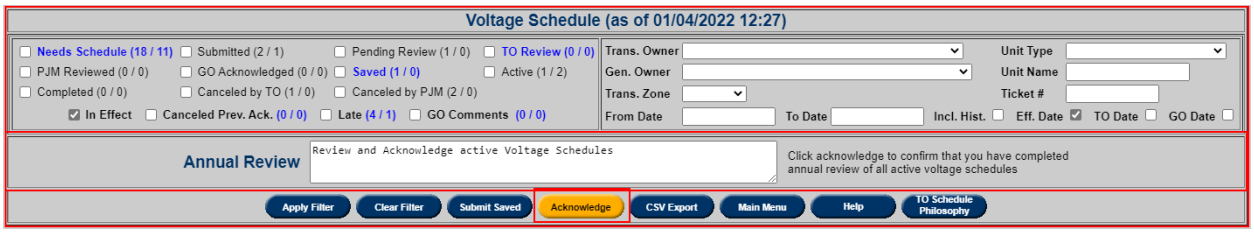
Download Files

GO users can access files attached to voltage schedule tickets via a Download link on the Voltage Schedule Tickets listing as shown below



Both GO and TO users may download files using the link, which saves the attached file(s) as a single zip file, out of which the file(s) may be extracted.

Annual Review for GO



Steps for Completing the GO Annual Review Phase

- For the GO review phase, GOs should perform a review of all effective voltage schedules, by clicking the *In Effect* filter option. This selects all *Active* and *Needs Schedule* status tickets for all units within the GO's fleet, and upon clicking Apply Filter, the list of tickets with these statuses will be displayed.
- For *Needs Schedule* tickets, the GO should wait until new voltage schedules are submitted by the TO and reviewed by PJM (moved to *PJM Reviewed* status) for their

acknowledgement. For *Active* tickets, the GO should review to ensure consistency with their awareness of their units' current voltage schedules.

- Following the review of all *Active* tickets, the GO should click the orange Acknowledge button to indicate that all *Active* voltage schedule tickets have been reviewed and that the GO's review is complete. Once the Acknowledge button has been clicked, the Annual Review section vanishes from the screen.
- All Active status tickets that have been reviewed during the GO annual review phase will be logged with a *GO Date* time stamp based on when the GO Acknowledge button was clicked. Tickets with this *GO Date*, can be searched for using the date filter selection options for *GO Date*

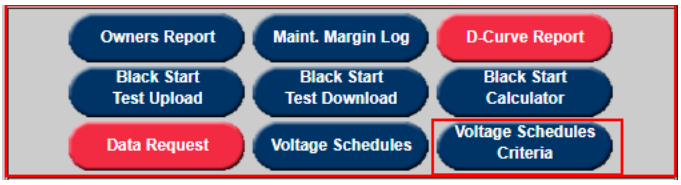
For more information on Voltage Schedules, please see:

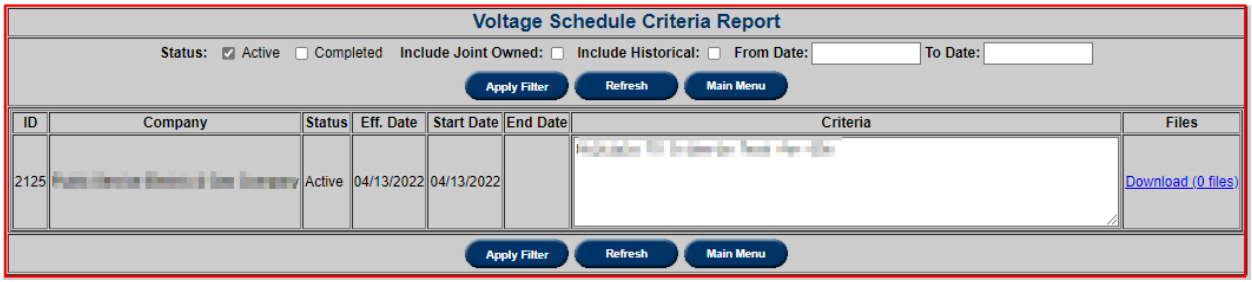
- PJM eDART Voltage Schedules for GO presentation (pjm-edart-voltage-schedules-for-generation-owners.ashx)
- Voltage Schedules Help document in eDART accessible by clicking the Help button.

Contact: voltageschedules@pjm.com

Voltage Schedule Criteria

Functionality that enables TOs to submit and review Voltage Schedule (VS) Criteria in accordance with VAR-001-5 R5.3 standard. VS also available to GOs for review.
To get to Voltage Schedule Criteria, go to Generation Tickets Main Menu and click on Voltage Schedules Criteria.



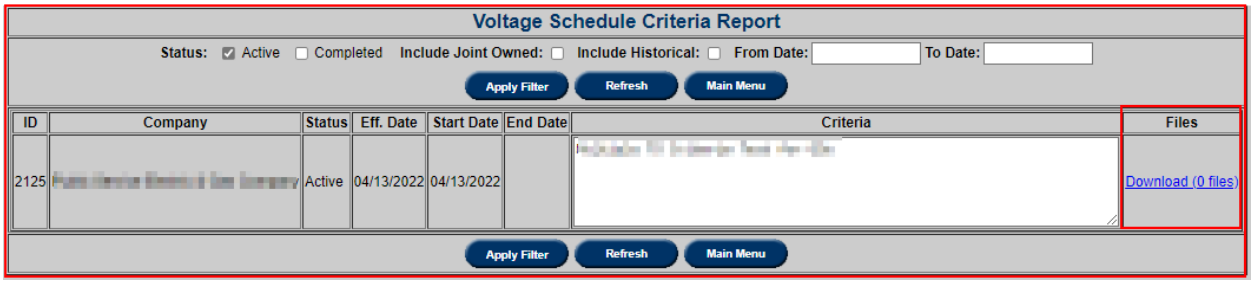


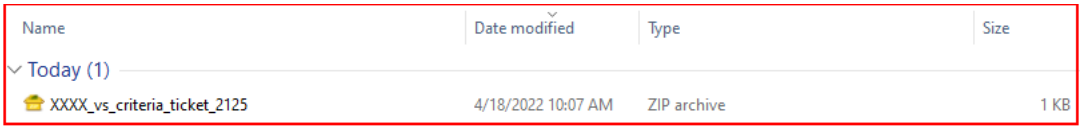
Only Active and Completed VS Criteria can be viewed. Active is selected by default.

Status Definitions

- **Active:** Approved VS Criteria is in effect
- **Completed:** VS Criteria is no longer in effect; may be replaced by a new Active VS Criteria

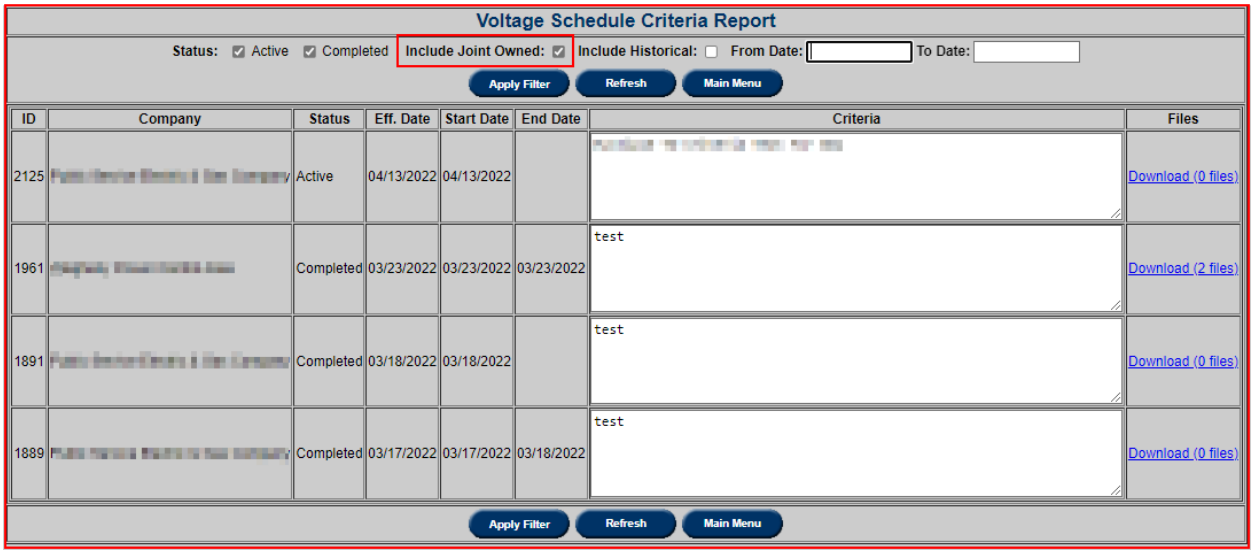
Click on **"Download (X Files)"** to get attached files and text file with information in Criteria field.





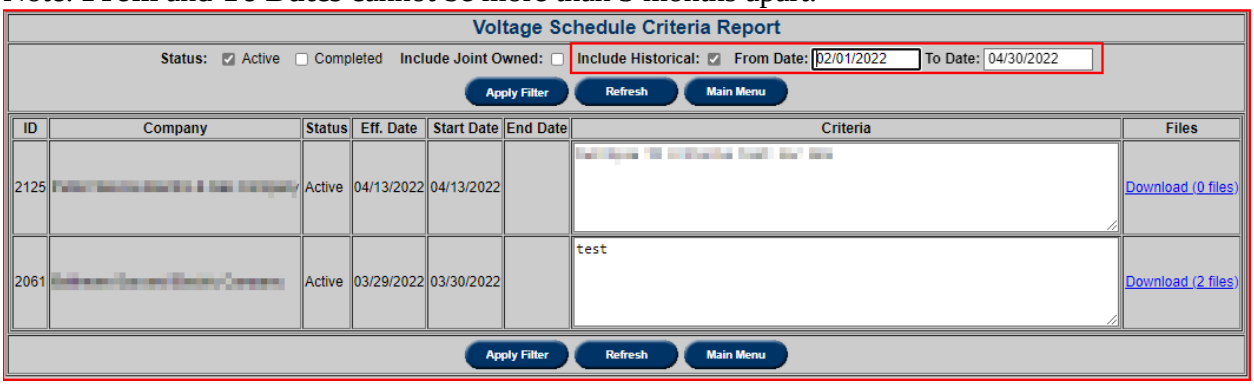
Downloaded zip file includes criteria text file and all uploaded files (if available).

Check "**Include Joint Owned**" to include VS Criteria from TOs of Informational VS Tickets.



To view VS Criteria completed or cancelled 40 or more days ago, check "**Include Historical**" and enter desired dates.

Note: **From** and **To Dates** cannot be more than 3 months apart.



For more information or assistance on Voltage Schedules Criteria, please contact:

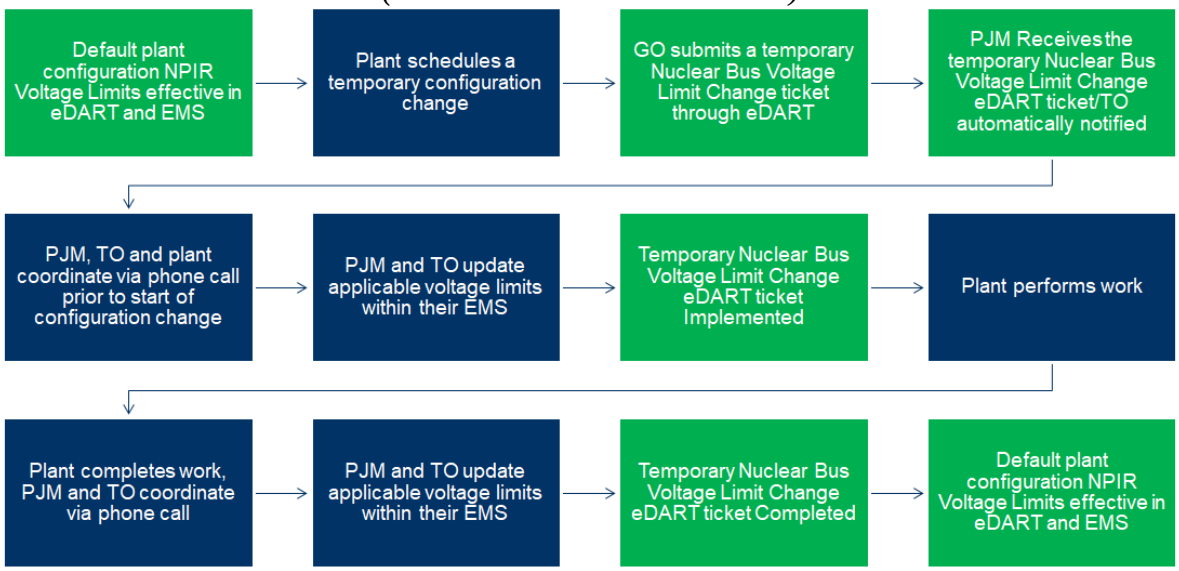
VoltageSchedules@pjm.com

Nuclear Voltage Limit

In compliance with NERC standard NUC-001, Nuclear Generation Owners (NGOs), develop Nuclear Plant Interface Requirements (NPIRs) which define safe shutdown voltage limits. Applicable Transmission entities monitor the transmission system as not to violate the NPIRs. The eDART Nuclear Voltage Limit tool is limited to NGOs and applicable TOs and is used to
Submit Nuclear Bus Voltage Limit change
View Current limits and upcoming limit changes

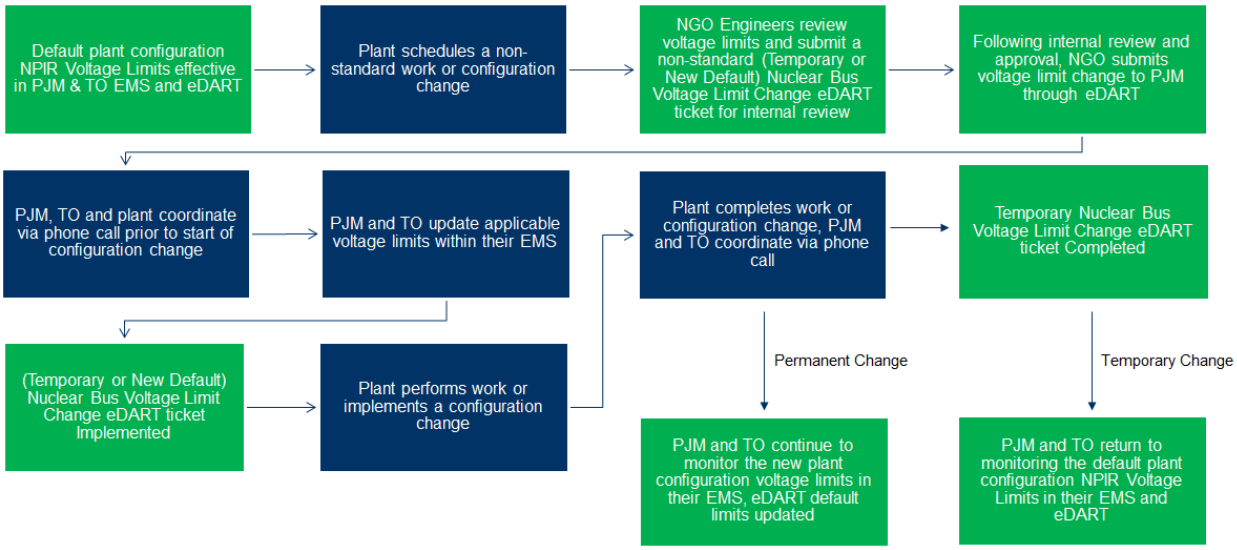
Process for Temporary Pre-Approved Voltage Limit Changes

(Green actions occur in eDART)

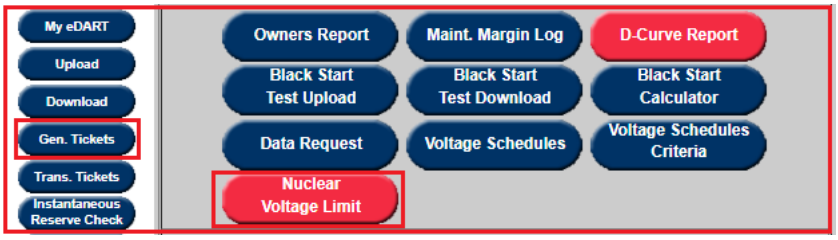


Process for Voltage Limit Changes Outside of NPIRs

(Green actions occur in eDART)



To get to Nuclear Voltage Limits menu, click on **Gen. Tickets** button on the left menu and then on **Nuclear Voltage Limit** button.



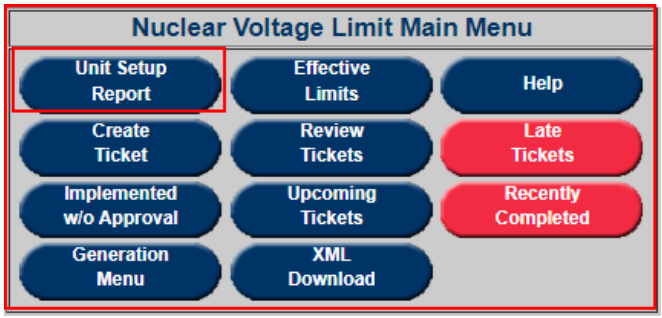
Nuclear Voltage Limit button highlighted in Red indicate required actions or items for review.

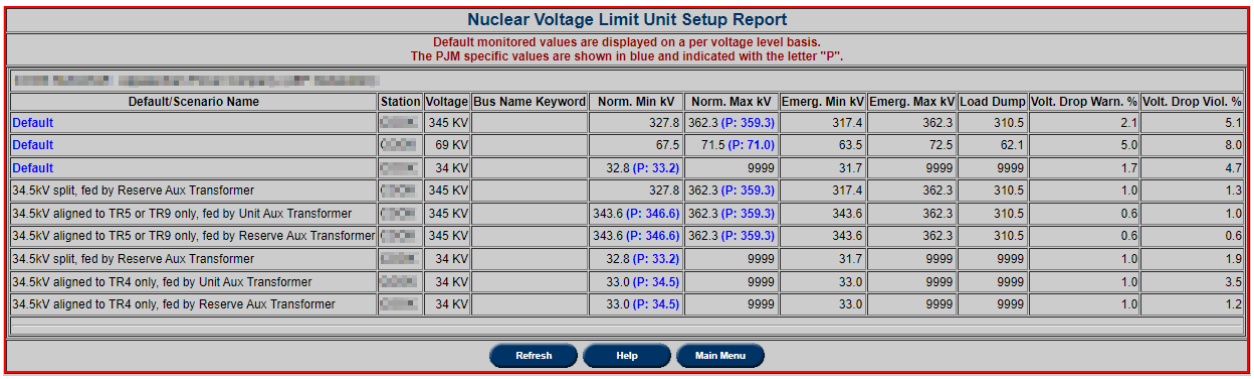
Unit Setup Report

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

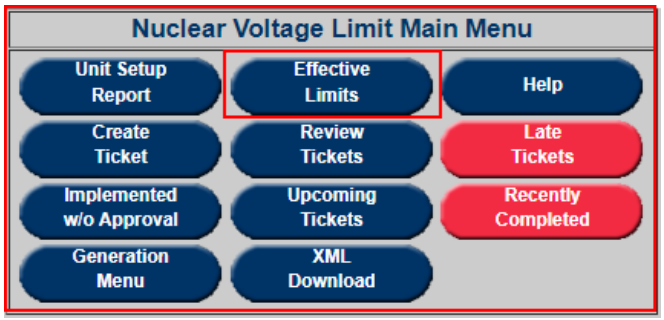
Default monitored values are displayed on a per voltage level basis.
The PJM specific values are shown in blue and indicated with the letter "P".

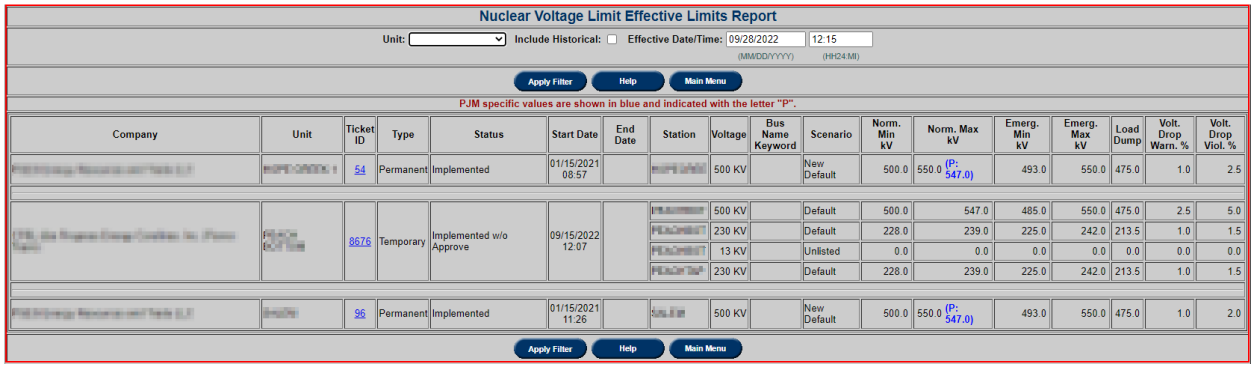
Default/Scenario Name	Station	Voltage	Bus Name Keyword	Norm. Min kV	Norm. Max kV	Emerg. Min kV	Emerg. Max kV	Load Dump	Volt. Drop Warn. %	Volt. Drop Viol. %
Default		345 KV		327.8	362.3 (P: 359.3)	317.4	362.3	310.5	2.1	5.1
Default		69 KV		67.5	71.5 (P: 71.0)	63.5	72.5	62.1	5.0	8.0
Default		34 KV		32.8 (P: 33.2)	9999	31.7	9999	9999	1.7	4.7
34.5kV split, fed by Reserve Aux Transformer		345 KV		327.8	362.3 (P: 359.3)	317.4	362.3	310.5	1.0	1.3
34.5kV aligned to TR5 or TR9 only, fed by Unit Aux Transformer		345 KV		343.6 (P: 346.6)	362.3 (P: 359.3)	343.6	362.3	310.5	0.6	1.0
34.5kV aligned to TR5 or TR9 only, fed by Reserve Aux Transformer		345 KV		343.6 (P: 346.6)	362.3 (P: 359.3)	343.6	362.3	310.5	0.6	0.6
34.5kV split, fed by Reserve Aux Transformer		34 KV		32.8 (P: 33.2)	9999	31.7	9999	9999	1.0	1.9
34.5kV aligned to TR4 only, fed by Unit Aux Transformer		34 KV		33.0 (P: 34.5)	9999	33.0	9999	9999	1.0	3.5
34.5kV aligned to TR4 only, fed by Reserve Aux Transformer		34 KV		33.0 (P: 34.5)	9999	33.0	9999	9999	1.0	1.2

Refresh Help Main Menu

Effective Limits Report

The Effective Limits Report provides 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: 09/28/2022 (MM/DD/YYYY) 12:15 (HH24:MI)

Apply Filter Help Main Menu

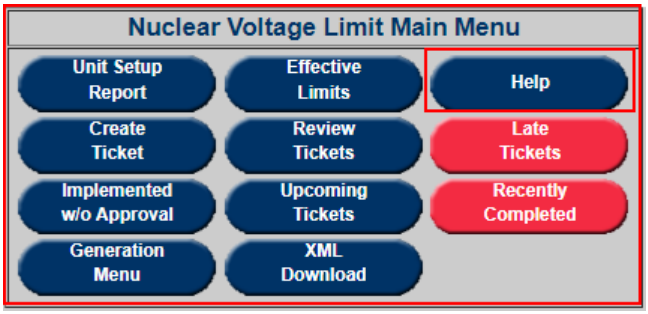
PJM specific values are shown in blue and indicated with the letter "P".

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. %
		54	Permanent	Implemented	01/15/2021 08:57			500 KV		New Default	500.0	550.0 (P: 547.0)	493.0	550.0	475.0	1.0	2.5
		8676	Temporary	Implemented w/o Approve	09/15/2022 12:07			500 KV		Default	500.0	547.0	485.0	550.0	475.0	2.5	5.0
								230 KV		Default	228.0	239.0	225.0	242.0	213.5	1.0	1.5
								13 KV		Unlisted	0.0	0.0	0.0	0.0	0.0	0.0	0.0
								230 KV		Default	228.0	239.0	225.0	242.0	213.5	1.0	1.5
		96	Permanent	Implemented	01/15/2021 11:26			500 KV		New Default	500.0	550.0 (P: 547.0)	493.0	550.0	475.0	1.0	2.0

Apply Filter Help Main Menu

Help

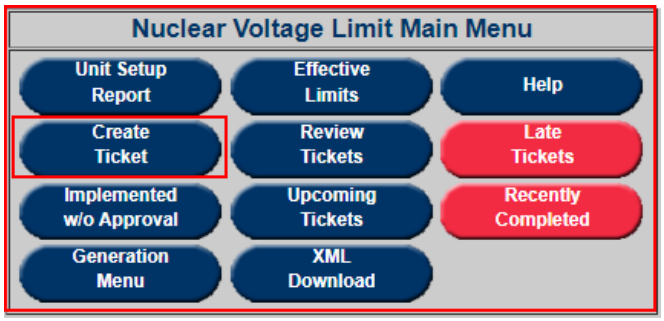
Help button displays PDF Nuclear Voltage Help file.
It is also available on the forms and reports.

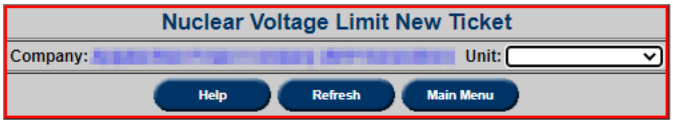


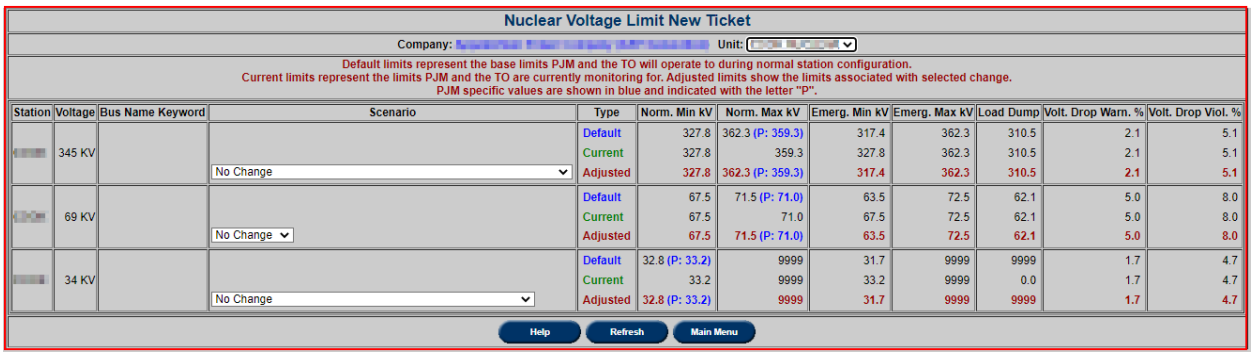
Create Ticket

The Create Ticket form 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.



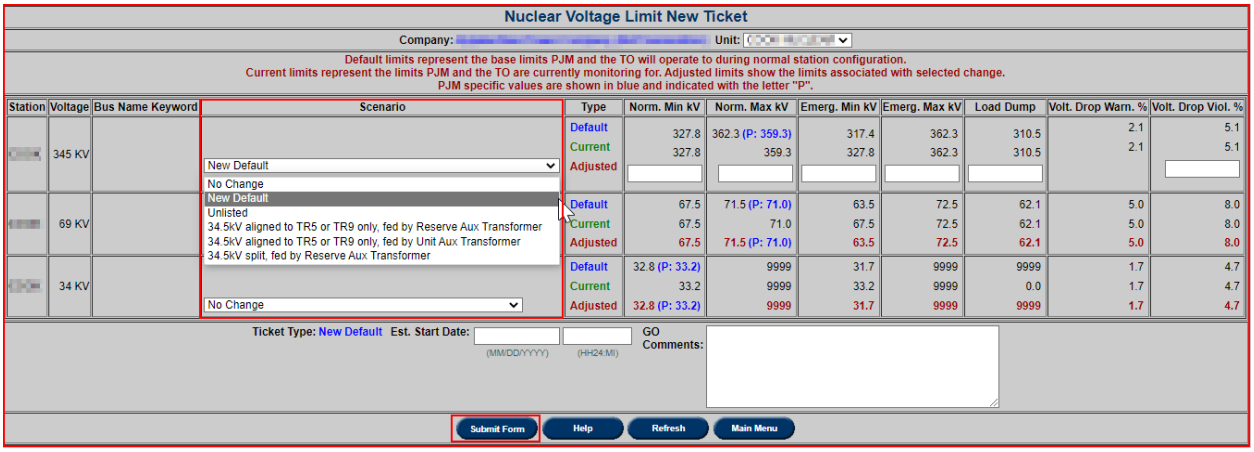




The submitter will be able to select from multiple scenarios for each voltage level:

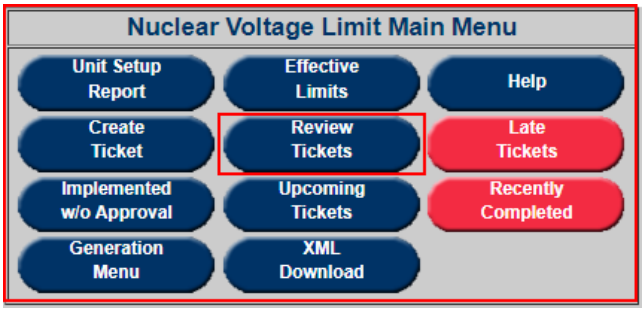
- No Change
- New Default - permanent change to the default values

- Unlisted - temporary limits not covered by pre-approved scenarios
- Unit specific pre-approved scenarios (i.e. LTC in manual)

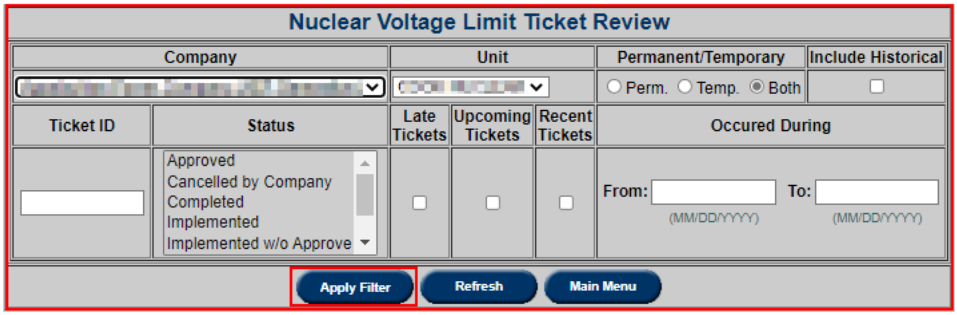


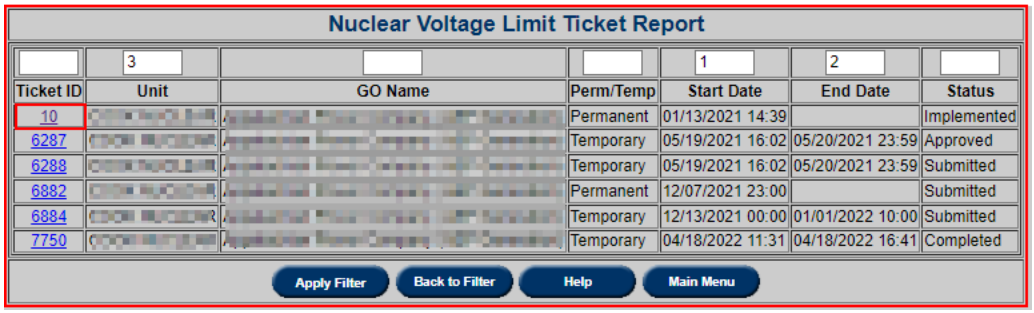
Review Ticket

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.



To review Nuclear Voltage Limit tickets select desired filter options and click on **Apply Filter**.



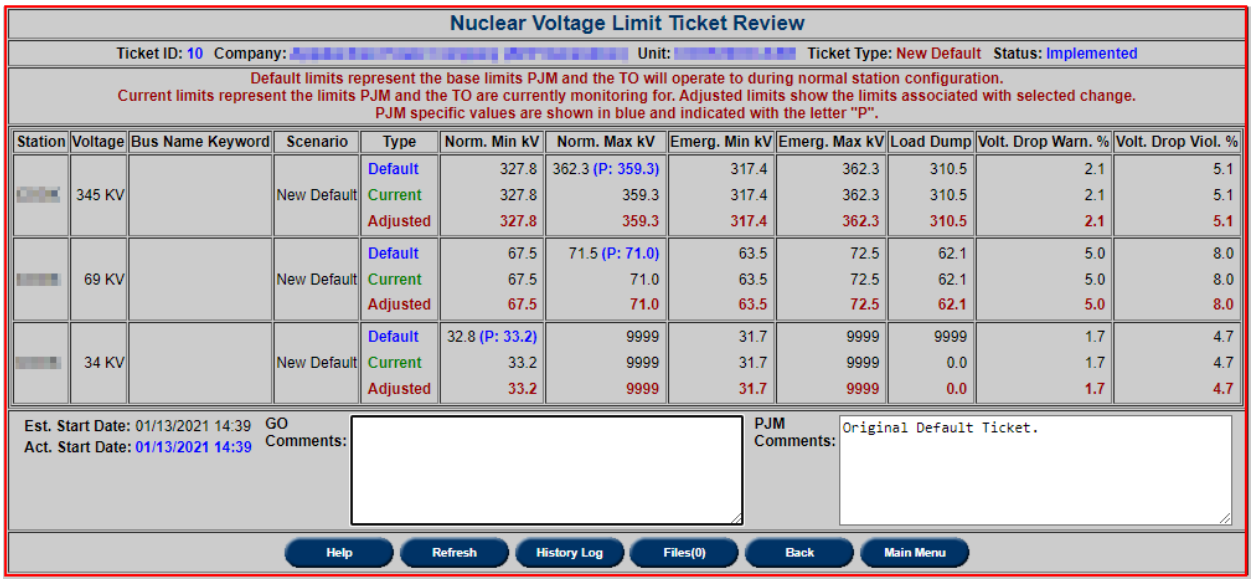


Nuclear Voltage Limit Ticket Report

Ticket ID	Unit	GO Name	Perm/Temp	Start Date	End Date	Status
	3			1	2	
10	[redacted]	[redacted]	Permanent	01/13/2021 14:39		Implemented
6287	[redacted]	[redacted]	Temporary	05/19/2021 16:02	05/20/2021 23:59	Approved
6288	[redacted]	[redacted]	Temporary	05/19/2021 16:02	05/20/2021 23:59	Submitted
6882	[redacted]	[redacted]	Permanent	12/07/2021 23:00		Submitted
6884	[redacted]	[redacted]	Temporary	12/13/2021 00:00	01/01/2022 10:00	Submitted
7750	[redacted]	[redacted]	Temporary	04/18/2022 11:31	04/18/2022 16:41	Completed

Apply Filter | Back to Filter | Help | Main Menu

To open Nuclear Voltage Limit ticket, click on Ticket ID number hyperlink.



Nuclear Voltage Limit Ticket Review

Ticket ID: 10 Company: [redacted] Unit: [redacted] Ticket Type: New Default Status: Implemented

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. %
[redacted]	345 KV		New Default	Default	327.8	362.3 (P: 359.3)	317.4	362.3	310.5	2.1	5.1
				Current	327.8	359.3	317.4	362.3	310.5	2.1	5.1
				Adjusted	327.8	359.3	317.4	362.3	310.5	2.1	5.1
[redacted]	69 KV		New Default	Default	67.5	71.5 (P: 71.0)	63.5	72.5	62.1	5.0	8.0
				Current	67.5	71.0	63.5	72.5	62.1	5.0	8.0
				Adjusted	67.5	71.0	63.5	72.5	62.1	5.0	8.0
[redacted]	34 KV		New Default	Default	32.8 (P: 33.2)	9999	31.7	9999	9999	1.7	4.7
				Current	33.2	9999	31.7	9999	0.0	1.7	4.7
				Adjusted	33.2	9999	31.7	9999	0.0	1.7	4.7

Est. Start Date: 01/13/2021 14:39
Act. Start Date: 01/13/2021 14:39
GO Comments:
PJM Comments: Original Default Ticket.

Help | Refresh | History Log | Files(0) | Back | Main Menu

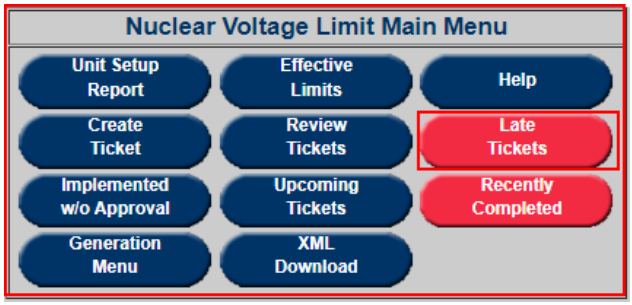
Ticket Status

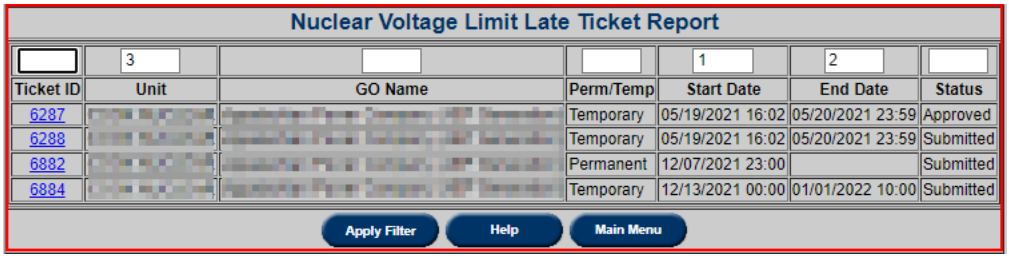
- **Submitted:** new ticket status when submitted to PJM.
- **Received:** initial review of ticket by PJM completed.
- **Denied:** voltage limit change reviewed and not approved by PJM.
- **Approved:** voltage limit change reviewed and approved by PJM.
- **Cancelled by Company:** NGO cancelled the tickets.
- **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.

Late Tickets

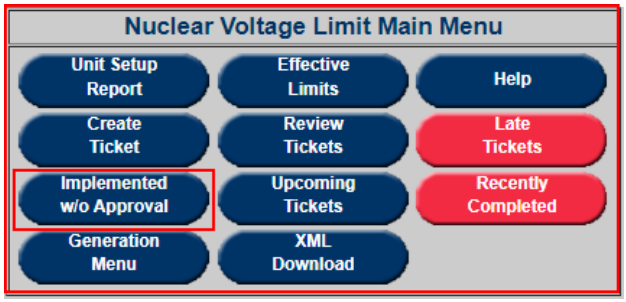
The Late Tickets reports shows tickets that either:
Are past their Start date but have not been Implemented or Cancelled.
Are past their End Date but have not been Completed or Cancelled.

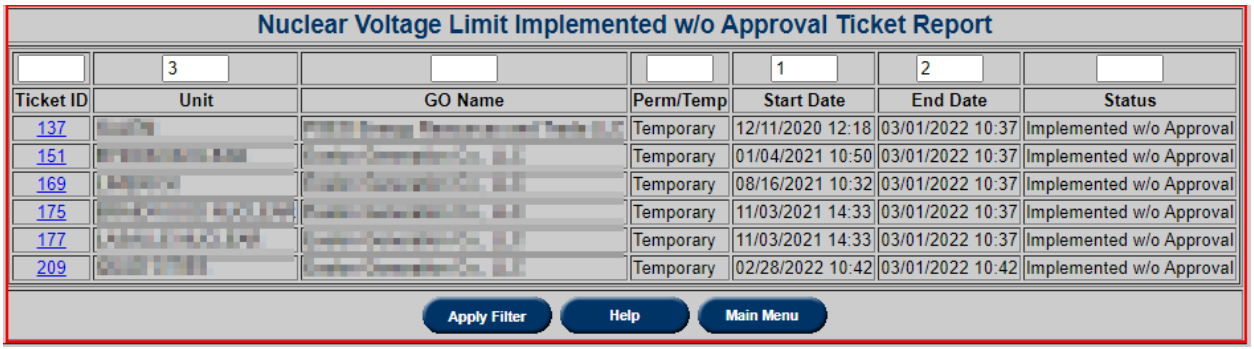




Implemented w/o Approval

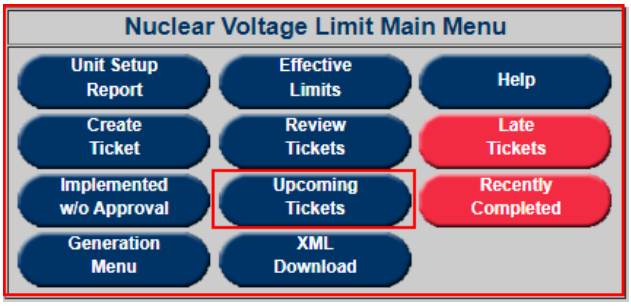
The Implemented without Approval screen shows tickets which are created when the currently active limits in eDART does not match the limits monitored by PJM.

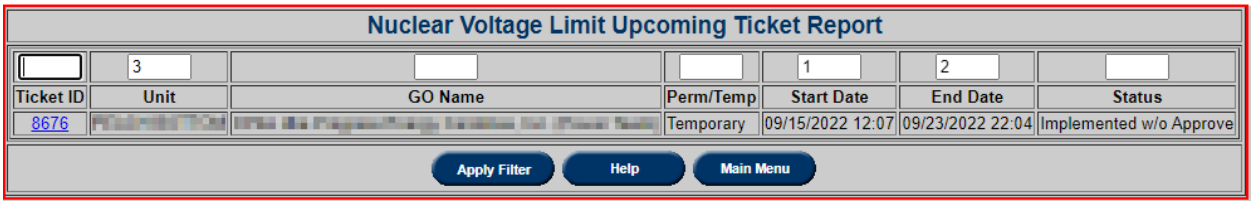




Upcoming Tickets

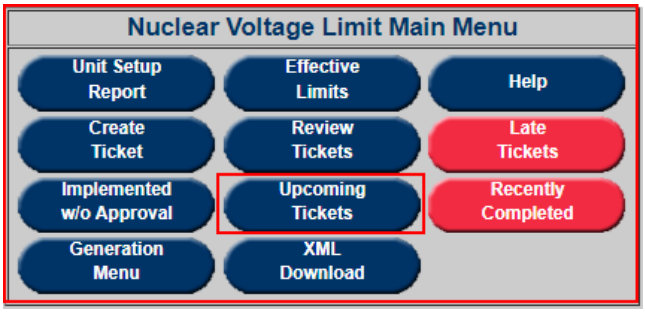
The Upcoming Tickets report displays all tickets scheduled to start in the next 7 days.

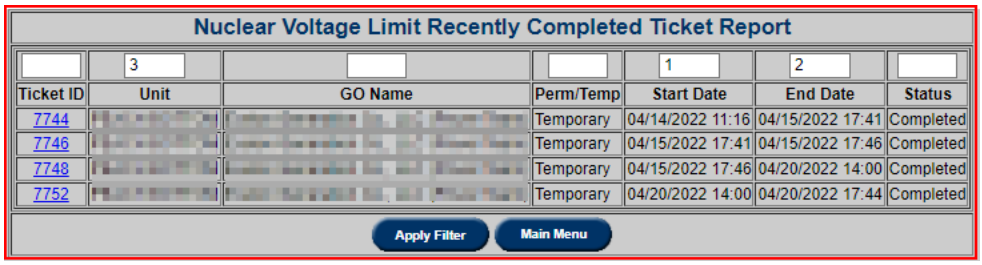




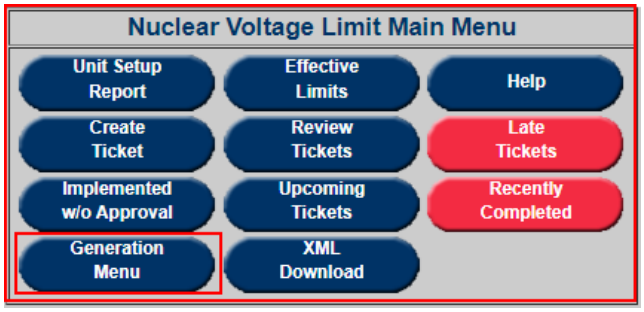
Recently Completed

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





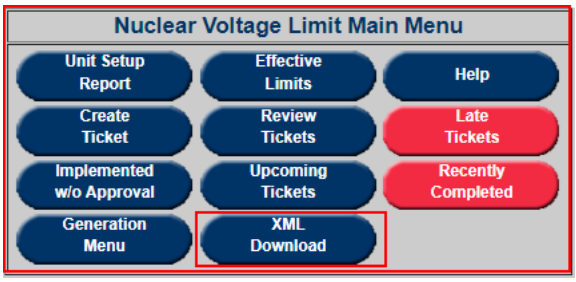
Generation Menu returns to Generation Outage Main Menu.

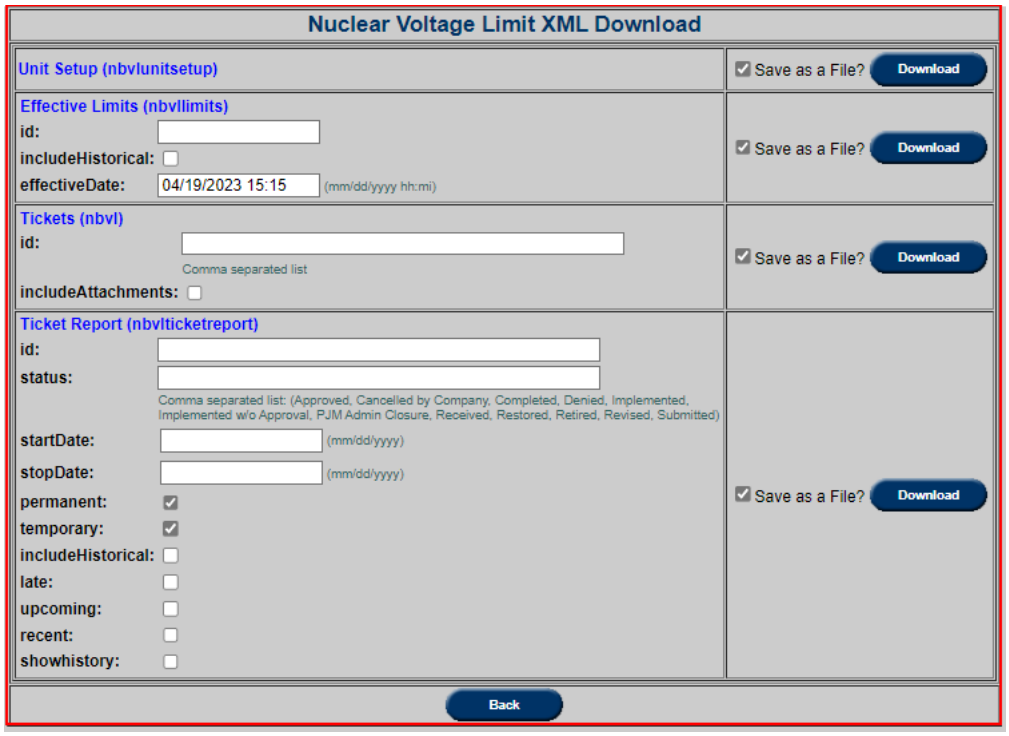


XML Download

XML Download option provides opportunity to view and download the following xml files:

- Unit Setup (nbvlunitsetup)
- Effective Limits (nbvllimits)
- Tickets (nbvl)
- Ticket Report (nbvlticketreport)





For more information, 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)

Reactive Result Tickets

Generating Facilities within the PJM footprint are required to test the reactive capability of their units. This includes individual units, synchronous condensers, and aggregated generating plants with the following specifications:

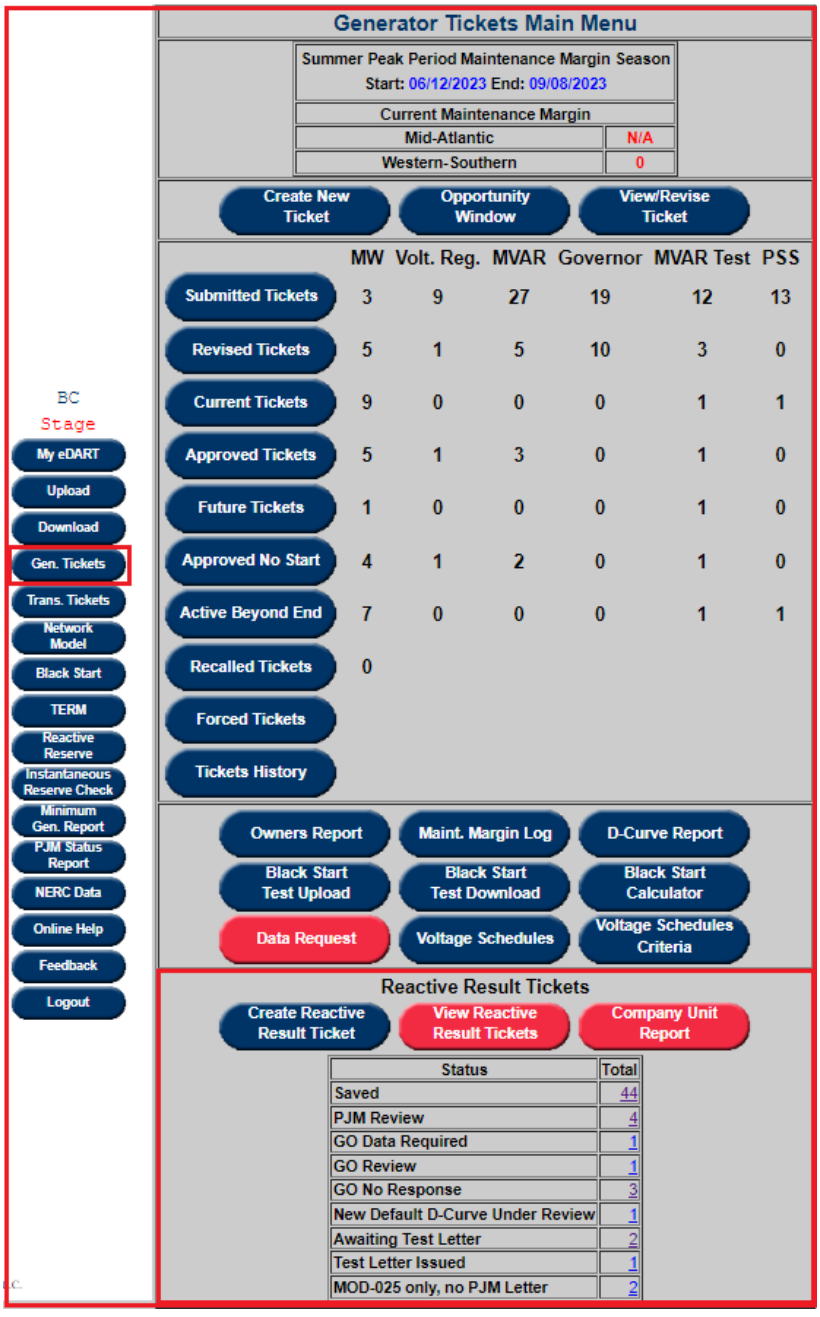
- Individual generating units with a gross nameplate rating greater than 20 MVA and directly connected to the Bulk Electric System.
- Generating plants/facilities with a gross aggregate nameplate rating greater than 75 MVA including variable resources such as wind, solar, run of river hydro, etc.
- Synchronous condensers with a gross nameplate rating greater than 20 MVA and directly connected to the Bulk Electric System.
- All generating units providing PJM Black Start Service.

Generator Owners (GO) must test 20% of their units yearly, as a result, 100% of their units over a 66 month period. GOs have 6 months to complete all of their required tests and 30 days after the testing date to submit their results to PJM Reactive Testing.

For additional information, please refer to “Attachment E: PJM Generator and Synchronous

Condenser Reactive Capability Testing" of *Generator Operational Requirements – PJM Manual M14D.*

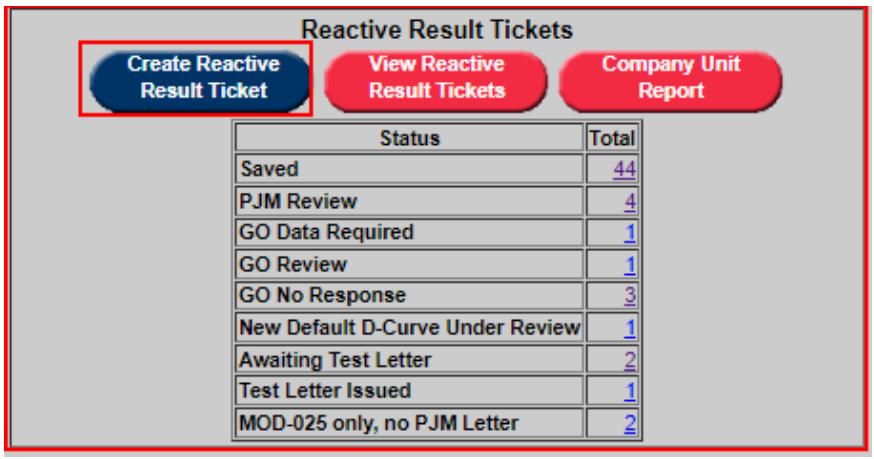
When logged into eDART, click on the **Gen. Tickets** button on the left menu to open the **Generator Tickets Main Menu**. The bottom portion of the menu consists of the **Reactive Result Tickets** section.



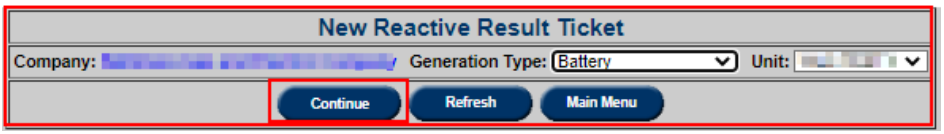
Reactive Result Ticket Process

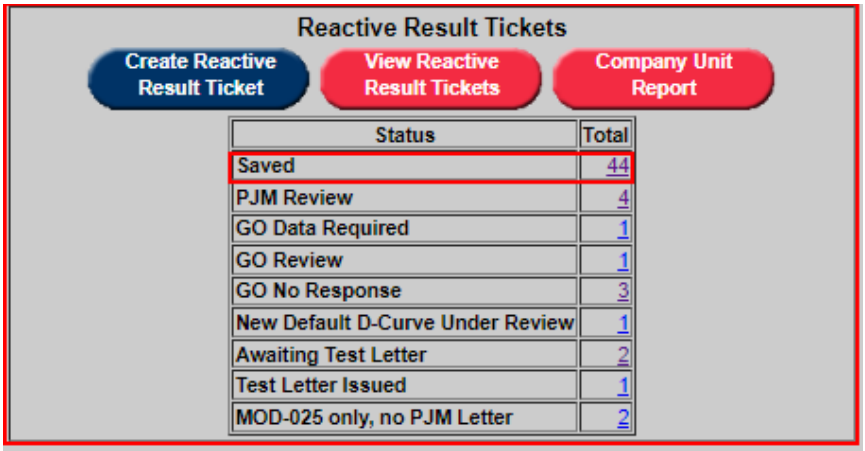
Creating Reactive Result Tickets

To submit reactive testing results to PJM, click on Create Reactive Result Ticket from the Generator Tickets Main Menu.

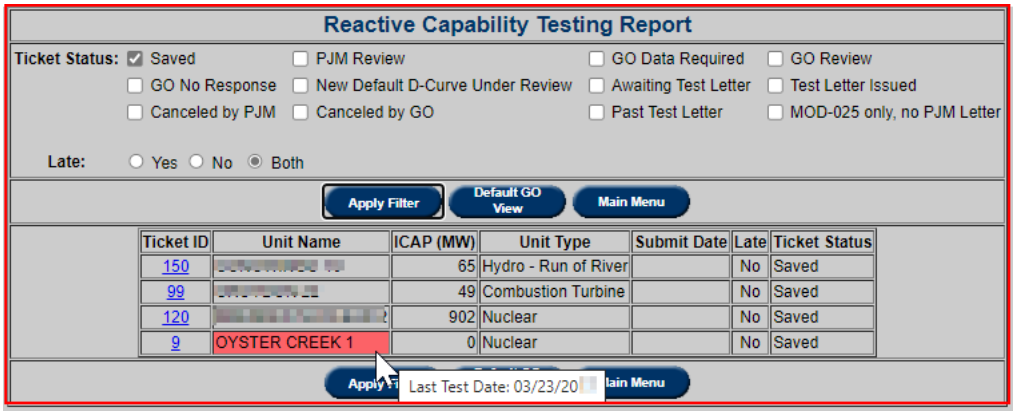


On the **New Reactive Result Ticket** page, select a **Generation Type** to filter the list of units and select a **Unit**. The **Last Tested** field will be displayed (if available), indicating when the unit was last tested. Click **Continue** to create a ticket for the selection in a status of 'Saved.'

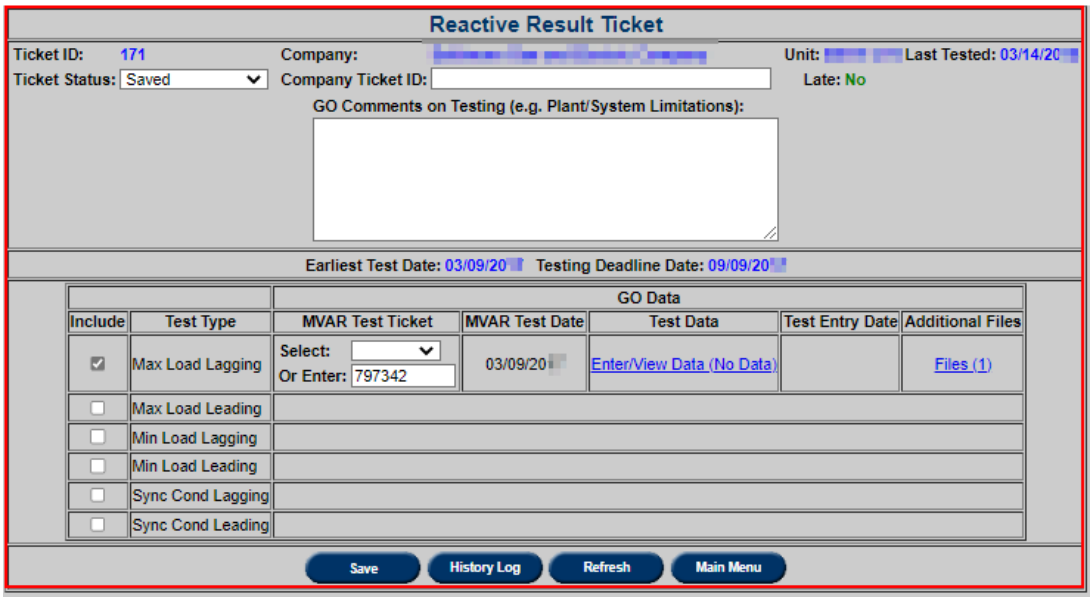




Past Due units highlighted on Reactive Capability Testing Report. Mouse over to display Last Test Date.



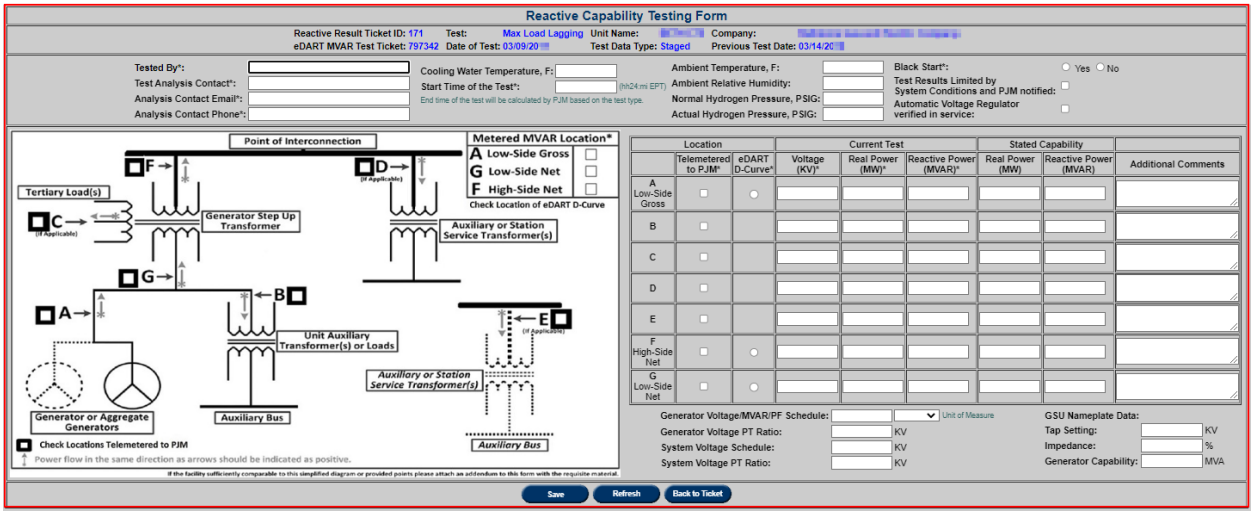
On the **Reactive Result Ticket**, users will be able to select applicable **Test Types**, link corresponding MVAR test tickets, submit data results, attach additional files and comments:



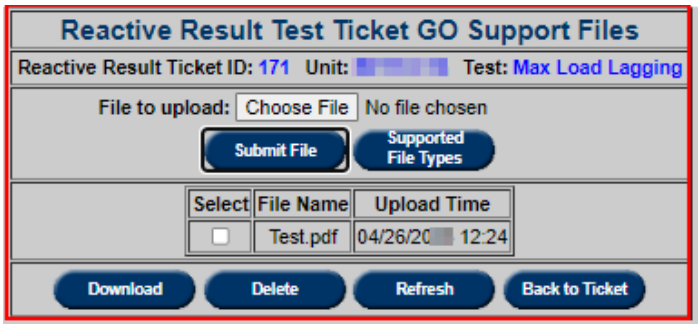
- **Ticket ID**: System Generated ID from PJM.
- **Company**: User login's company.
- **Unit**: The selected unit for data submission.
- **Last Tested**: Date indicating when the unit has last officially tested their reactive capability.
- **Ticket Status**: By default, this will show the current status of the ticket. Users can select 'PJM Review' and click **Save** to submit the ticket for analysis. Users can also elect to cancel a ticket by selecting 'Canceled by GO' and clicking **Save**.

- **Company Ticket ID**: Optional field for the company's internal application ticket number. The ticket submitter should review their own company policy to see if they should utilize this field.
- **Late**: This field will specify if the ticket has been submitted to PJM after the testing deadline date.
- **GO Comments**: Optional textbox for GO to add any additional comments.
- **Earliest Test Date**: This date will display the earliest test date based on the MVAR Test Ticket selection.
- **Testing Deadline Date**: This date will display the deadline to submit all required tests data to PJM. GOs have a 6 month window to submit all test results.
- **Include**: Users must select all required tests for the unit.
- **Test Type**: A list of tests to submit for evaluation.
- **MVAR Test Ticket**: Users can link MVAR Test tickets by selecting a testing ticket created for the unit in the past 30 days or by entering the ticket number.
- **MVAR Test Date**: This field will populate the **Actual End Date** or the **Estimated End Date** if no actual end date is entered for the MVAR test ticket.
- **Test Data**: Click the **Enter/View Data (No Data)** to open the **Reactive Capability Testing Form**. Once all required fields marked by asterisk (*) are completed, the data can be saved and the user can proceed with the rest of the ticket by clicking **Back to Ticket**.

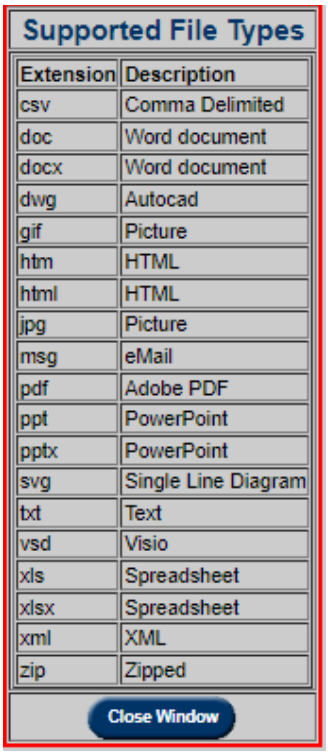
Note: Ch*eckboxes on image are for reference only. Users must select telemetry location to the right.*



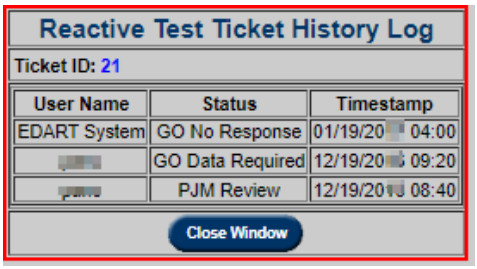
- **Test Entry Date**: Displays the date when the data was entered and saved. If the data is saved after 30 days from the MVAR test date, a late flag will appear.
- **Additional Files**: Clicking the **Files** link will take the user to a new page to upload supporting files for analysis. Users can add files by browsing the desired file and clicking **Submit File**. Users can also delete files by checking a file and clicking **Delete**.



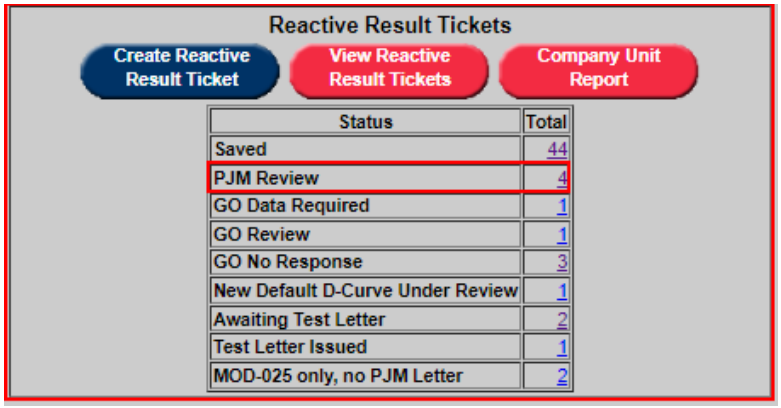
A list of **Supported File Types** can also be accessed on this page:

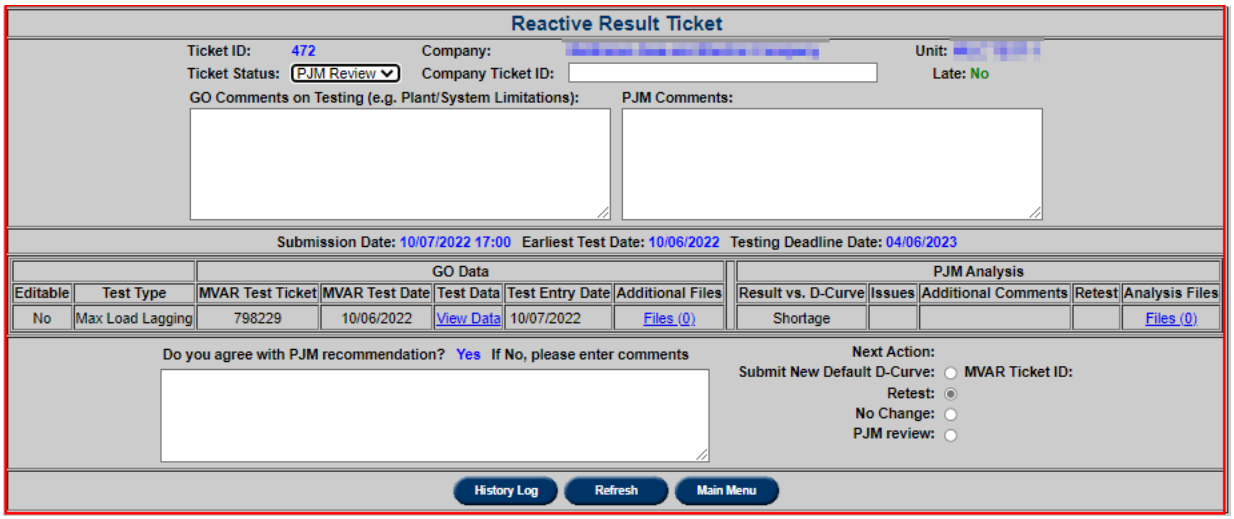


- **Save:** Stores changes made to the ticket.
- **History Log:** Users will be able to view a history log of status changes to any Reactive result ticket.

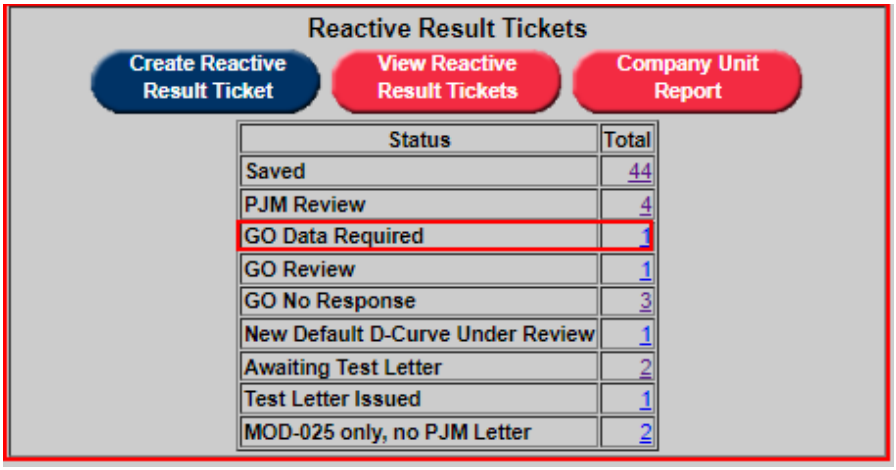


Once all information has been entered and status is saved as 'PJM Review,' the ticket will be locked and the **Submission Date** field will appear. PJM will analyze the results and take next actions. Users may request to have one or more tests to be unlocked by contacting the assigned PJM Engineer.

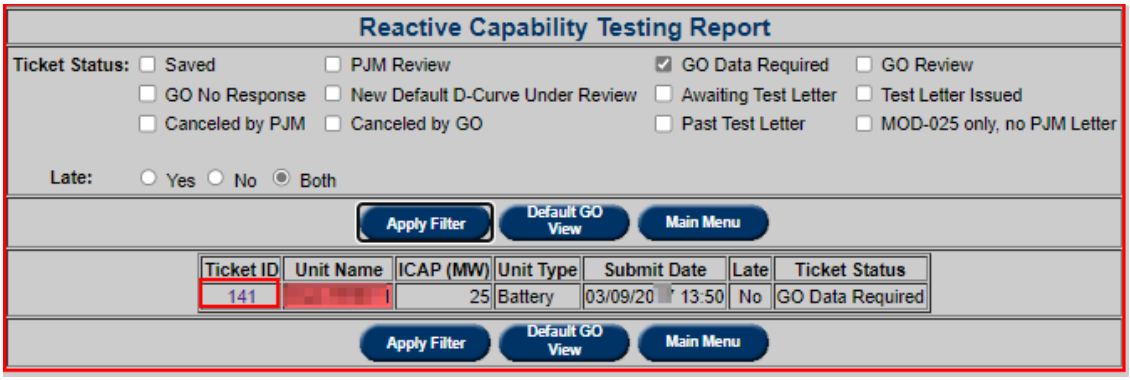


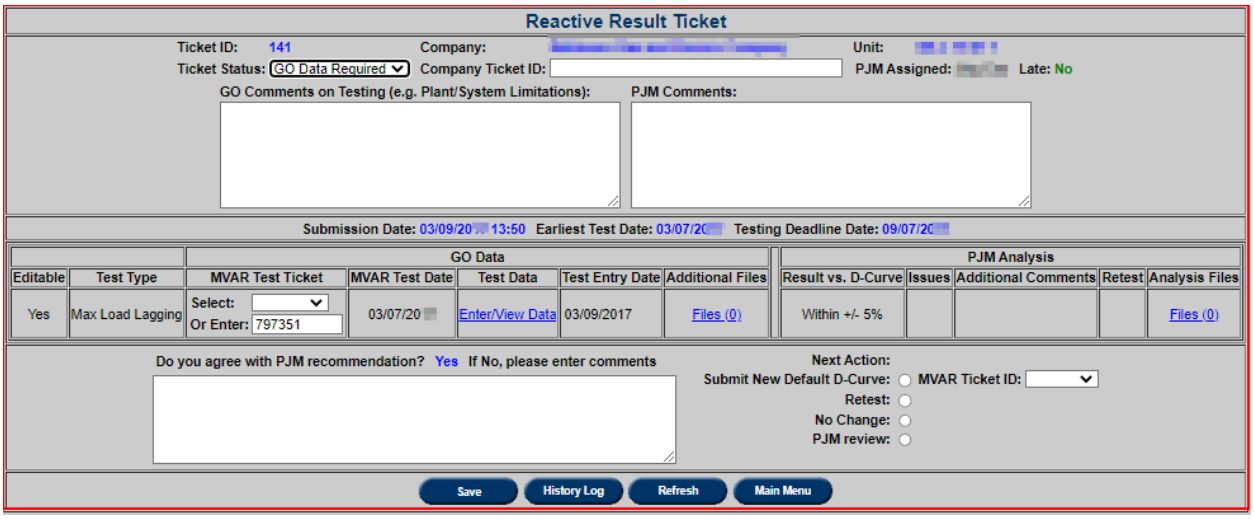


GO Data Required

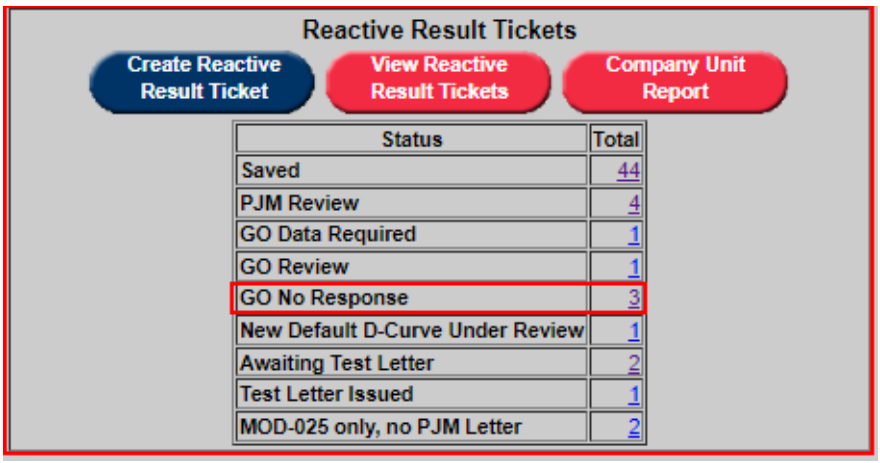


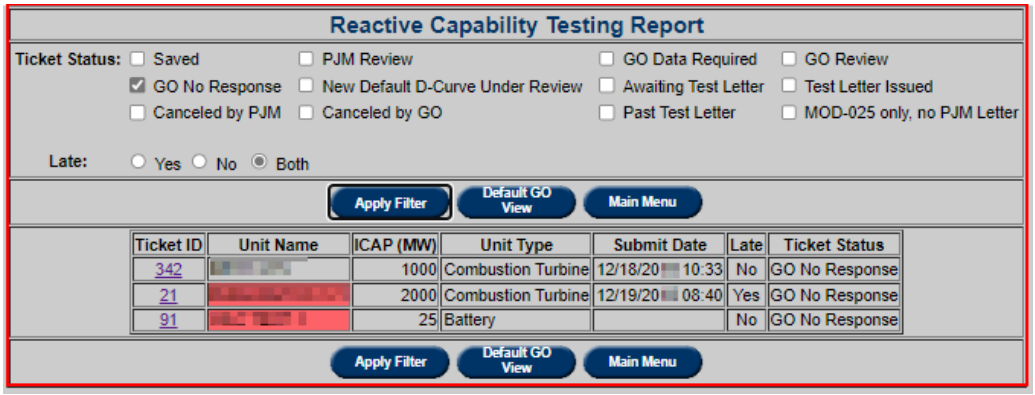
If Reactive Result Tickets are incomplete or require additional information for analysis, PJM will set the ticket status to 'GO Data Required'. In this status, GOs can view initial PJM results which may include a list of issues and additional comments to review. GOs can add/edit the sections that require additional data. Once the ticket has been updated, the ticket status can be set back to 'PJM Review.'



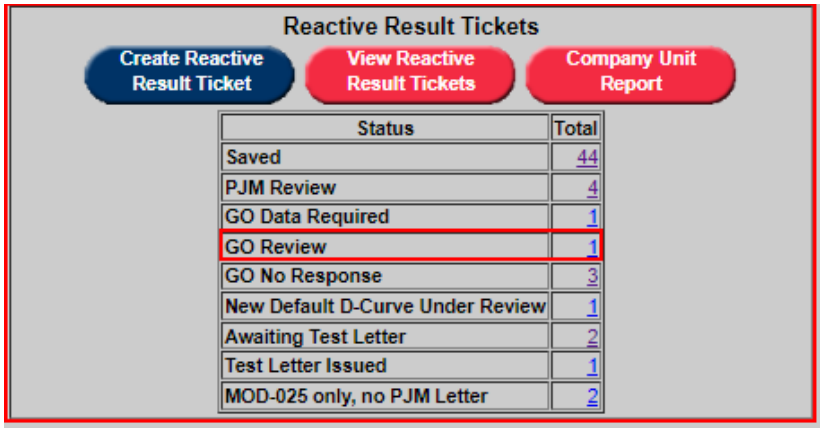


If no response is received within 30 days, the ticket status will go into ‘GO No Response.’ This will alert the user that urgent action may be required. If there are any tickets in this status, please review the tickets as soon as possible by clicking on ‘GO No Response’ in the ticket summary bin.



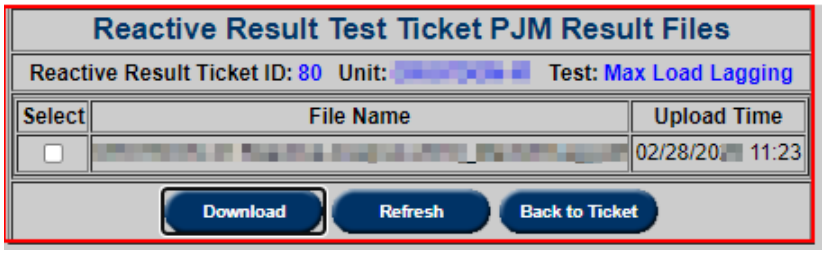


GO Review



Once the ticket has been fully reviewed by a PJM engineer, GO can review the results under the **PJM Analysis Results** section. This section includes:

- **Result:** This field will have a basic summary of the test.
- **Issues:** This field includes a list of common issues with the analysis. When PJM identifies an issue, it will be highlighted blue.
- **Additional Comments:** PJM may make additional comments on the test if 'Other' **Issues** is selected.
- **Retest:** This field indicates if the initial submission requires a retest.
- **Result Files:** Click on the **Files** link to open the **Reactive Result Test Ticket PJM Result Files** page. GO can select and download the analysis results for review.

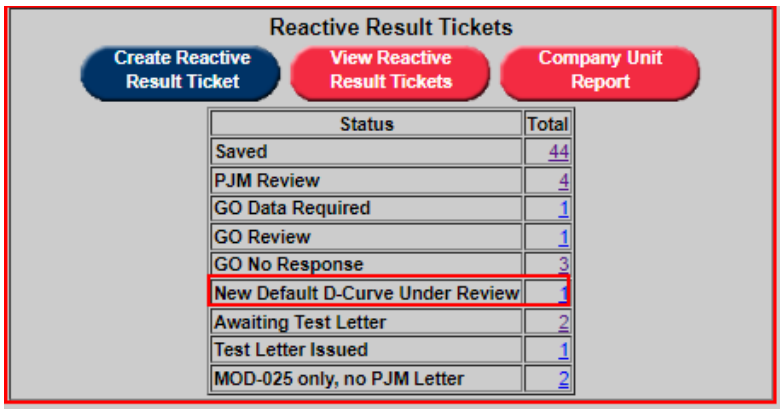


When the data has been reviewed, GOs can select 'Yes' or "No' to agree or disagree with PJM results. Furthermore, **GO Analysis Comments** and **Next Action** can be filled out or selected. A list of **Next Action** includes:

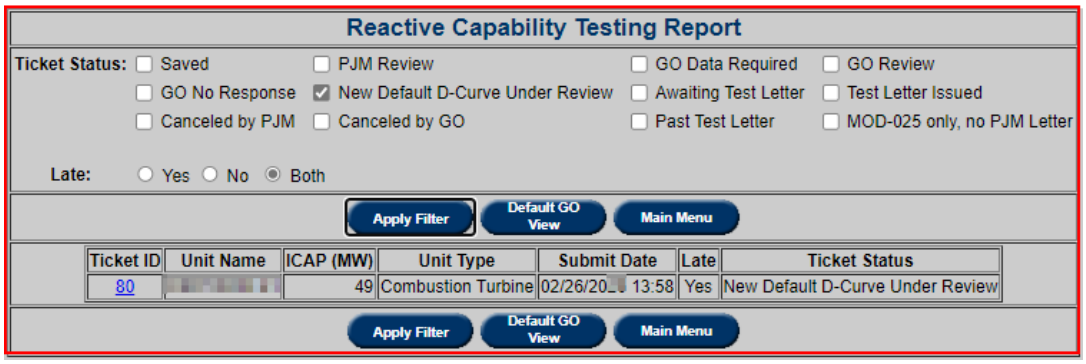
- **Select New Default D-Curve:** GOs can elect to submit a new default D-Curve if necessary. If this option is selected, a dropdown of MVAR Tickets submitted for the unit will appear. If no MVAR tickets have been submitted yet, please refer to the **MVAR (Reactive Power) Ticket** section of **Generation Tickets** on how to submit a new default D-Curve. Ticket status will automatically go 'New Default D-Curve Under Review' when the ticket is sent back to 'PJM Review.'
- **Retest:** GOs have the option to retest a specific or all portion of the ticket. If selected, please identify in the comments which tests needs to be rerun.
- **No Change:** This option can be selected if GO agrees with all PJM analysis results and no next action is needed. Ticket status will automatically go 'Awaiting Test Letter' when the ticket is sent back to 'PJM Review' if all results are within or excess.
- **PJM Review:** If GO disagrees with any results, users can choose to have further PJM Review.

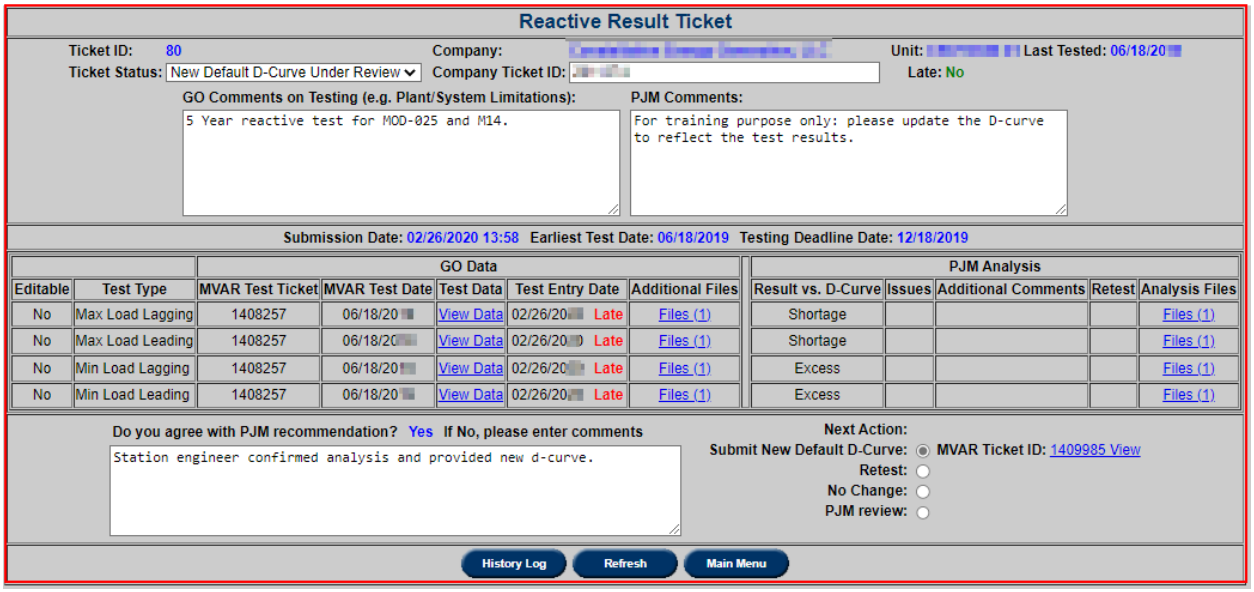
Once all fields are completed, GOs can send the ticket back to 'PJM Review.'

New Default D-Curve Under Review

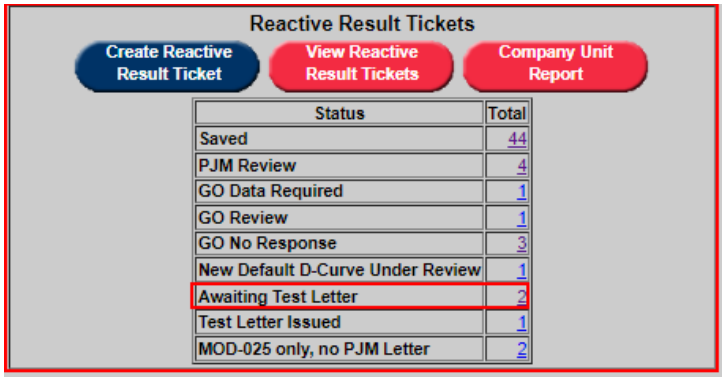


When the ticket is in **New Default D-Curve Under Review**, PJM will review the MVAR ticket submitted and implement the D-Curve in PJM EMS if accepted. Once this step has been completed, the status will go into 'Awaiting Test Letter.'

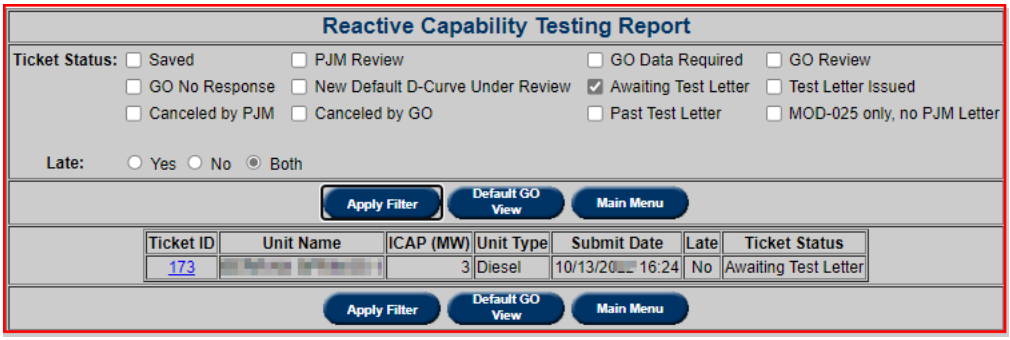


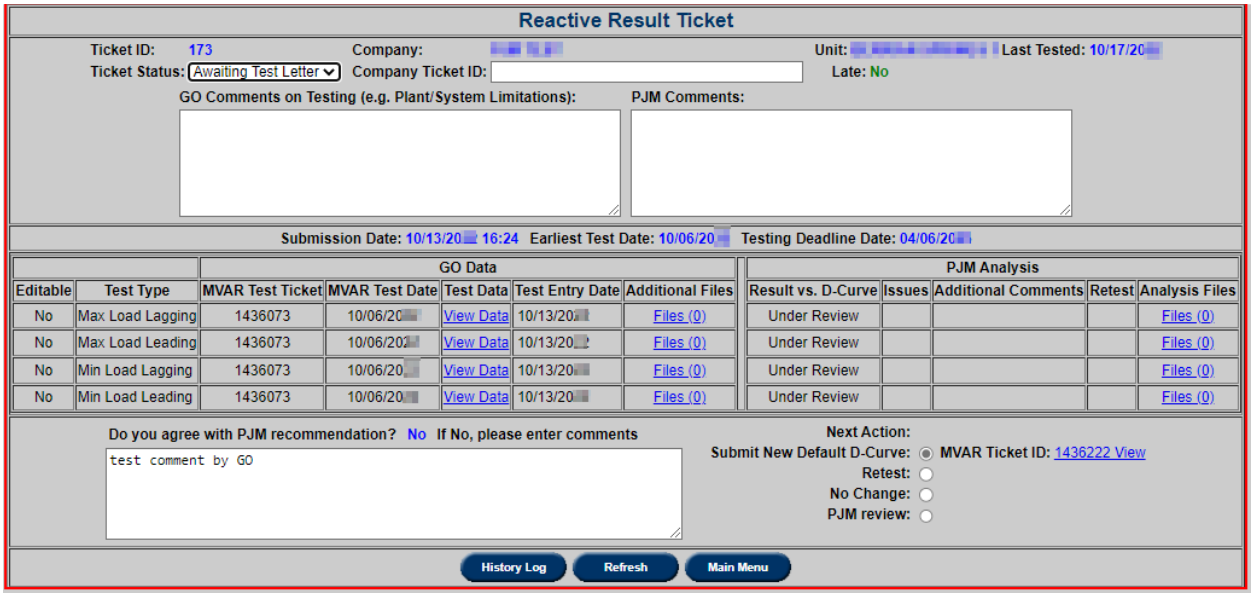


Awaiting Test Letter

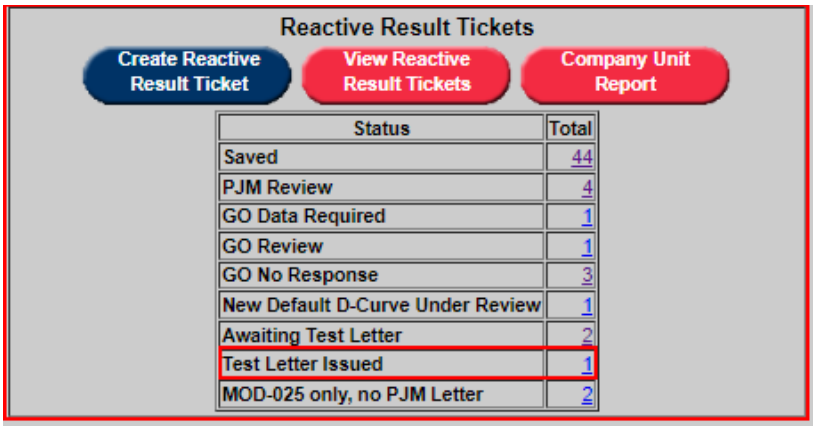


Once the ticket is in this status, PJM has accepted the test results and all next actions are completed. PJM will upload the test letters for documentation.

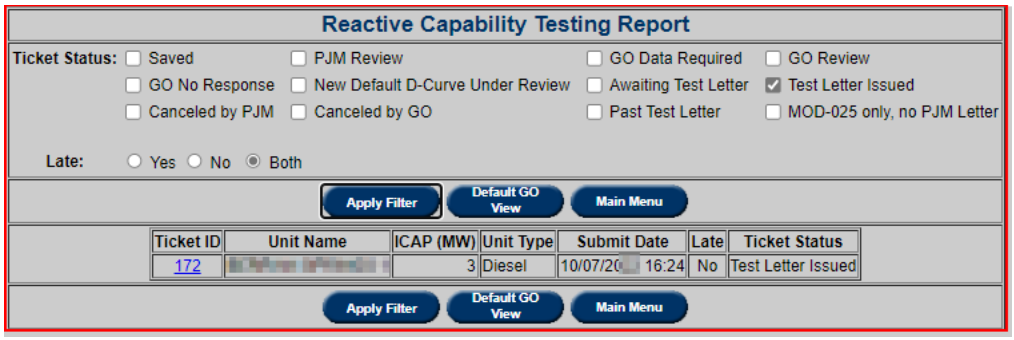


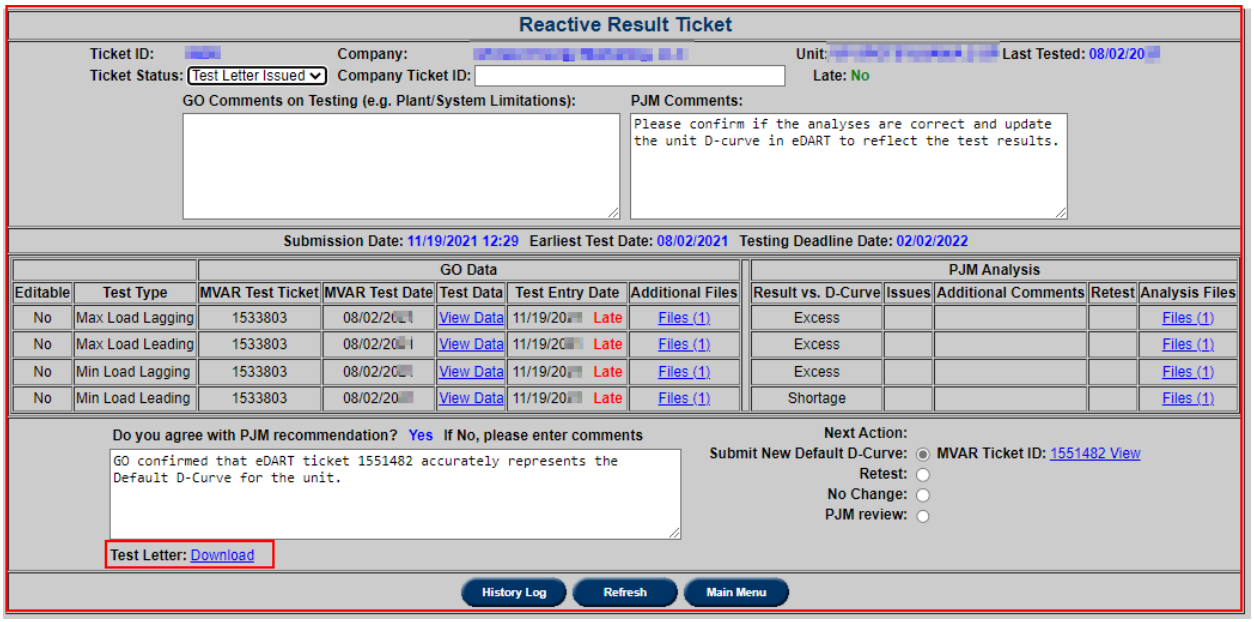


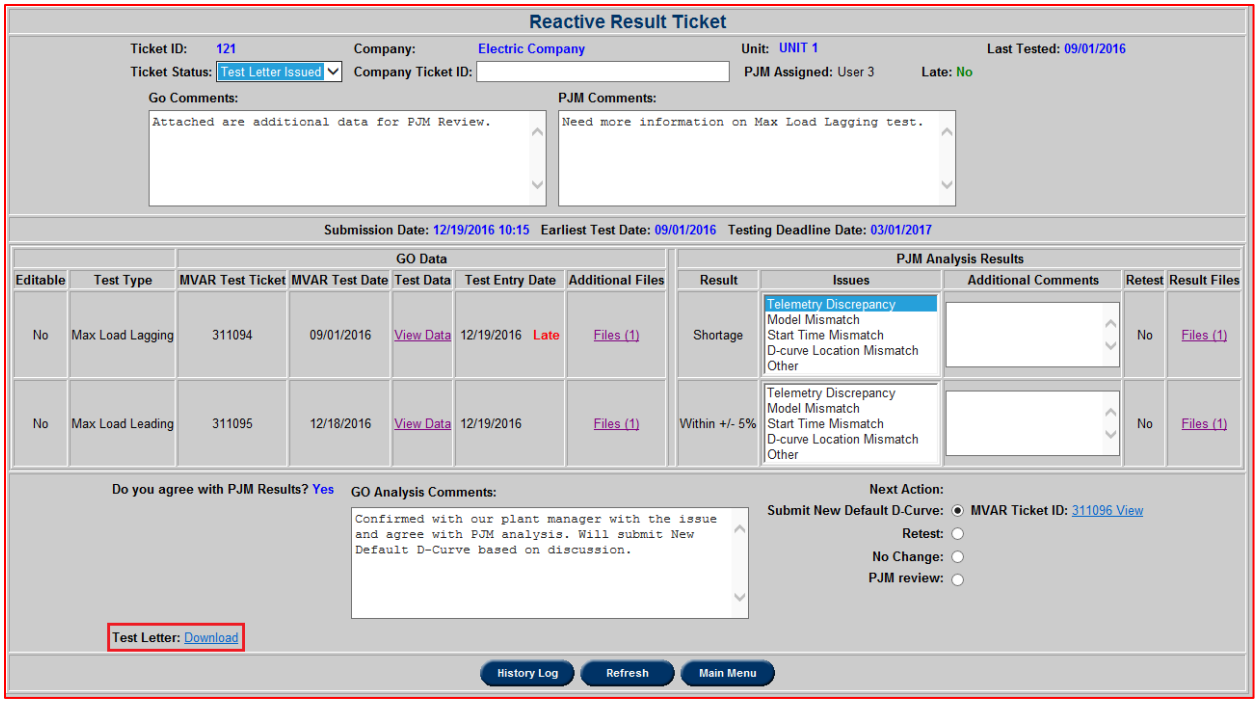
Test Letter Issued



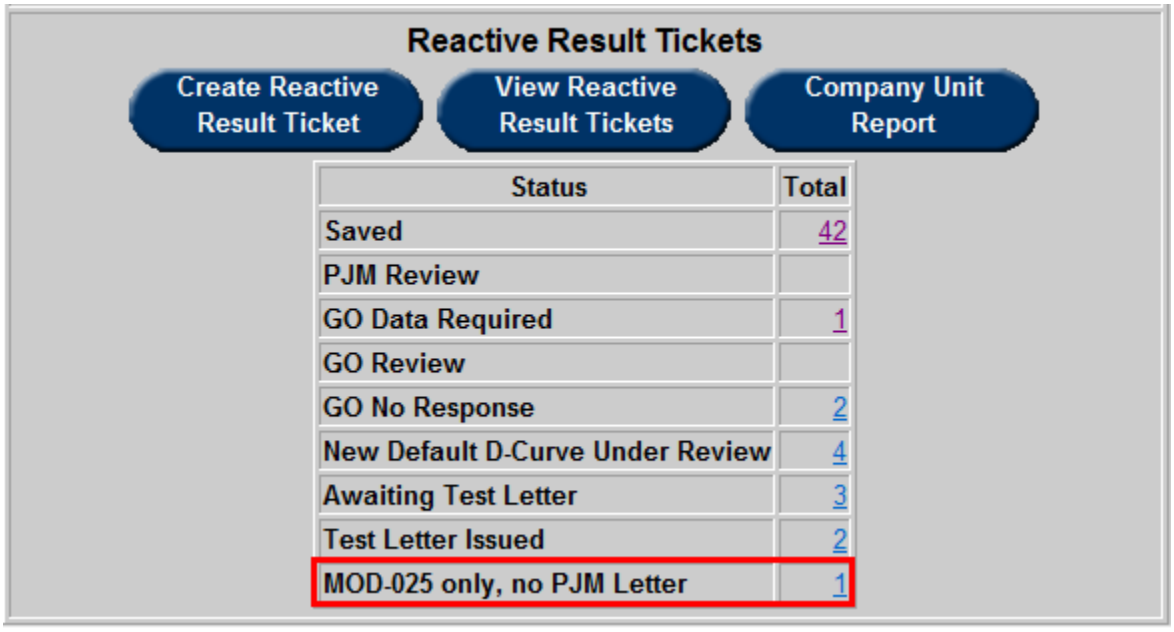
When the ticket status is in 'Test Letter Issued,' all ticket information and files have been uploaded and saved onto eDART. GOs can open the ticket to retrieve the test letter by clicking the **Download** link on the bottom of the page. GOs can also revisit the ticket for future review.

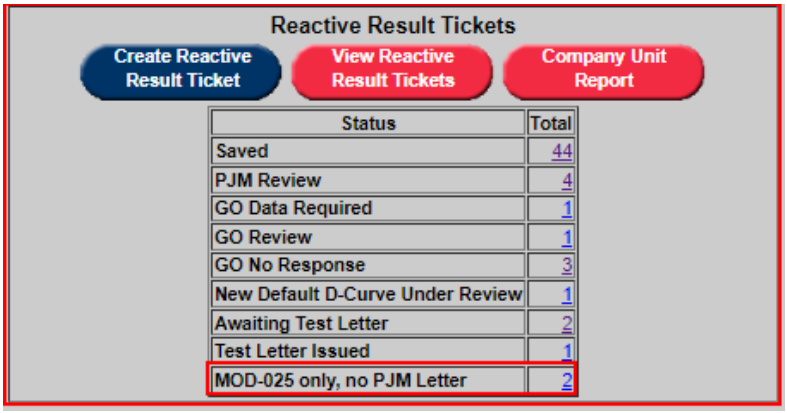


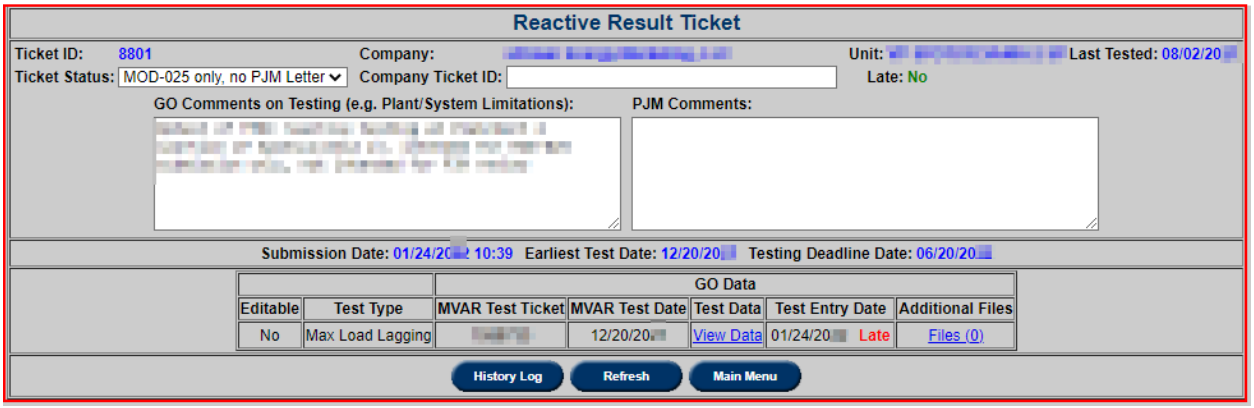




MOD-025 only, no PJM Letter

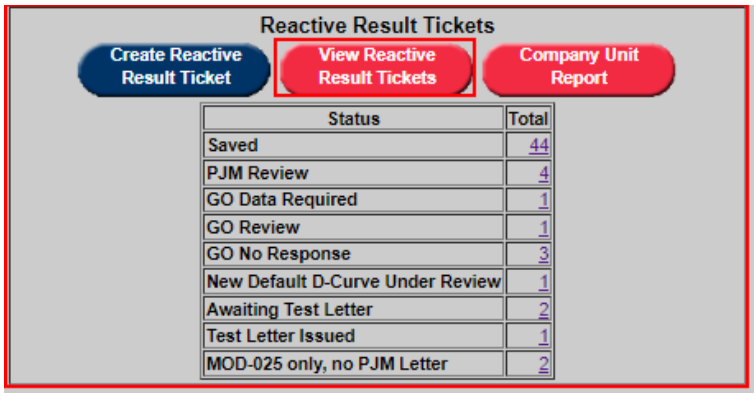




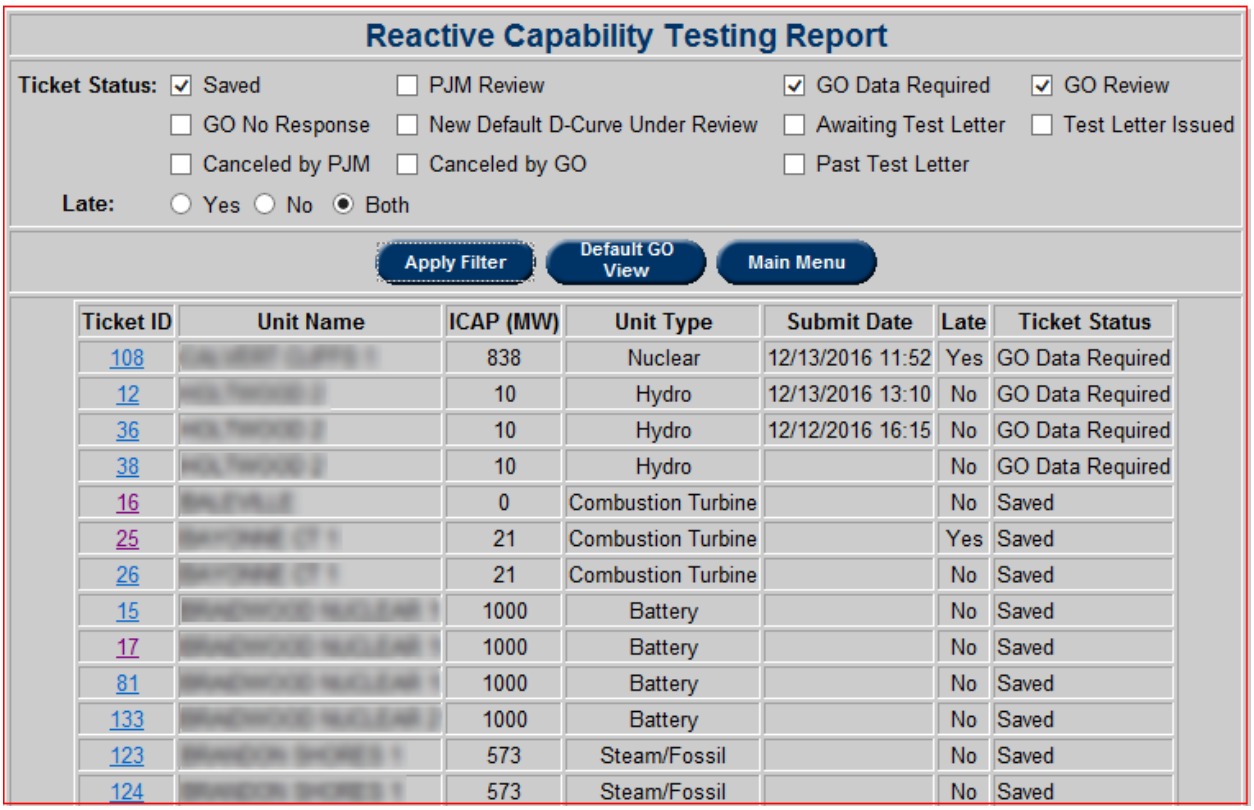


GO data submittals for MOD-025-2 only will also be evaluated and scored. If GO chooses not to accept the results, PJM can issue a new status type.

View Reactive Result Tickets

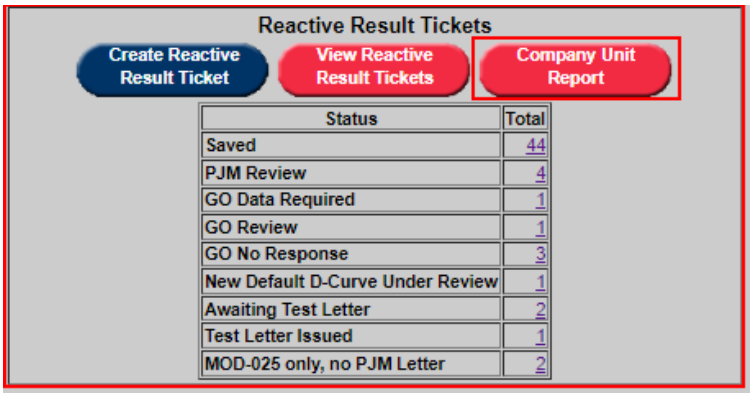


To view the reactive result tickets, click on **View Reactive Result Ticket**.
View Reactive Result Tickets button will be red for companies that have units approaching (30 days or less) or past their test deadlines.

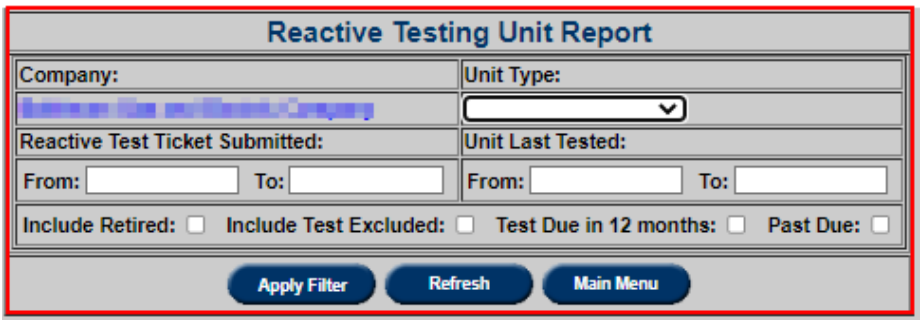


Company Unit Report

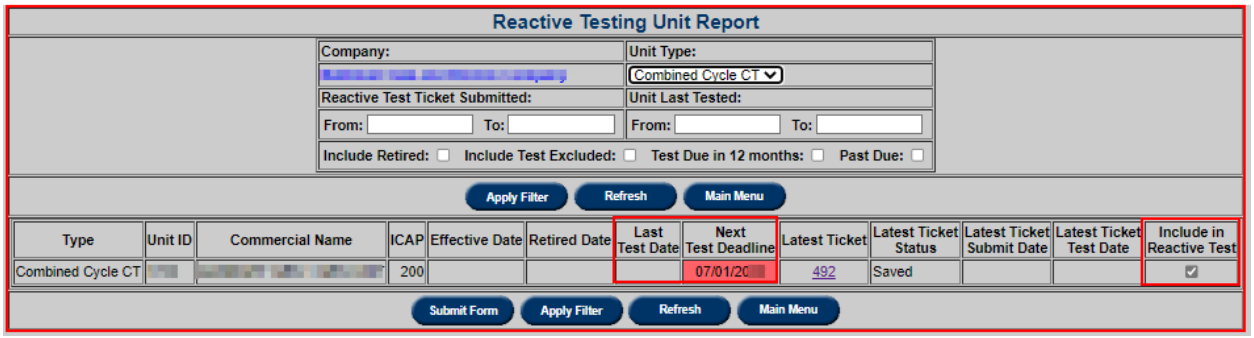
To view the record of Reactive Testing, click on **Company Unit Report**. Company Unit Report button appears red if company has Past Due units.



This opens a filter page.



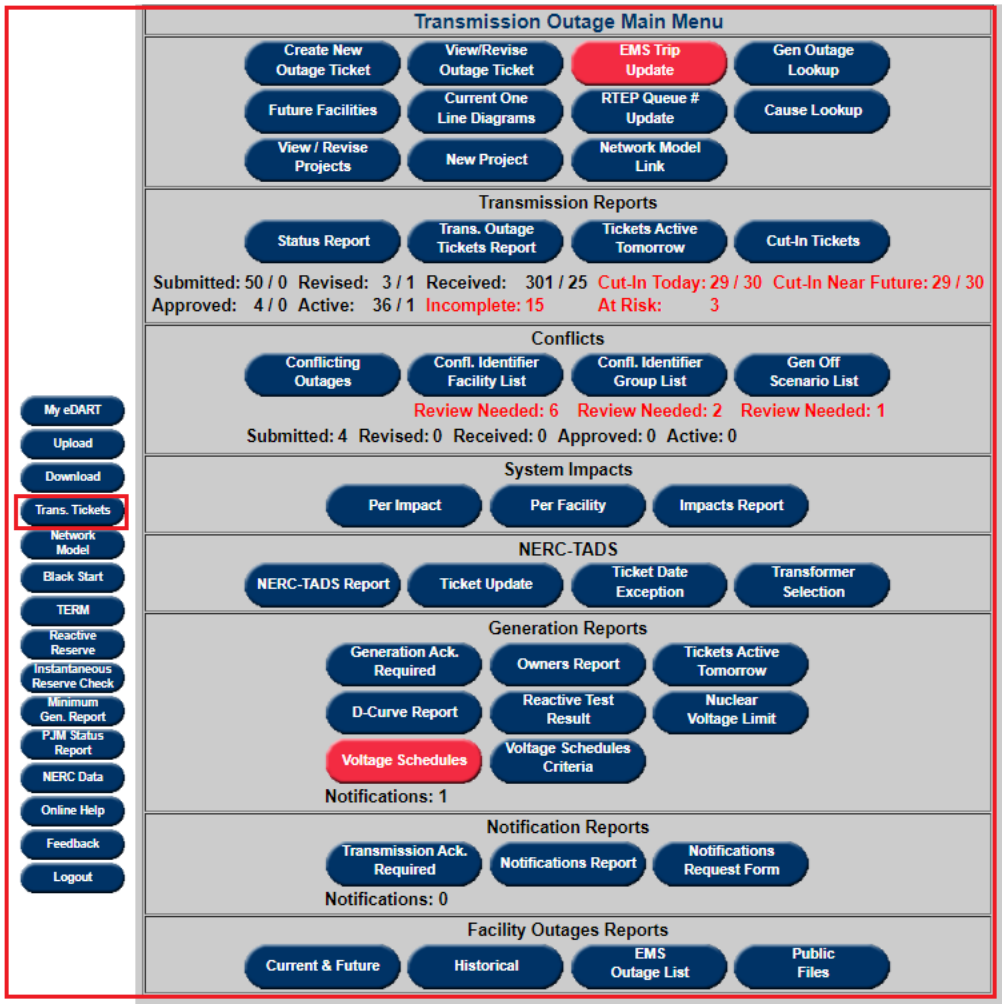
After choosing all the desired filters, click on *Apply Filter* to open the Reactive Testing Unit Reports with desired tickets. Last Test Date and Next Test Deadline are displayed. Checking the 'Include in Reactive Test' check box and clicking on *Submit Form* will include that unit in Reactive Test.



Transmission Outage Tickets

PJM is responsible for coordinating and approving requests for outages of transmission facilities for reliable operation of the Regional Transmission Organization (RTO).

The eDART (**e**lectronic **D**ispatcher **A**pplication and **R**eporting **T**ool) application provides communications with PJM Transmission Owners and Operators regarding transmission outages for submission and notification. eDART is used in real-time and near-term capacity analysis, along with other tasks. When logged into eDART, click on the Trans. Ticket application.



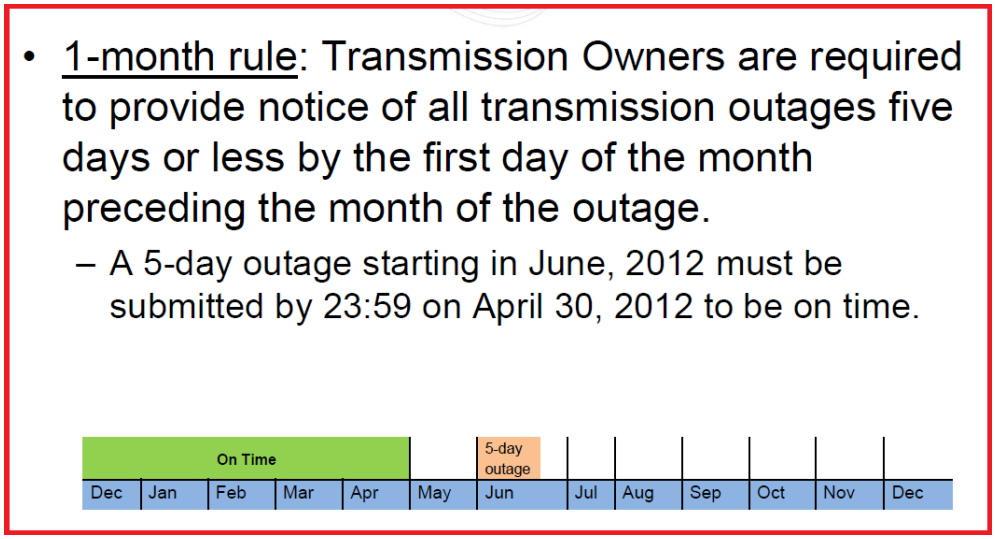
Business Rules

Transmission Owners (TOs) are required to submit Outage Request Tickets in eDART for all outages to PJM in advance of the outage start date. PJM will provide all relevant information required for system studies, such as critical facility status, load, generation, operating reserve

projection, and known Interchange Transaction via the North American Electric Reliability Corporation (NERC) System Data Exchange (SDX) secure site. The files are continuously updated on a 15-minute basis (NERC Standard IRO-004-1). PJM staff is required to analyze submitted outages to ensure outages do not violate PJM reliability criteria and market rules.

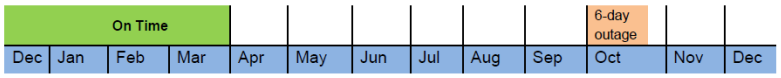
Transmission Outage Requests

- Transmission Owners should submit the tentative dates of all planned transmission outages to PJM via eDART as far in advance as possible and update PJM at least monthly. TOs should include the following information in the notification: Date, time and duration of outage, brief job description, switching times, restoration time (availability) and all affected equipment (including clearance points).
- Transmission outages 5 days or less in length are to be submitted by the 1st day of the month preceding the month of the outage.



- For transmission outages exceeding 5 days, the planned outage schedule should be submitted via eDART one year in advance if possible but no later than the 1st of the month 6 months in advance of the requested start date.
    - If the outage is submitted by the 1st of the month, 6 months prior to the start of the outage, the ticket has an "On Time" status. PJM approves all transmission outage submitted "On Time" so long as the reliability of the RTO can be maintained during the proposed outage. If an outage is on time, PJM will not deny the requested outage based on economics (for example, based on anticipated congestion).
    - If the outage is submitted after the 1st of the month 6 months prior to the start of the outage, the ticket has a "Late" status. PJM reserves the authority to require a TO to reschedule a requested outage based on an outage impact analysis for congestion if a ticket is "Late."

- 6-Month Rule: "The TO is required to submit all outage requests in excess of 5 days in duration by the 1st of the month six months in advance of the start of the outage ." M03
  - If a 6-day outage begins in October, the outage must be submitted by 23:59 on March 31 to be on time.



- Outages scheduled for the following planning year (June 1 – May 31) exceeding 30 days in duration are to be submitted via eDART by February 1 of the current year for use in the annual Financial Transmission Rights auction. For example, outages scheduled to begin between June 1, 2009 and May 31, 2010 should be submitted by February 1, 2009. Estimated start and stop dates are acceptable.

- 30-Day Rule: "Outages scheduled for the following Planning year (i.e. June 1 – May 31) exceeding 30 days in duration are to be submitted via eDART by February 1 for use in the annual FTR auction unless the 6-month rule is more restrictive." M03
  - An outage greater than 30 days starts in September 2012. It must be submitted by:
    a) 6-month rule: Must be submitted by February 29, 2012 @ 23:59
    b) 30-day rule: Must be submitted by January 31, 2012 @ 23:59
  - Since the 30-day rule is more restrictive, (b) is the correct choice. The 30-day rule applies.

- Planned transmission outages are given priority based on the date of submission.
- If the outage is submitted after 8 a.m. 3 days before the start of the outage, the ticket has a "Past Deadline" status. In such a situation, only Emergency or Exception requests (for example, a generator tripped and the TO is taking advantage of the situation) will be considered.
- PJM considers all transmission outages in the following priority order:
  1. Forced or emergency transmission outages.
  2. Transmission outage requests submitted "On Time."
  3. Transmission outage requests submitted "Late."

- PJM can cancel or withhold approval of any outage that is expected to result in Emergency Procedures.
- PJM studies and approves all outage requests that are submitted "On Time" and do not jeopardize the reliability of the PJM system.
- When actual or anticipated system conditions change such that, at the discretion of PJM, the rescheduling of a transmission outage is advisable:
    - The TO should consider the impacts of proceeding with the outage as advised by PJM and may either proceed knowing the estimated impacts on the remaining facilities or postpone the outage.
    - If the outage is not postponed, PJM determines and records the appropriate impacts or changes to system limits and takes the steps required to maintain established operating reliability criteria
- When non-reportable equipment outages at a station occur, which can lead to the simultaneous loss of more than one reportable transmission or generator facility for any single facility malfunction or failure, PJM must be informed.

Request Submitted	Ticket Received Status	PJM Actions
Outage > 30 Calendar Days		
Before February 1 (for the following planning cycle June 1 – May 31)OR by the 1st of the month six months prior to the starting month of the outage (whichever is more restrictive)	"On Time"	The outage will be approved, provided it does not jeopardize system reliability.
On or after February 1 (for the following planning cycle June 1 – May 31) OR on or after the 1st of the month six months prior to the starting month of the outage (whichever is more restrictive)	"Late"	The outage may be denied if it jeopardizes system reliability or causes congestion requiring off-cost operations.

Emergency Outages

The **eDART Energy Management System** (EMS) **Tripping** functionality creates emergency outage tickets in cases of emergency tripping where it may take some time for the TO to assess the scope of the issue. PJM EMS automatically receives a signal from the TO EMS when there is an outage; eDART creates the ticket and notifies interested TOs and neighboring independent system operators (ISOs) and RTOs. If the facility is mapped in the **NERC Power System Simulator for Engineering** (PSSE) model, the outage is included in the Transmission Outages report sent to NERC SDX with a status of "Forced." Tickets are created for LINE or XFMR only.

The EMS Tripping bridge runs every 10 minutes to see if an outage ticket exists for specific

facility (with PJM Monitored Facility Status of Reliability & Markets, Reliability BES, Status Only, Reliability Non-BES, GSU) that is reported as out of service.

If no ticket is found for the facility (with the exception of cut-in tickets), the EMS Tripping bridge creates a new ticket for the owning TO (or one of the tie-line owners) with the field qualities:

- **Outage Type:** "EMS Tripped."
- **Start Date/Switch Date:** Current date/time.
- **End Date:** Start Date + 2 hours.
- **Status:** "Active."
- **Availability:** "Duration."
- **Emergency:** Checked.
- **Cause:** "Emergency" and "Unknown."
- **Location/Description of Work:** "EMS Tripping."
- **Equipment List:** Outaged facility.

If a ticket is found for the facility which is scheduled to start less than or equal to the current date + 12 hours, and the end date is greater than or equal to the current date, and the status is Submitted, Received, Approved, or Revised, the following will occur:

- **Status:** "Active."
- **PJM Comments:** "This ticket was moved to Active as a result of the EMS checkout application."
- **End Date:** changed to current date/time + 2 hours.

If an EMS Tripping ticket is found for the facility, in the "Active" status and the **End Date** is in the past, the following will occur:

- **End Date:** changed to current date/time + 2 hours.

If a non-EMS Tripping, "Active" ticket is found for the facility, no action is taken. The TO who owns the facility still must create a replacement outage ticket or update the system generated ticket with full outage details. See the **EMS Trip Update** section for more on EMS Tickets.

The EMS Tripping functionality may not catch automatic re-close outages that last for less than 10 minutes (between run times). In this case, TO may create an **EMS Tripping Auto Re-Close** ticket with the following qualities:

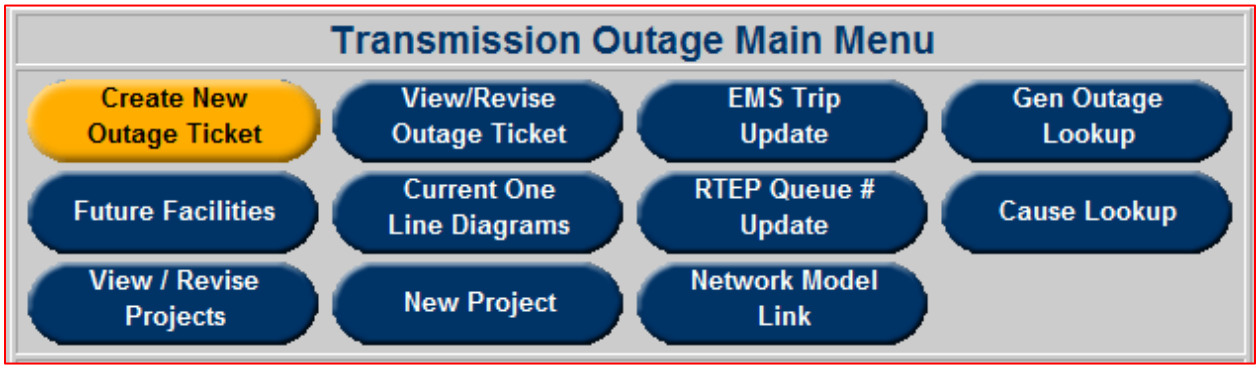
- Outage duration (**= End Date/Time - Start Date/Time**) must be less than 10 minutes.
- **Start Date** and **End Date** must be in the past.
- **Outage Type:** "EMS Tripping."
- **Emergency:** "Checked."

- **Status:** "Completed" (ticket is completed by eDART system).

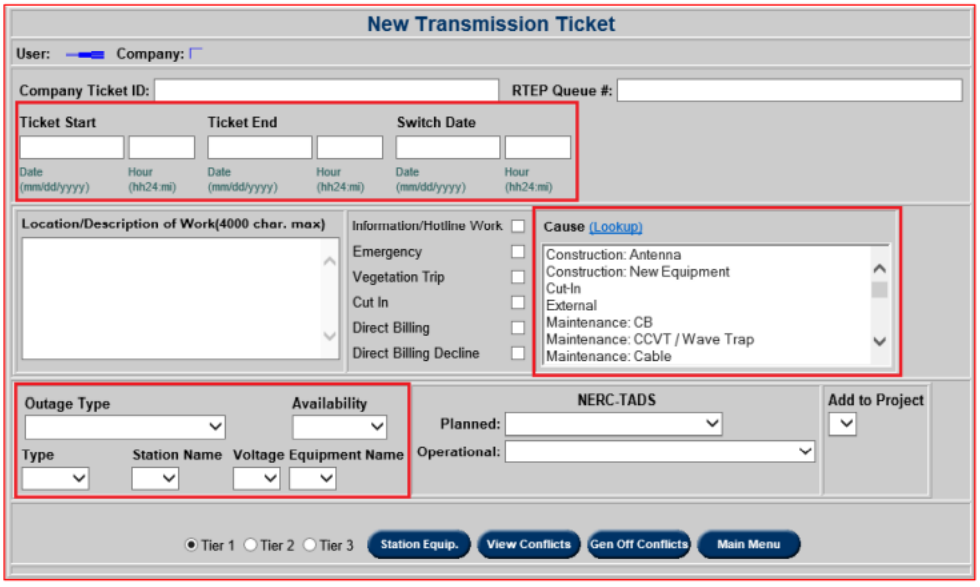
Transmission Outage Reporting

Create New Ticket

On the Transmission Outage main menu, click on **Create New Outage Ticket** to begin a new ticket.



This will bring the user to the **New Transmission Ticket** Page. Enter outage information as shown below (mandatory fields are highlighted):



Ticket Fields

- The **User** and **Company** are system generated.
- **Company Ticket ID:** This is an optional field for the company's internal application ticket number.
- **RTEP Queue #:** This is an optional field for the Regional Transmission Expansion Planning (RTEP) project queue number to which the outage is related (if any).
- **Ticket Start, Ticket End:** Enter the proposed ticket start and end dates and times in these fields.
- **Switch Date:** Enter the proposed time for switching in this field.
- **Location/Description of Work:** Enter the location of the main work, brief work description and switching information in this field. Bus outages should be detailed in this field. This field has a limit of 4000 total characters.
- **Information/Hotline Work:** Checking this field would indicate that work is being performed on selected equipment, however, that equipment remains energized. No equipment status can be "O" (Open) if this field is checked.
- **Emergency:** Checking this field would indicate that the outage is/was due to equipment problem or tripping and must be taken ASAP and without giving the proper notice to PJM. If **Emergency** is checked, the "Emergency" **Cause** is also selected.
- **Vegetation Trip:** Checking this field would indicate that the outage includes vegetation work (for example, tree contact).
- **Cut-In:** Checking this field would indicate energizing a new piece of equipment, a reconfigured/reconductored facility, an impedance change to a facility, or the return of a facility that has been out of service for over a year.
- **Direct Billing:** Checking this field would indicate that the TO will pay for the localized generator controlling actions. If checked, late RTEP outage will proceed as scheduled.
- **Direct Billing Decline:** Checking this field would indicate that the TO will not pay for the localized generator controlling actions but the late RTEP outage cannot be rescheduled.
- **Cause:** Select any reasons for the outage. An outage may have multiple causes. To select multiple causes, hold the "CTRL" key and click through any pertinent causes. See Cause Types.
- **Outage Type:** This field indicates when work will be performed on the equipment. Options include: "Continuous," "Continuous – No Weekends," "Daily – Including Weekends," "Daily – No Weekends," "Daily – Weekends Only" and "EMS Tripped."
- **Availability:** This field refers to the haste with which equipment can be placed back in service in an emergency. Options include: "Immediate," "Duration," and options up to 72 hours.
- **Type:** Select type of equipment (transmission lines = "LINE," capacitors = "CAP," breakers = "BRKR," transformers = "XFMR," etc) in this field.
- **Station Name:** In this field, select the name of the station based on type already selected. Only stations which have equipment of the previously selected type will be available to select.

- **Voltage:** In this field, select voltage at selected station.
- **Equipment Name:** In this field, select specific piece of equipment based on type, station and voltage selected.
- **NERC-TADS:** The **NERC-TADS** field is only available for TOs who opted to use eDART to gather information for Transmission Availability Data System (TADS) reporting.
- **Cause Codes for NERC TADS**
    - Planned Outage Cause Code (does not apply to auto re-close tickets).
    - Operational Outage Cause Code (does not apply to auto re-close tickets).
    - Shared Common Structure (only applies to auto re-close tickets).
    - Fault Type (only applies to auto re-close tickets).
    - Outage Initiation Code (only applies to auto re-close tickets).
    - Sustained Cause Code (only applies to auto re-close tickets).
    - Outage Mode Code (only applies to auto re-close tickets).
- **Add to Project:** Select a transmission project in order to add the new ticket to a group of similar tickets.

Cause Types

The following cause types are available for Transmission tickets.
For the most up to date list of cause types and retired causes, an XML download is available via the Web and Browserless interfaces. For the Browserless interface, type=transmissioncauses.

Cause ID	Cause Name	Description
-2	Unknown	Automatic Outage caused by unknown causes.
-1	Other	Outage for reasons not included in the above list.
2	Repair/Replace: CB	Planned Outage associated with a replacement of a circuit breaker (CB), including testing of facilities in support.
5	Maintenance: Disc/Ground Sw	Planned Outage associated with manual or automatic substation equipment utilized in electrical grounding and the protection of other substation equipment, typically Disconnects and Ground Switches.
7	Repair/Replace: Insulator	Outage for the purpose of repairing or replacing transmission insulators, including testing of facilities in support of repair/replacement.
9	Construction: Antenna	Planned Outage associated with antenna construction.
10	Operational: Switching - Takeout or Restore Only	Outage of transmission system equipment during the initial takeout (outage start) or restoration (outage end), for work in proximity to, but not upon said equipment, in order to provide a minimum clearance distance from any energized equipment.

11	Repair/Replace: Conductor	Outage for the purpose of repairing or replacing transmission lines, excluding underground cable (Repair/Replace Cable), including testing of facilities in support of repair/replacement.
12	Repair/Replace: Storm Damage	Outage associated with damage caused by weather, including lightning.
13	Maintenance: Gas (SF6)	Outage associated with the replacement of Sulfur Hexafluoride (SF6) in gas insulated substation (GIS) equipment, including testing of facilities in support.
14	Repair/Replace: Tap Changer	Outage to replace the mechanism utilized to adjust the turns ratio of a transformer, including testing of facilities in support.
15	Maintenance: Gas/Oil	Outage to facilities for the purpose of replacing/testing gas/oil insulated facilities, excluding Sulfur Hexafluoride (SFG) type.
16	Testing: Doble	Planned Outage associated with power factor testing on transformers, cables, and other electric equipment.
17	Safety: Clearance	Outage of transmission system equipment for duration of outage, for work in proximity to, but not upon said equipment, in order to provide a minimum clearance distance from any energized equipment.
18	Operational: Fire	Operational Outage caused by, or taken to alleviate concerns with, fire or smoke.
19	Repair/Replace: Cable	Outage associated with the repair of underground (UG) transmission equipment, including testing of facilities in support.
20	Maintenance: Vegetation	Outage for the purpose of removing vegetation, such as those in support of the NERC FAC-003 standard.
21	Construction: New Equipment	Planned Outage associated with construction of electric facilities, including testing of facilities in support of construction.
22	Repair/Replace: Lightning Arrestor	Outage associated with the repair or replacement of a lightning/surge arrestor, which protect substation equipment from the over-voltage transients effects induced by lighting and switching events.
24	Maintenance: Inspection / General Maintenance	Planned Outage associated with maintenance of electric facilities, including testing of facilities in support of maintenance.
25	Repair/Replace: Hot Spot	Outage taken to repair electrical equipment and prevent catastrophic equipment failure due to overheating.
26	Maintenance: CB	Planned Outage associated with the maintenance of a circuit breaker, including testing of facilities in support.
27	Operational: Pre-contingency Switching	Operational Outage taken to keep the transmission system within System Operating Limits, excluding High System Voltage.
28	External	Outage to facilities outside the PJM Reliability Coordinator Area, but contained within the PJM EMS model.

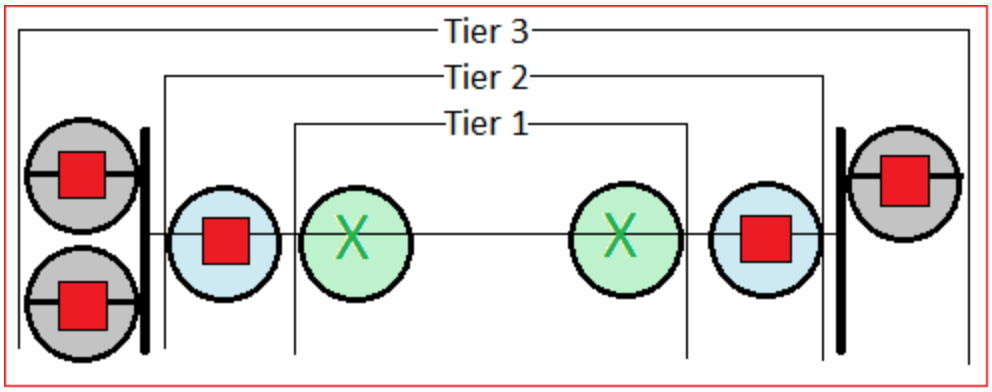
30	Maintenance: CCVT / Wave Trap	Outage associated with metering or protective relaying equipment. This includes capacitor voltage transformers (CVT or CCVT) and wave traps.
31	Maintenance: Normally Open	Outage to perform maintenance/repairs/testing on a piece of equipment that is Normally Open, and will remain a Normally Open piece of equipment at the conclusion of the outage.
32	Operational: Emergency	Operational Outage that are taken for the purpose of avoiding risk to human life, damage to equipment, damage to property, or similar threatening consequences.
48	Maintenance: Cable	Outage associated with the maintenance of underground (UG) transmission equipment, including testing of facilities in support.
49	Maintenance: Conductor	Outage associated with the maintenance of transmission lines, excluding underground cable, including testing of facilities in support.
50	Maintenance: Transformer	Outage associated with the maintenance of a transformer, including testing of facilities in support.
51	Repair/Replace: Disc/Ground Switch	Outage associated with the repair or replacement of manual or automatic substation equipment utilized in electrical grounding and the protection of other substation equipment, including testing of facilities in support.
52	Repair/Replace: Transformer	Outage associated with the repair or replacement of a transformer, including testing of facilities in support.
53	Repair/Replace: Pole/Tower	Outage for the purpose of repairing or replacing transmission support structures (pole-type and lattice/tower-type), including testing of facilities in support.
54	Safety: Painting Equipment	Planned Outage associated with painting of transmission support structures (pole-type and lattice/tower-type) and/or substation equipment for the purpose of maintenance.
65	Cut-In	Outage with potential impact to PJM with respect to its EMS model, Monitored Priorities, Ratings, Contingencies, and/or SDX Mapping. Typically combined with another Cause Type.
67	Relay Maintenance (No impact to primary clearing)	Planned Outage for Protection System equipment maintenance/testing which either does NOT impact the primary clearance, or leaves secondary intact with duplicate performance characteristics to that of the primary, for one or more pieces of equipment.
68	Relay Maintenance (Impact to primary clearing)	Planned Outage for Protection System equipment maintenance/testing which either removes the primary clearance from service, or alters the performance characteristics of, for one or more pieces of equipment.
69	Relay Replacement (No impact to primary clearing)	Planned Outage for Protection System equipment replacement which either does NOT impact the primary relaying, or leaves secondary intact with duplicate performance characteristics to that of the primary, for one or more pieces of equipment.

70	Relay Replacement (Impact to primary clearing)	Planned Outage for Protection System equipment replacement which removes the primary clearance from service, with secondary clearance that does not have duplicate performance characteristics to that of the primary, for one or more pieces of equipment.
71	NERC Alert	PJM NRITF Rule: Planned Outage on any facility experiencing sag or clearance issues but not deemed to have an imminent public safety issue or emergency condition.
72	NERC Alert - Emergency	PJM NRITF Rule: Operational Outage on any facility experiencing sag conditions that are determined to pose a risk for an imminent public safety issue or emergency condition.
73	NERC Alert - Near Term	PJM NRITF Rule: Planned Outage on any facility experiencing sag or clearance issues for field discrepancies where no interim solution is available, where Outage is submitted to PJM 5 business days in advance.
74	Operational: High System Voltage	Operational Outage taken to maintain the voltage on the transmission system within desired levels (i.e., voltage control) during periods of light load, such as during a Minimum Generation Advisory/Alert/Warning/Event.
75	RTU Outages	Planned Outage for a RTU which will make SCADA data unavailable for either part of or the entire station.

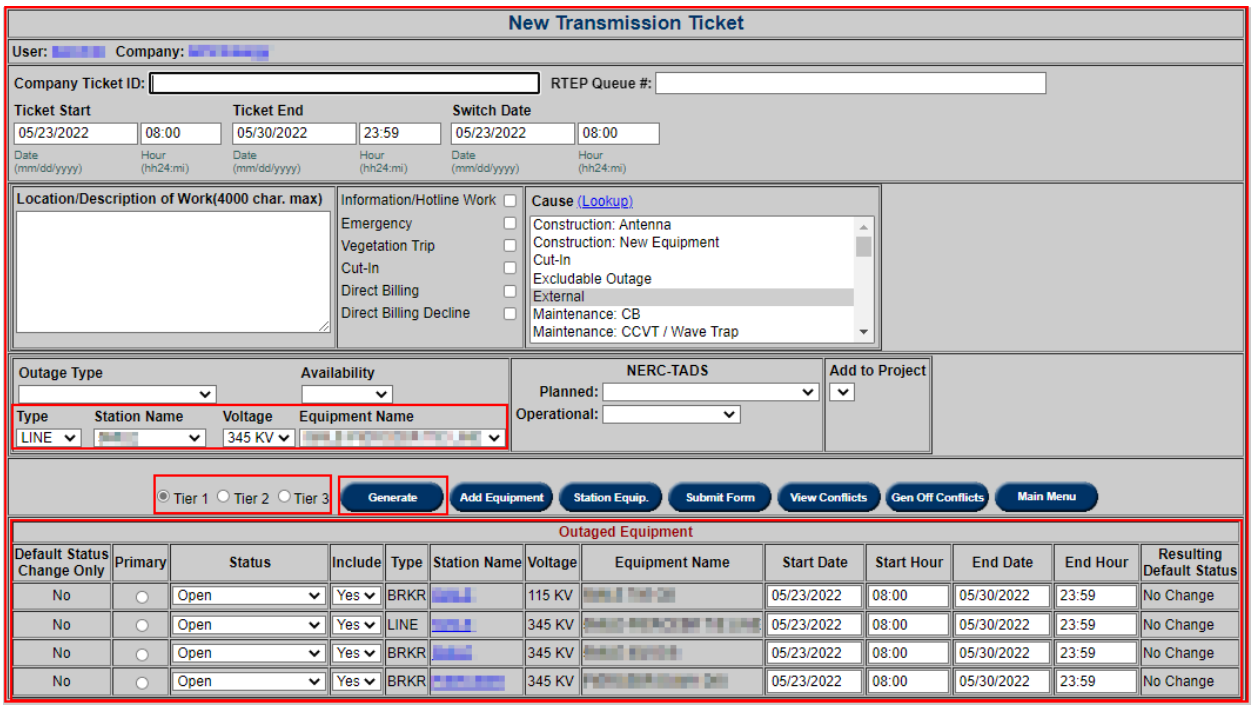
Equipment List

The Tier level corresponds to each zone of protection around a piece of equipment as defined in the PJM EMS model. For example, the user selects a "primary" piece of equipment. This Primary Equipment is a line, transformer, bus or circuit breaker where most or the entire maintenance job is concentrated. Then a tier level is selected based on the clearance points of this primary equipment. The tier level is used to select what circuit breakers (CB) or disconnect clearances are associated with this primary equipment. The Tier level corresponds to each zone of protection around a piece of equipment as defined in the PJM EMS model and its value, and the list of associated equipment, increases with movement outward from the Primary Equipment.

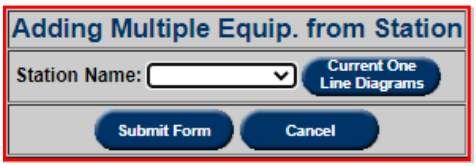
For example, if **Tier 1** is selected, the first or inner-most clearance points that are defined for the Primary Equipment will be selected and copied into the outage ticket. Selecting **Tier 2** will include all items defined for both **Tier 2** and **Tier 1**. Selecting **Tier 3** will include all items in **Tiers 3**, **2** and **1**.

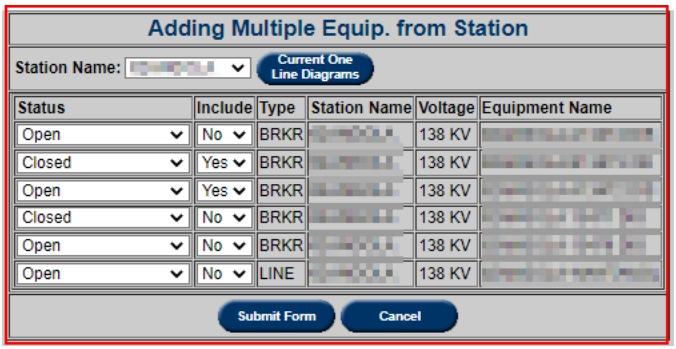


To add equipment in tiers, select the piece of equipment, select the tier level and click the **Generate** button. From there, the user can refine the equipment list. Select "Yes" or "No" in the **Include** column and "Open" or "Closed" in the **Status** column.



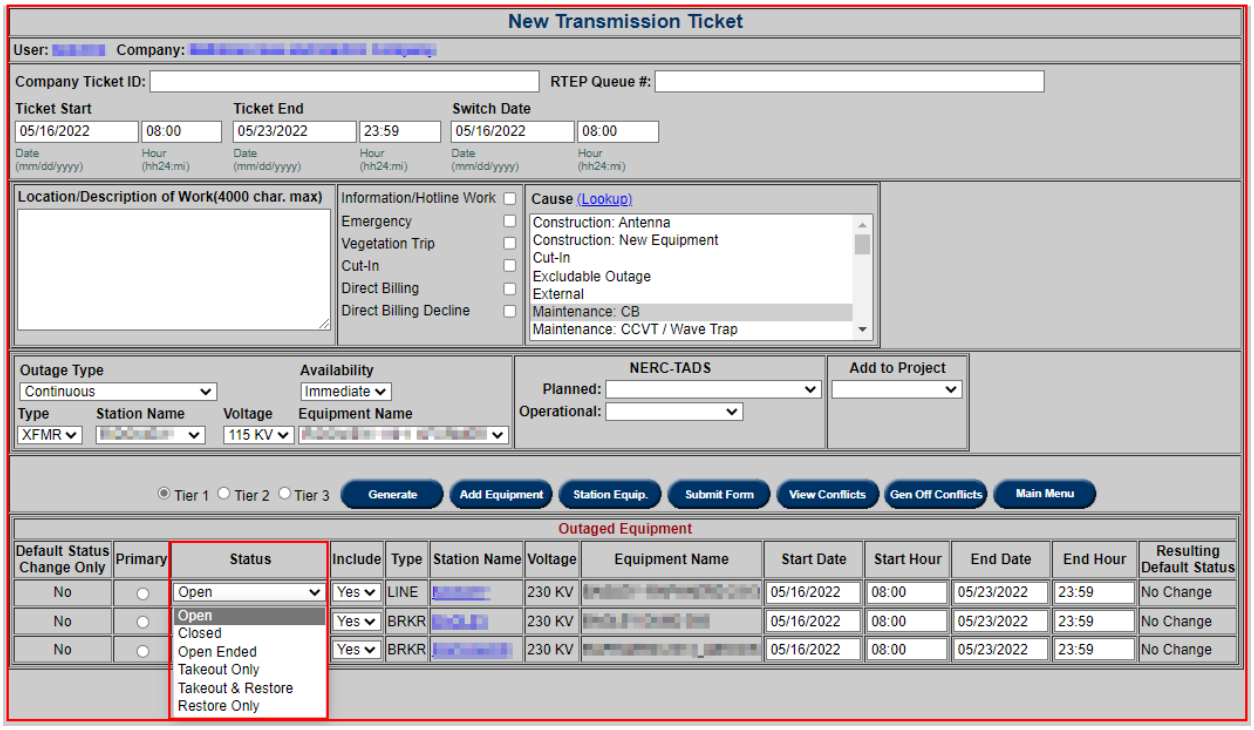
- **Add Equipment:** Add only the specific equipment selected from the **Type**, **Station Name**, **Voltage** and **Equipment** dropdowns to the Equipment List (tier level is ignored). Each piece of equipment may have different **Start/End** times.
- **Station Equip.:** This button gives the user the option to add equipment from list of equipment at each station. Select a **Station Name** to view station equipment list. Change **Include** to "Yes" for equipment to be added to outage ticket and click the **Submit Form** button.





One Line Diagram Download provides an option to download One Line in 3 available formats (svg, pdf and Visio).

Equipment Status

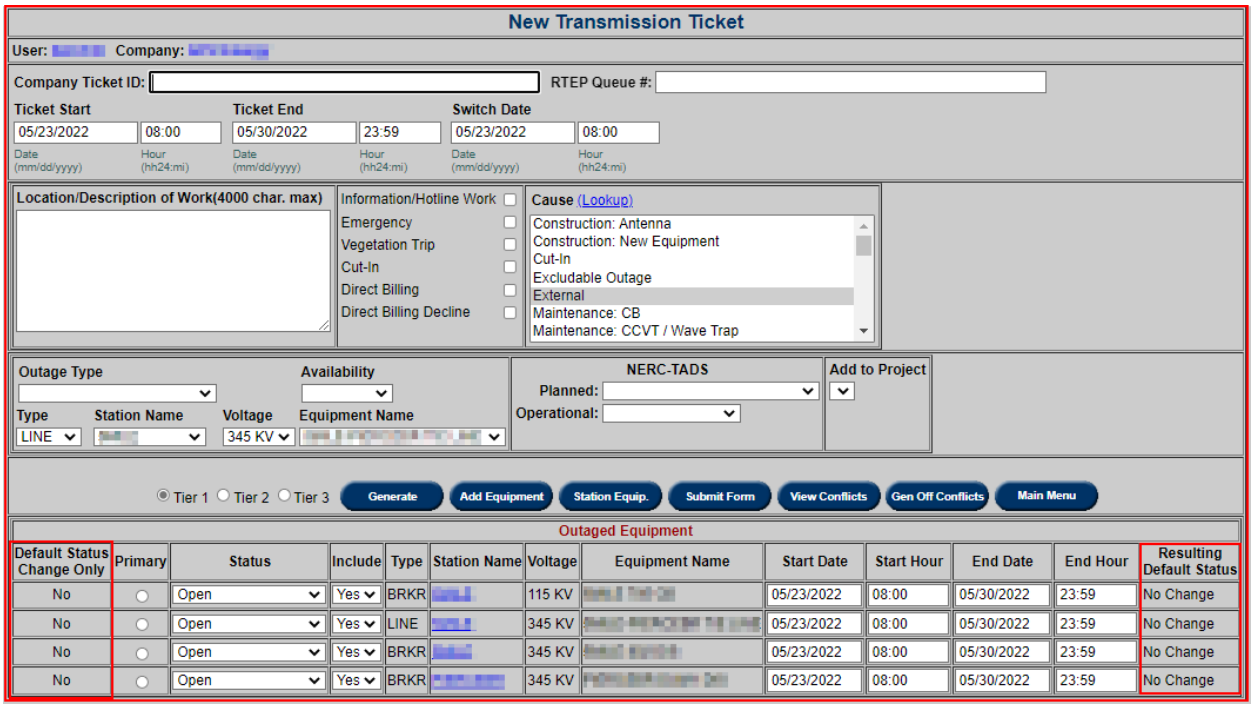


- Open - equipment is open for the duration of outage schedule
- Closed - equipment is closed for the duration of outage schedule
- Open Ended – equipment is open at only one end. This is not valid for BRKR equipment type.
- Takeout Only - equipment is out only at the beginning of the ticket.
- Takeout & Restore - equipment is out only at the beginning and the end of the ticket.
- Restore Only - equipment is out only at the end of the ticket.

Default Status Changes

The Default Status (Normally Open or Normally Closed) of equipment can be changed as part of a cut-in transmission ticket. The Resulting Default Status field indicates the expected Default Status of equipment after an outage. Default Status Change Only is set to "No" and Resulting Default Status set up to "No Change" by default on a new ticket.

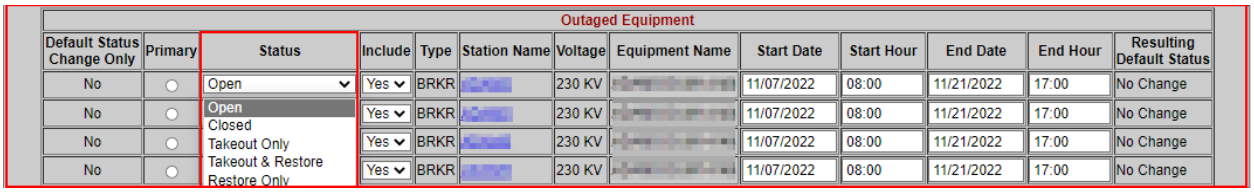
To request to change the Default Status, TOs should contact their PJM Outage Coordinator.



The default status changes are included in the Ticket Print Version and are only visible to the ticket owner (X owner) and PJM.

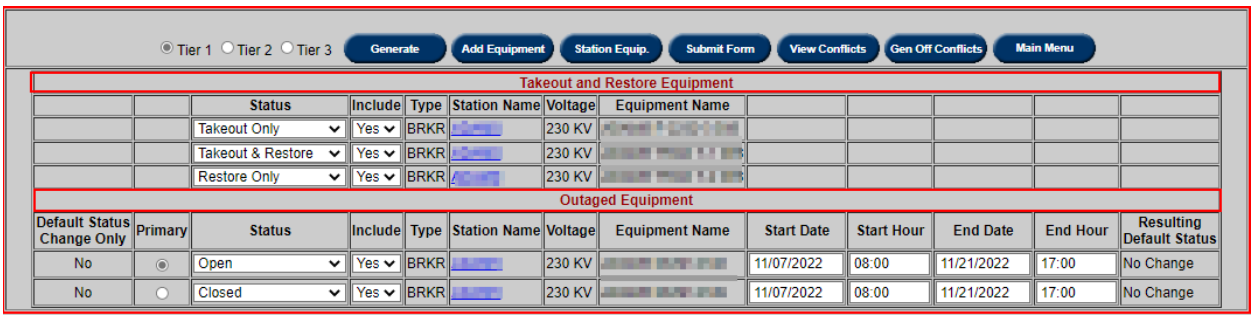
Switching Equipment

Equipment for switching (takeout/restore) are usually out for a short duration at the beginning or the end of an outage ticket.



Equipment Status available to identify equipment for takeout and/or restore only:

- Takeout Only - equipment is out only at the beginning of the ticket.
- Takeout & Restore - equipment is out only at the beginning and the end of the ticket.
- Restore Only - equipment is out only at the end of the ticket.



These are also available via XML for transmission ticket upload and downloads.
Equipment outage dates will be set behind the scenes and fed to downstream processes (SDX, outage reports, etc.)

Business Rules

- Takeout/Restore equipment cannot be the primary equipment.
- Normally Open equipment cannot be used as Takeout/Restore equipment.
- Ticket cannot have only Takeout/Restore equipment.
- Takeout/Restore equipment can also be listed as outaged equipment but not for start day (takeout) or end day (restore).
    - If user wants to have Takeout/Restore equipment out for the start or end day, list it as regular outaged equipment.

SVC Outages

Reactive devices such as Static VAR Compensators are Transmission assets but modeled as Gens in the PJM EMS system. The Transmission Owner can work with PJM Outage

Coordinators to identify such devices and flag them as SVCs. This will make them available to be selected on transmission tickets.

Tickets created for SVCs cannot include other equipment types as different information is required for them.

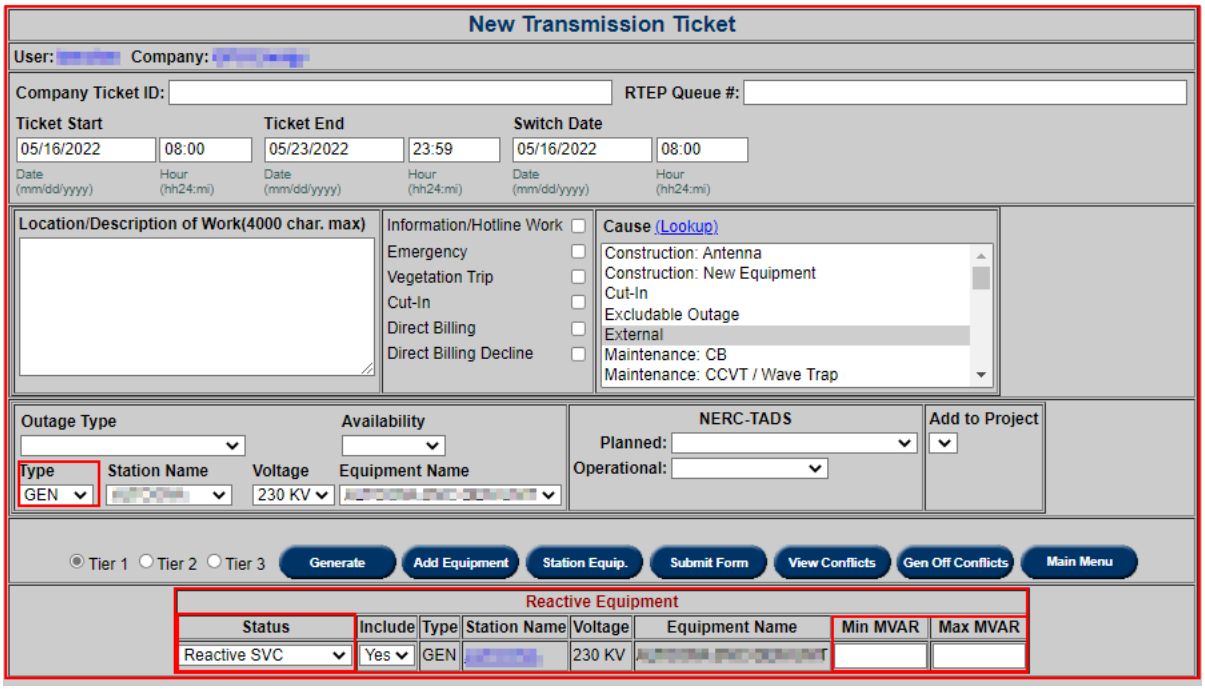
- To create outage ticket for SVC select **GEN** from Type drop down

Enter Min Var and Max Var:

  - Min Var : minimum output available during outage
  - Max Var : maximum output available during outage

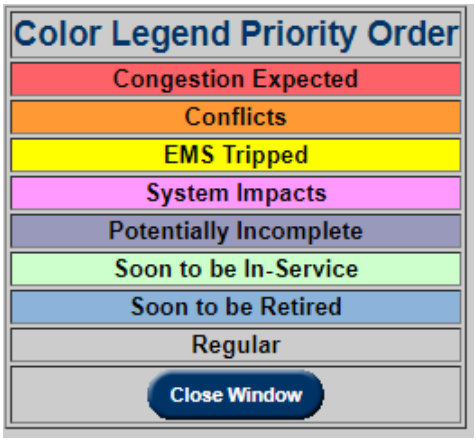
Business rules:

- Min Var ≤ Max Var.



Color Legend

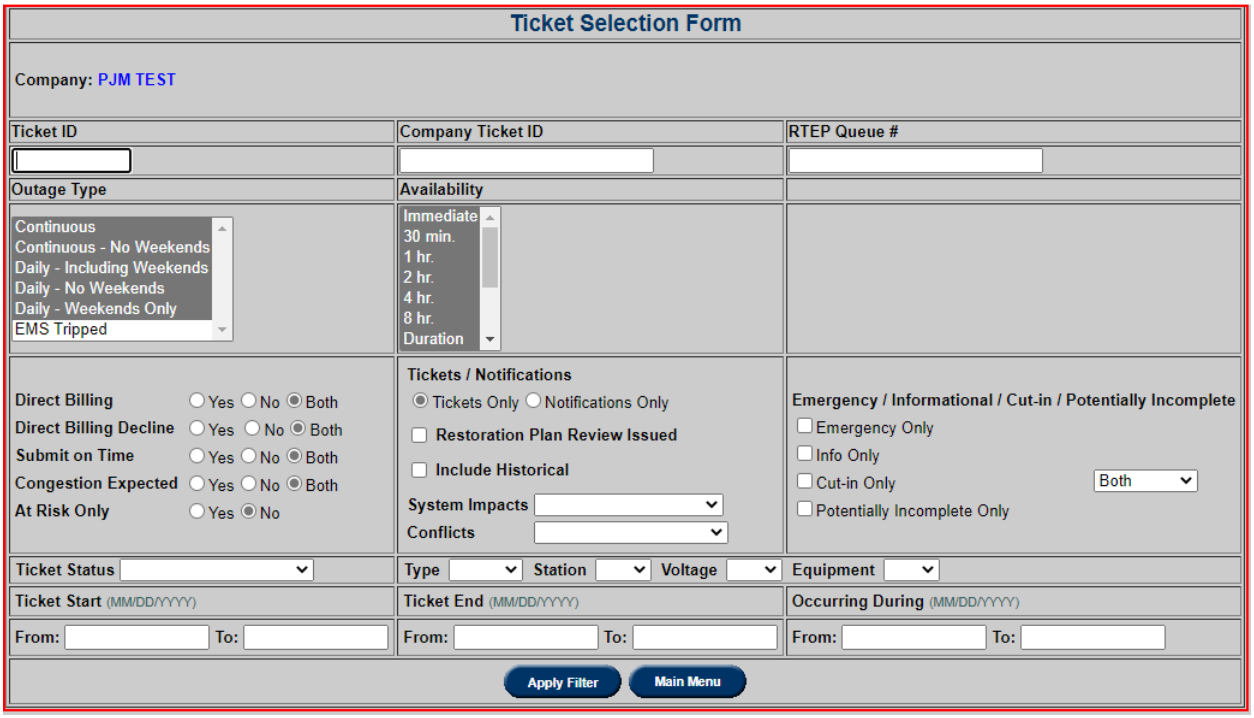
On various eDART transmission ticket reports, the list of tickets is color coded in the order of priority outlined in the **Color Legend** as determined by PJM. For example, an outage ticket that is flagged as having **System Impacts** (pink) and **Congestion Expected** (red) will be highlighted in red.



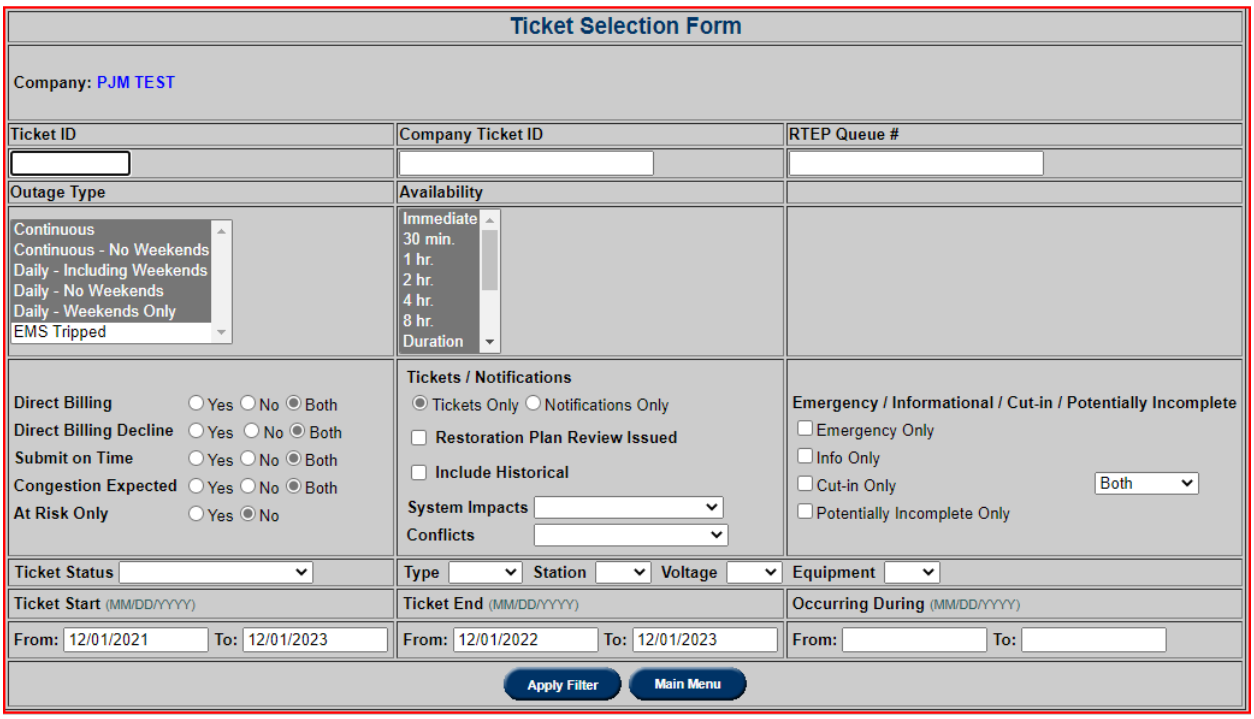
- **Congestion Expected:** PJM has determined that this outage may cause congestion. This is indicated by a red highlight.
- **Conflicts:** This ticket is scheduled at the same time as other tickets, the combination of which has been flagged as potentially causing transmission reliability issues. This is indicated by an orange highlight.
- **EMS Tripped:** This ticket was created due to emergency tripping of LINE or XFMR. This is indicated by a yellow highlight.
- **System Impacts:** If a ticket is flagged as having potential system impacts, the user can open the ticket and click on the **System Impacts** button to read text that describes the potential impact of the outage. This is indicated by a pink highlight.
- **Potentially Incomplete:** Additional information may be needed on ticket. PJM Comments will include a note of additional information required. This is indicated by a purple highlight.
- **Soon to be In-Service:** This ticket includes equipment that soon is going to be In-Service.
- **Soon to be Retired:** This ticket includes equipment that soon is going to be retired.

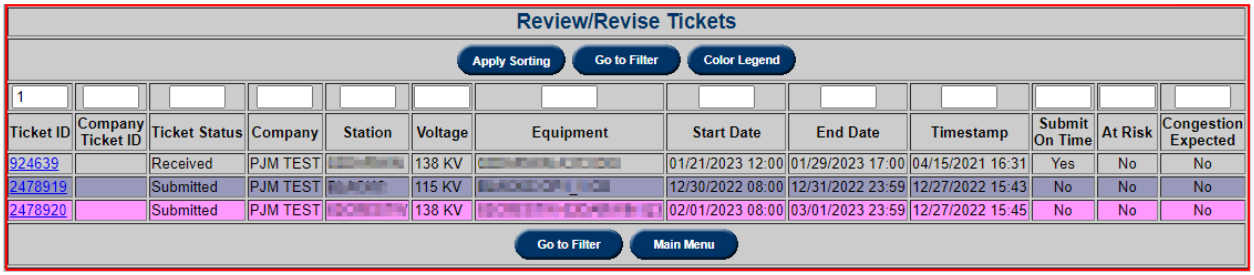
Filtering

Filtering is a very useful tool to view only information that is relevant to the search the user is performing. This tool can be found on many links on the Transmission Tickets application. For each of the filtering sections none, some, or all of the fields can be filled in by the users in order to filter information. As an example, the **View/Revise Outage Tickets** section is shown below. Also note in the **Ticket Selection Form** that **EMS Tripped** is **not** selected by default.

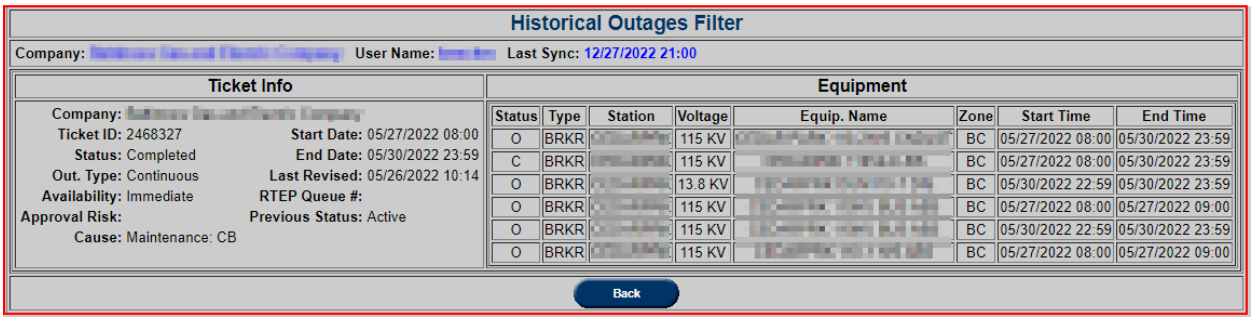


- **Ticket Statuses:** Options for this field include “Submitted,” “Received,” “Denied,” “Approved,” “Cancelled by Company,” “PJM Admin Closure,” “Revised,” “Active,” and “Completed.” The user can select one or none of these options from the drop down.
- **Ticket Start and End dates:** All tickets displayed will have started on or between the specified start dates entered by the user, and ended on or between the end dates entered by the user. See the following example for more information.





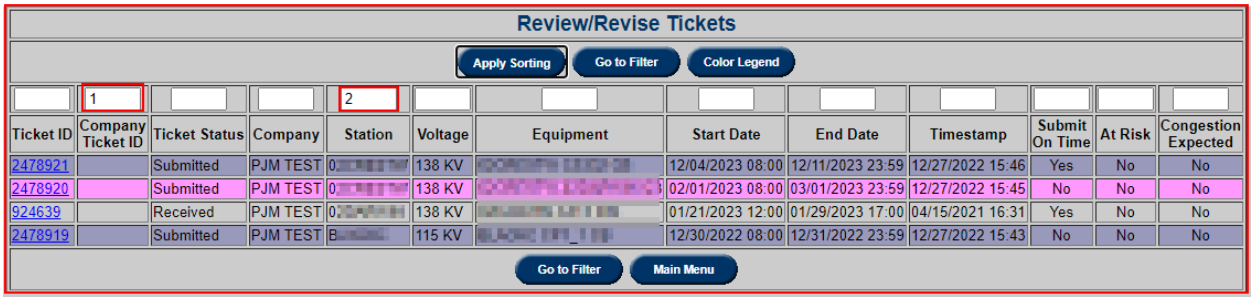
In the example above, notice that the **Ticket Start Date** and **Ticket End Date** span a wide range of dates. The result for filtering criteria is to return the results in order of **Ticket ID** starting with the smallest.



Sorting

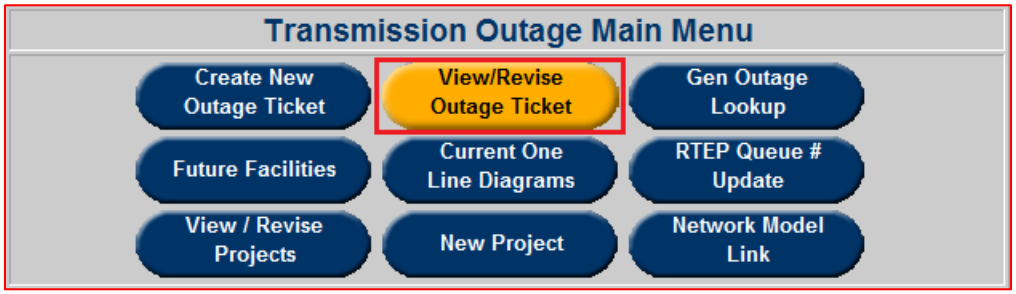
Sorting is a simple way to organize filtered results. Once a filter is applied, the tickets will be

sorted by **Ticket ID** by default. In some sections of eDART's Transmission tools suite, it is possible to sort on multiple columns based on user defined sort order. To sort on multiple columns, enter the desired sort order in the textboxes above the column name and click on the **Apply Filter** button. Delete numbers over any columns that should not be included in a sort. This type of sorting can be done whenever there are text boxes above field names. In the **Status Report** example below, the tickets are sorted first by the **Company Ticket ID** and then by the **Station** name.



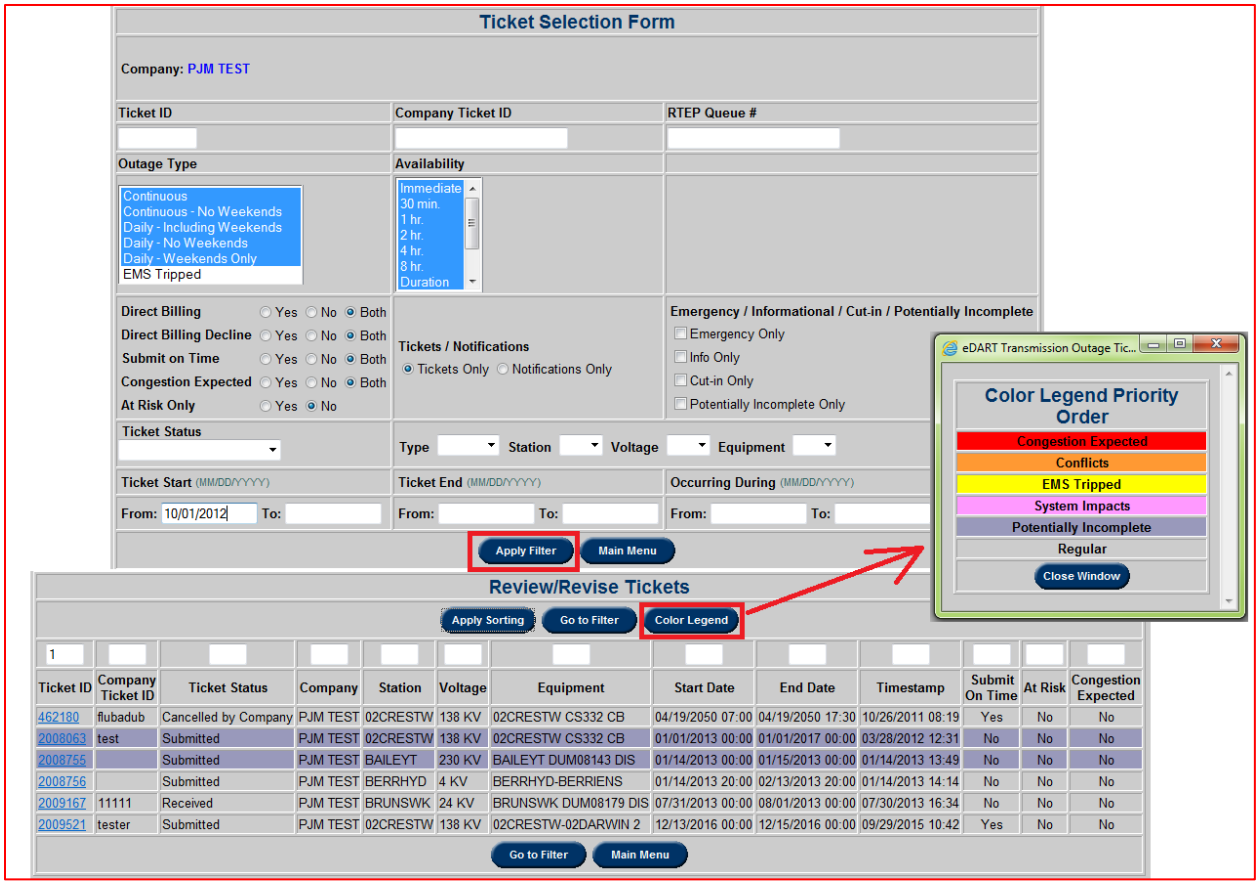
View / Revise Ticket

In order to view or revise any existing tickets, select the **View/ Revise Ticket** button on the **Transmission Tickets Main Menu** to open the **Ticket Selection Form**.



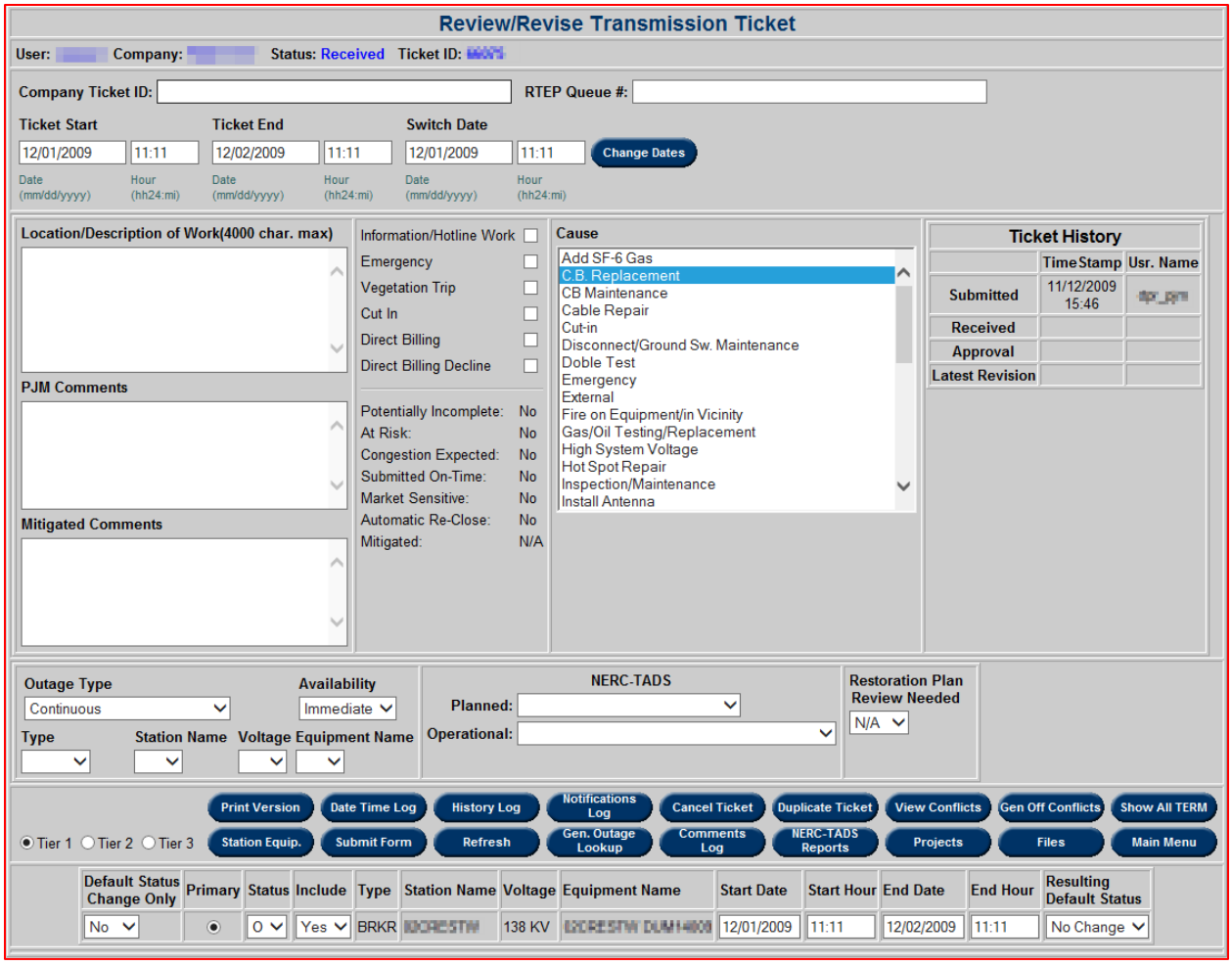
Select or enter any desired filtering criteria and click on **Apply Filter** button. If no filtering criteria are used, all outage tickets except EMS Tripped tickets will be displayed. The **Review/Revise Tickets** page displays the result of the selected filtering criteria.

By default, tickets are sorted in ascending order of the **Ticket ID**.



Click on a **Ticket ID** to open up a ticket for reviewing and/or revising. After updating the desired fields, click the **Submit Form** button.

A ticket may be revised if the ticket has a status of "Submitted" or "Received". Tickets are "locked" if the status is changed to "Approved" and company would need to notify PJM to make changes or to unlock the ticket. If ticket is locked, "This ticket has been locked by PJM. Please contact dispatch to have this ticket unlocked!" will be displayed.
Exception: *NERC TADS, RTEP Queue # and Direct Billing information may be updated on locked tickets using the appropriate update forms.*



Additional Ticket Fields

- **Potentially Incomplete:** This field indicates if the ticket may need further review. If "Yes," **PJM Comments** will include a note of additional information required.
- **At Risk:** This field indicates that there is a high risk of being denied due to the possibly of jeopardizing system reliability.
- **Congestion Expected:** This field indicates that the outage is expected to cause congestion. Localized generator controlling actions may be needed.
- **Submitted On-Time:** This field indicates if the ticket is on-time or late according to business rules. If "No," a note is displayed in red stating when the ticket should have been submitted in order to be on time.
- **Market Sensitive:** If "Yes," access to outages for the unit will be restricted. Some outages are marked as market sensitive due to the potential impact public access would have on the market.
- **Automatic Re-Close:** This field indicates that the outage is an auto re-close outage. The outage type is EMS Tripped and duration is less than 10 minutes.

- **Mitigated:** indicates if existing conflicts have been resolved or not. If N/A, ticket does not have any conflicts. **Mitigated** reset to 'No' if Date and/or Equipment information change in ticket or in any conflicting tickets.
- **Print Version:** This button opens a read only printable version of the ticket with history and date logs.
- **Date Time Log:** This button opens a log of all ticket **Start** and **End Date/Time** entries.
- **History Log:** This button opens a log of ticket status changes.
- **Notifications Log:** This button opens a list of other companies notified of the outage.
- **Cancel Ticket:** This button cancels the ticket and changes ticket status to **Cancelled by Company**. "Active" tickets cannot be cancelled.
- **Duplicate Ticket:** This button creates a new ticket with the same information (new ticket **Start/End Date/Time** must be entered for new ticket). Useful for daily jobs.
- **View Conflicts:** Displays report of any tickets that are in conflict with the parent ticket.
- **Gen Off Conflicts:** Displays report of any situations where transmission outages cause generators to be offline.
- **Station Equip:** This button gives the user the option to add equipment from list of equipment at each station. Select a **Station Name** to view station equipment list. Change **Include** to "Yes" for equipment to be added to outage ticket and click the **Submit Form** button.
- **Refresh:** This button reloads the ticket's entry.
- **Gen. Outage Lookup:** This button provides a list of generator outages occurring from the **Start Date** to the **End Date** of the transmission outage ticket. Only outages to generators for which TO is an approved viewer will be displayed.
- **Comments Log:** This button opens a log of **Location/Description** and **PJM Comments** entries.
- **NERC-TADS Reports:** Opens **NERC-TADS Report** form for ticket with choices to Display or Download TADS report or return to the ticket. Only available for TOs who opted to use eDART to gather TADS data.
- **Files:** Opens the **Transmission Ticket Files** window where users can upload files to be attached to outage ticket. List of supported file types also available.
- **Projects:** This button opens a list of projects that the current ticket belongs to as well as a list of projects the ticket can be added to.
- **Modeling Request:** Displays list of Network Model requests this transmission outage ticket is linked to. Button is not displayed if ticket is not linked to any Network Model change request.
- **Show All TERM:** Displays list of TERM tickets this transmission outage ticket is linked to. List is blank if ticket is not linked to any TERM ticket.

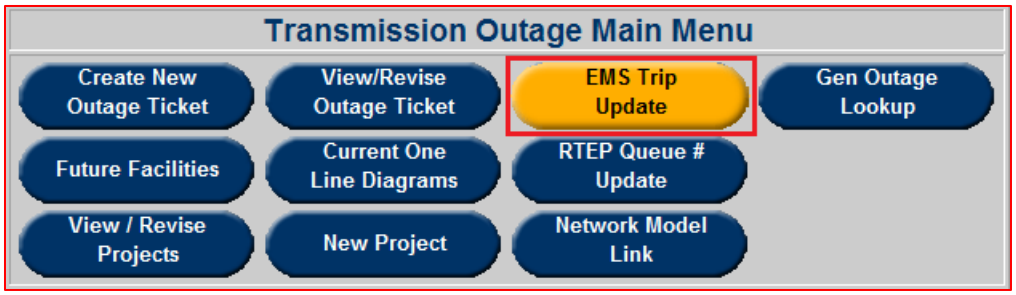
eDART Transmission Ticket Status

- **Submitted:** The original status of the ticket upon submittal.

- **Received:** Initial review of ticket by PJM Dispatch or OPD (Operations Planning Department) completed.
- **Approved:** Outage request is approved by PJM following detailed analysis.
- **Revised:** Data on a "submitted," "received" or "approved" ticket has changed. Ticket must be "Received" and "Approved" again.
- **Active:** The ticket status is changed to "Active" upon receipt of verbal notification from company at actual start of outage.
- **Complete:** The ticket status is changed to "Complete" upon receipt of verbal notification from company at actual end of outage.
- **Denied:** Outage request is not approved by PJM. If this occurs, verbal notification is given to the company with the outage request.
- **Cancelled by Company:** Company initiates cancellation of the ticket. A verbal notification to PJM is required if the change affects current or the next operating day.
- **PJM Admin Closure:** PJM initiates cancellation of the ticket. If this occurs, verbal notification is given to the company with the outage request.

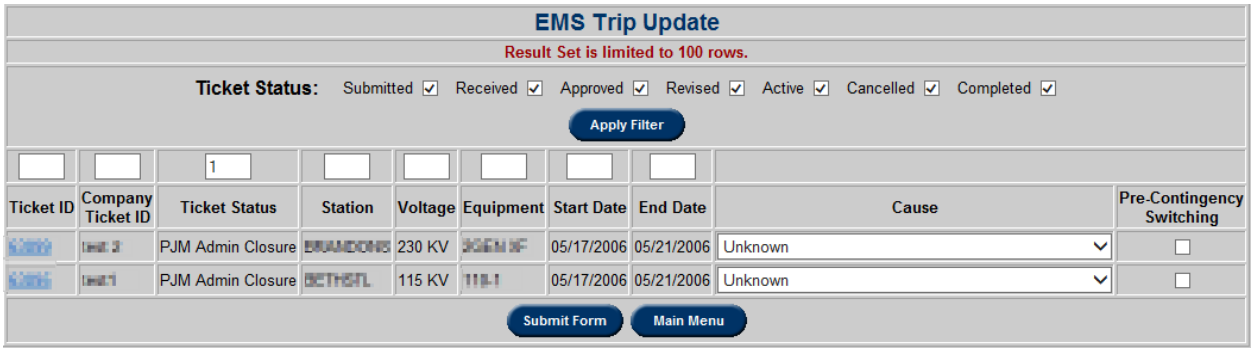
EMS Trip Update

The **EMS Trip Update** form allows the TO to associate outage cause(s) to the system generated EMS Trip tickets for the purpose of performance compliance data gathering and to give PJM a better understanding of the reason for the outage.



Click the **EMS Trip Update** button on the **Transmission Outage Main Menu** and filter by **Ticket Status** to display list of tickets that can be updated.
Note: EMS Trip Update *button is not visible if there are no EMS Tripped tickets with Unknown cause.*

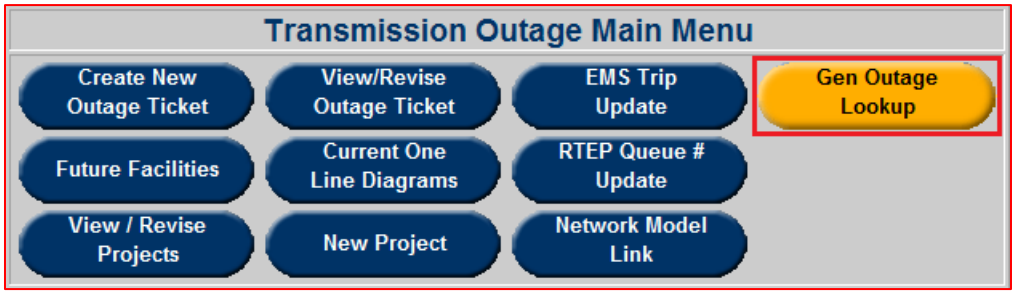
After applying any necessary EMS Trip Updates, click the **Submit Form** button to complete the task.



- **Ticket Status Filter:** A check box is available for every potential Ticket Status. In this instance, as many checkboxes as desired may be selected. After selecting any desired boxes, click the **Apply Filter** button.
- **Ticket ID:** Each Ticket ID listed is also a hyperlink to open up the ticket for reviewing.
- **Cause:** Select reason for outage from the drop down list.
- **Pre-Contingency Switching:** This field is a checkbox to indicate that the outage was caused by pre-contingency switching. Pre-Contingency switching is switching that occurs to avoid a foreseen problem or cost.

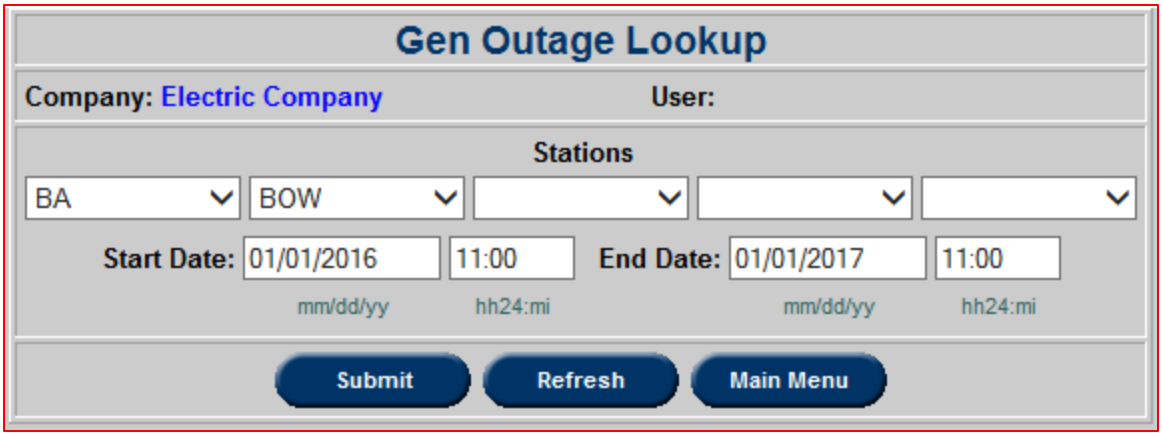
Gen Outage Lookup

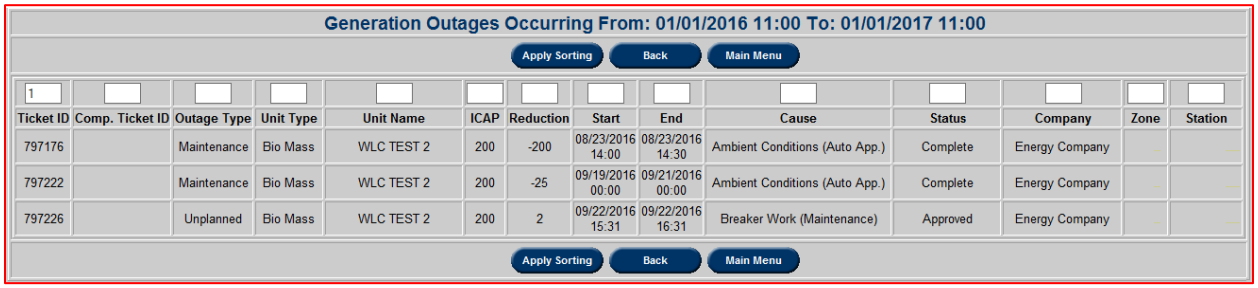
A TO can look up generator outages at stations for which the TO is an approved transmission viewer. Gen Outage Lookup is useful for TOs who may want to take advantage of a generator outage and schedule maintenance outages to non-generation equipment at a generator station during a generation outage.



Click the **Gen Outage Lookup** button on the **Transmission Outage Main Menu** and filter by **Station(s)**, **Start Date** and **End Date** to display the list of generator outages that are scheduled during the entered date range.

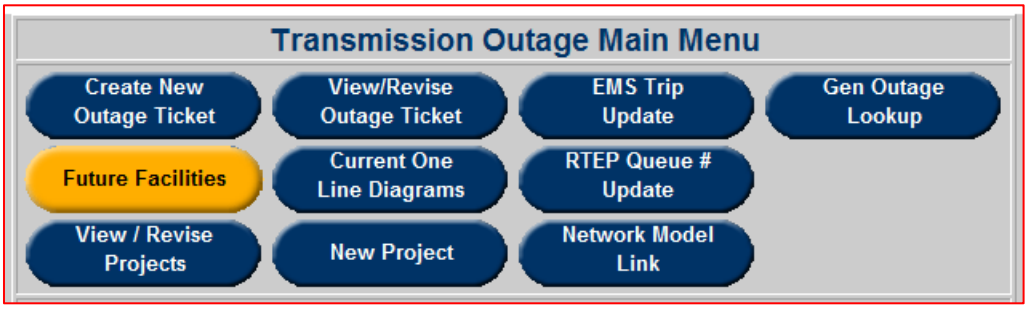
Outages scheduled for the selected stations are highlighted in yellow. Outages to other stations for which TO is an approved transmission viewer are also displayed. If there is a unit that a company or TO believe they should be able to view in their transmission zone, please contact address RTGenData@pjm.com along with Attachment J of PJM Manual 14D "Generator – Data Release Matrix" detailing which generator(s) are included in the request.



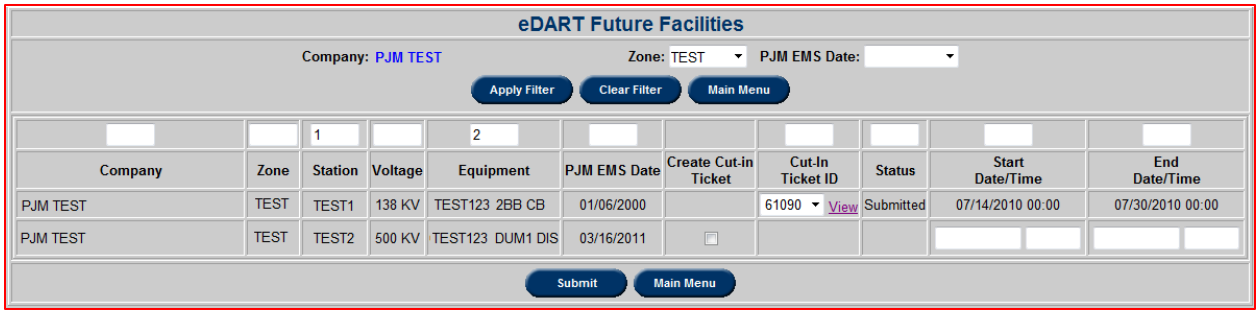


Future Facilities

The **eDART Future Facilities** report lists all the TO's facilities that are flagged as future along with the date they are expected to be modeled in PJM's EMS.



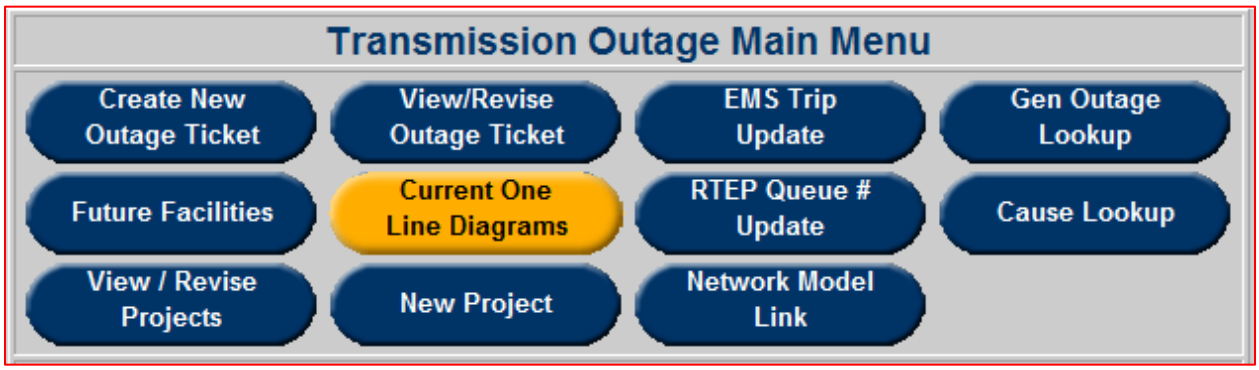
Click the **Future Facilities** button on the **Transmission Outage Main Menu** and filter by **Zone** and/or **PJM EMS Date** as desired. The report is limited to 400 rows.



- **Create Cut-In Ticket:** Check this box and enter **Start Date/Time** and **End Date/Time** to create a cut-in ticket for the future equipment. **Description** on ticket will read "Automatically created ticket using Future Facilities Form."
- **Cut-In Ticket ID:** If a non-cut-in ticket exists for the future equipment, the ticket ID will be listed in the drop down and can be selected. If an available ticket ID is selected, **Cut-In** is checked on the ticket. If a cut-in ticket exists for the future equipment, click the "View" hyperlink to view the ticket.

Current One Line Diagrams

To view one-line diagrams, click the **Current One Line Diagrams** button from the **Transmission Outage Main Menu**.



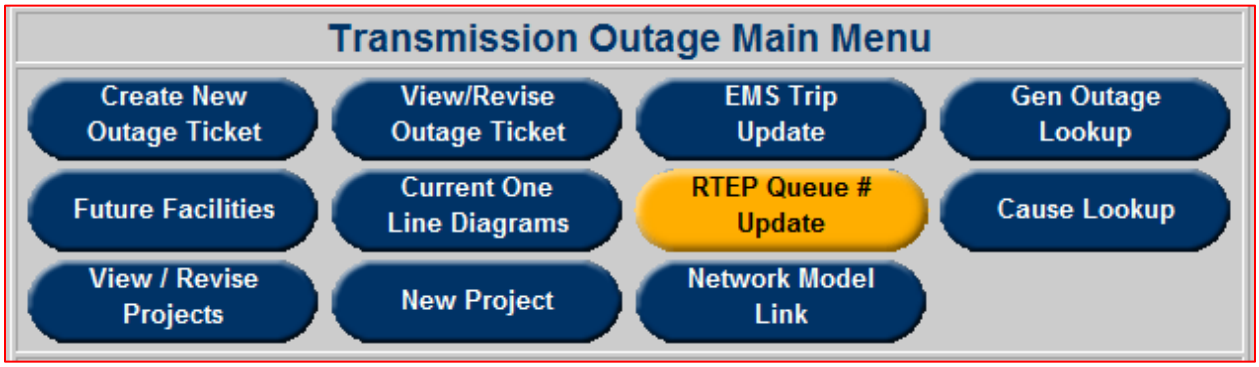
By signing the Model Sharing Non-Disclosure Agreement, users with transmission access in eDART are authorized to view one-line diagrams. Note that users must renew their Model Sharing NDA sign-off monthly.

Select the desired file format (SVG, PDF or Visio), **Company** and **File** (one per station) then click **Download**.
To download diagrams for all stations in PJM, select "PJM_RTO" as the **Company** and the zip file.

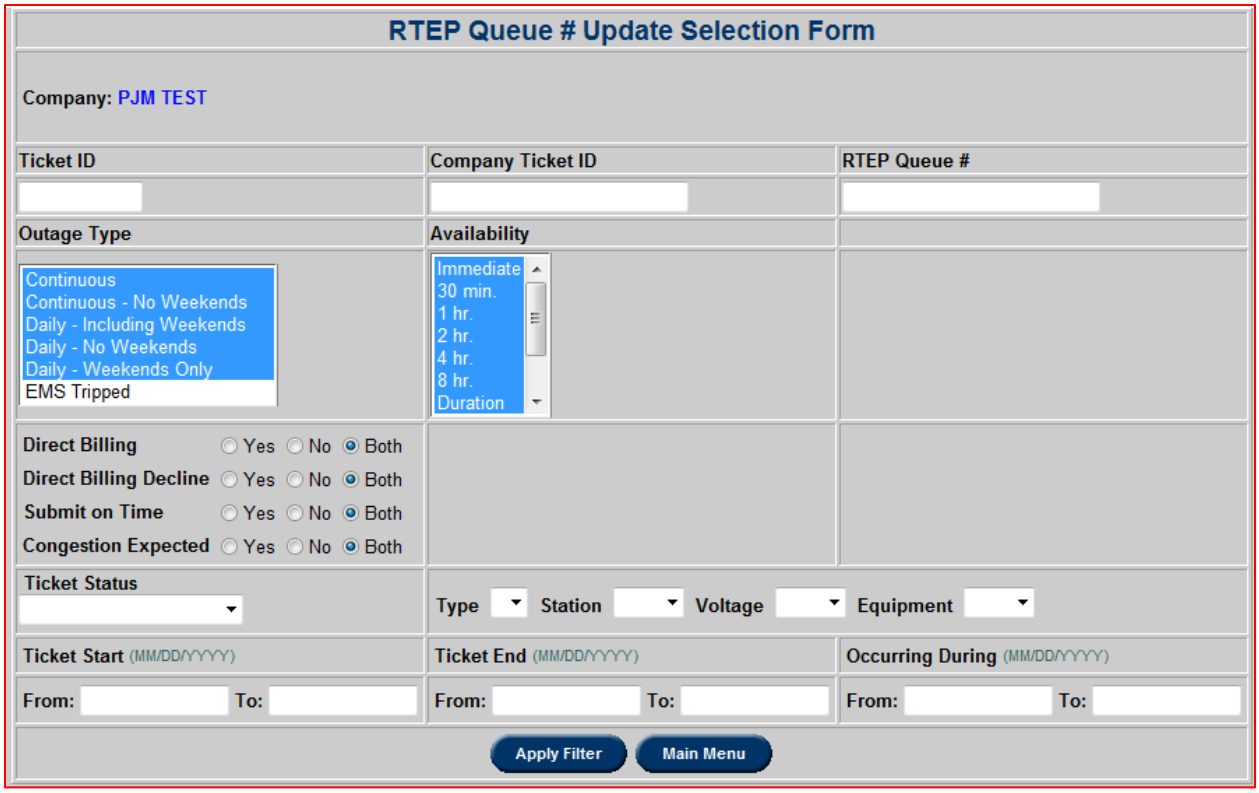
To download diagrams for all the stations in a company at one time, select the **Company** and chose the zip file.

RTEP Queue Number Update

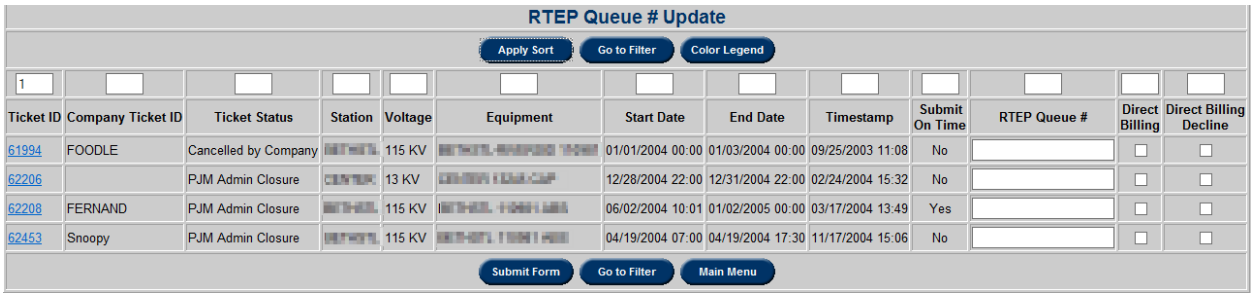
RTEP Queue # and **Direct Billing** information can be updated on a ticket after it has been submitted. The **RTEP Queue # Update** form can be used to update this information on tickets that have been locked by PJM.



Click the **RTEP Queue # Update** button on the **Transmission Outage Main Menu** and filter by the available criteria on the **RTEP Queue # Update Selection Form**.

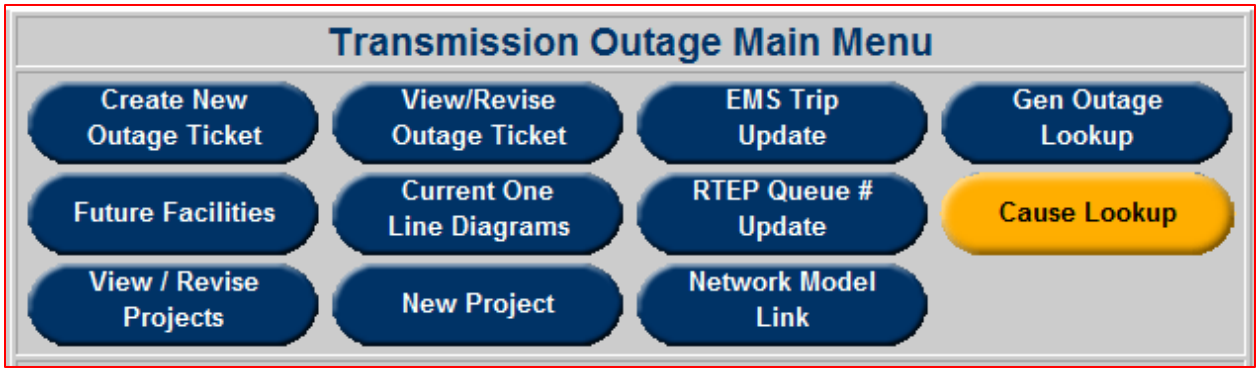


Update the **RTEP Queue #**, **Direct Billing** and **Direct Billing Decline** information as needed and click **Submit Form**.



Cause Lookup

A list of Transmission Outage Cause Types and Definitions can be accessed via the **Cause Lookup** button.



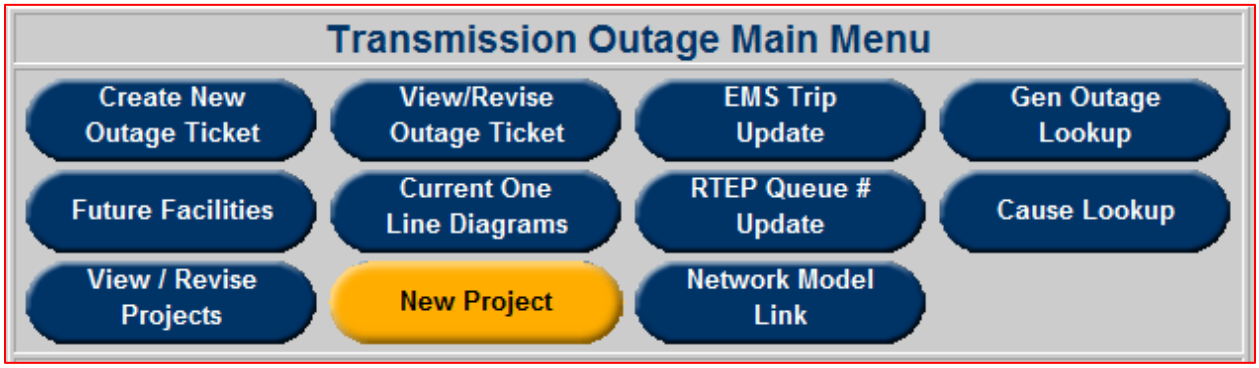
eDART Transmission Outage Tickets - Internet Explorer

Transmission Outage Cause Lookup

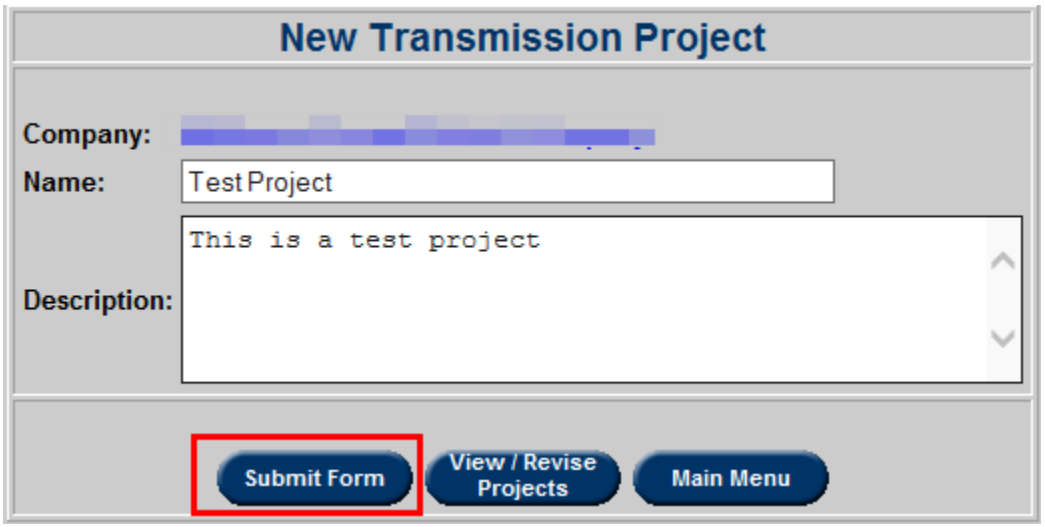
Cause	Description
Construction: Antenna	Planned Outage associated with antenna construction.
Construction: New Equipment	Planned Outage associated with construction of electric facilities, including testing of facilities in support of construction.
Cut-In	Outage with potential impact to PJM with respect to its EMS model, Monitored Priorities, Ratings, Contingencies, and/or SDX Mapping. Typically combined with another Cause Type.
Excludable Outage	Outage that is EITHER covered by another outage ticket OR created for the sole purpose of application testing and not an actual facility outage.
External	Outage to facilities outside the PJM Reliability Coordinator Area, but contained within the PJM EMS model.
Maintenance: CB	Planned Outage associated with the maintenance of a circuit breaker, including testing of facilities in support.
Maintenance: CCVT / Wave Trap	Outage associated with metering or protective relaying equipment. This includes capacitor voltage transformers(CVT or CCVT) and wave traps.
Maintenance: Cable	Outage associated with the maintenance of underground (UG) transmission equipment, including testing of facilities in support.
Maintenance: Conductor	Outage associated with the maintenance of transmission lines, excluding underground cable, including testing of facilities in support.
Maintenance: Disc/Ground Sw	Planned Outage associated with manual or automatic substation equipment utilized in electrical grounding and the protection of other substation equipment, typically Disconnects and Ground Switches.
Maintenance: Gas (SF6)	Outage associated with the replacement of Sulfur Hexafluoride (SF6) in gas insulated substation (GIS) equipment, including testing of facilities in support.
Maintenance: Gas/Oil	Outage to facilities for the purpose of replacing/testing gas/oil insulated facilities, excluding Sufur Hexafluoride (SFG) type.
Maintenance: Inspection / General Maintenance	Planned Outage associated with maintenance of electric facilities, including testing of facilities in support of maintenance.
Maintenance: Normally Open	Outage to perform maintenance/repairs/testing on a piece of equipment that is Normally Open, and will remain a Normally Open piece of equipment at the conclusion of the outage.
Maintenance: Transformer	Outage associated with the maintenance of a transformer, including testing of facilities in support.
Maintenance: Vegetation	Outage for the purpose of removing vegetation, such as those in support of the NERC FAC-003 standard.
NERC Alert	PJM NRITF Rule: Planned Outage on any facility experiencing sag or clearance issues but not deemed to have an imminent public safety issue or emergency condition.
NERC Alert - Emergency	PJM NRITF Rule: Operational Outage on any facility experiencing sag conditions that are determined to pose a risk for an imminent public safety issue or emergency condition.
NERC Alert - Near Term	PJM NRITF Rule: Planned Outage on any facility experiencing sag or clearance issues for field discrepancies where no interim solution is available, where Outage are submitted to PJM 5 business days in advance.
Operational: Emergency	Operational Outage that are taken for the purpose of avoiding risk to human life, damage to equipment, damage to property, or similar threatening consequences.
Operational: Fire	Operational Outage caused by, or taken to alleviate concerns with, fire or smoke.
Operational: Pre-contingency Switching	Operational Outage taken to keep the transmission system within System Operating Limits, excluding High System Voltage.
Operational: Switching - Takeout or Restore Only	Outage of transmission system equipment during the initial takeout (outage start) or restoration (outage end), for work in proximity to, but not upon said equipment, in order to provide a mimimum clearance distance from any energized equipment.
Other	Outage for reasons not included in the above list.
Relay Maintenance (Impact	Planned Outage for Protection System equipment maintenance/testing which either removes the primary clearance

New Project

The **New Project** button is used to give TOs and PJM the ability to group transmission outage tickets into Transmission projects. TOs can create, edit, and archive projects as well as add/remove their outage tickets to/from the projects. Tickets from different companies can belong to a project. To add another company's ticket to your project contact the eDART team at eDartHelp@pjm.com.

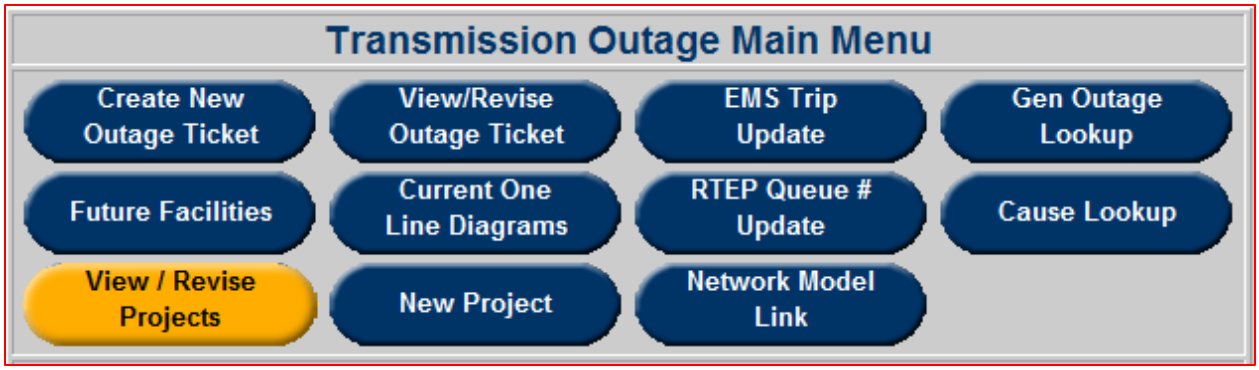


To create a new project, click the **New Project** button in the **Transmission Outage Main Menu**. Enter a name (50 character limit) and description (4000 character limit) for the project and click **Submit Form**.

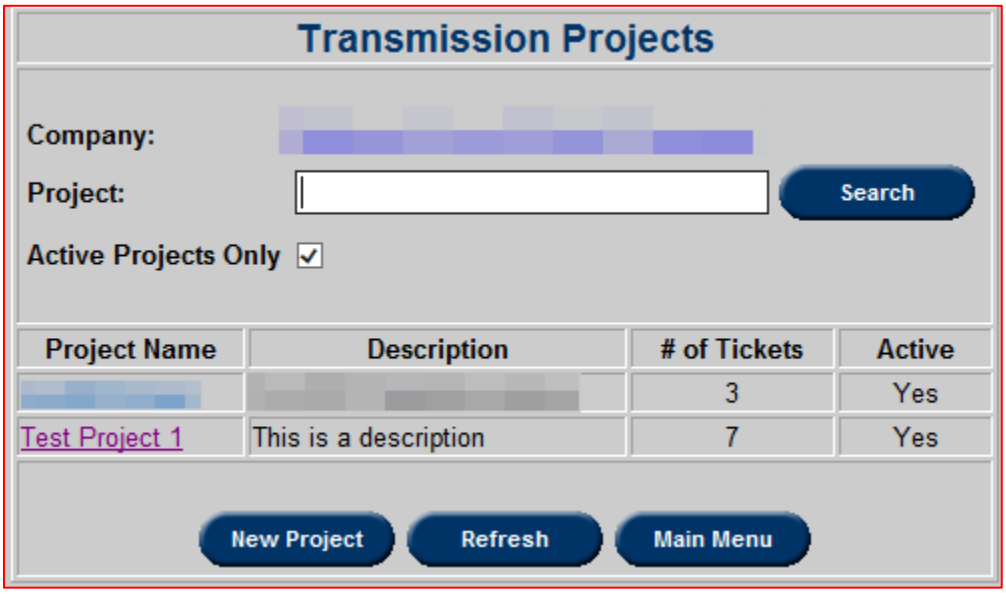


View/Revise Project

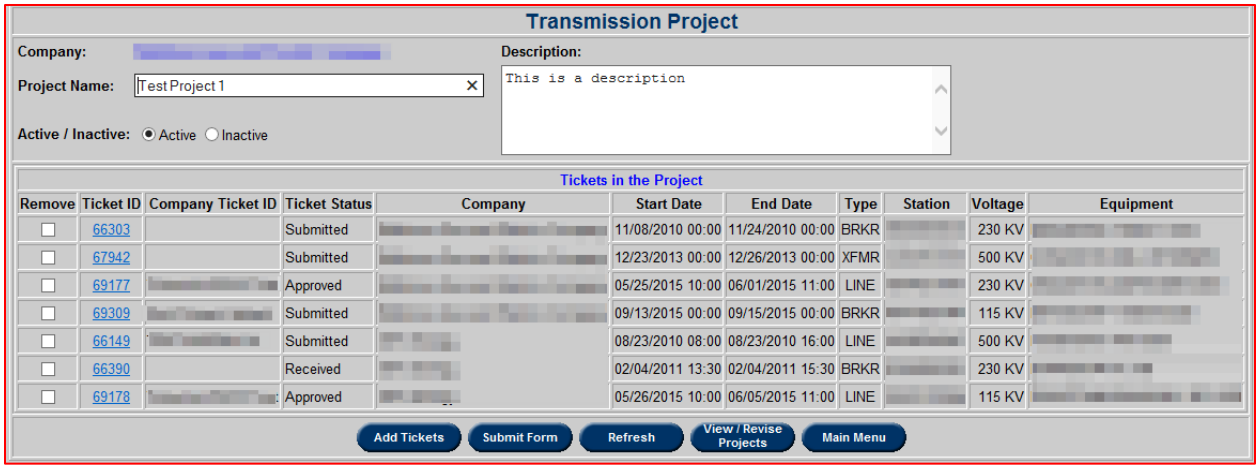
The **View/Revise Projects** button is used to edit Transmission projects once they have been created. From the **Transmission Outage Main Menu** click **View/Revise Projects.**



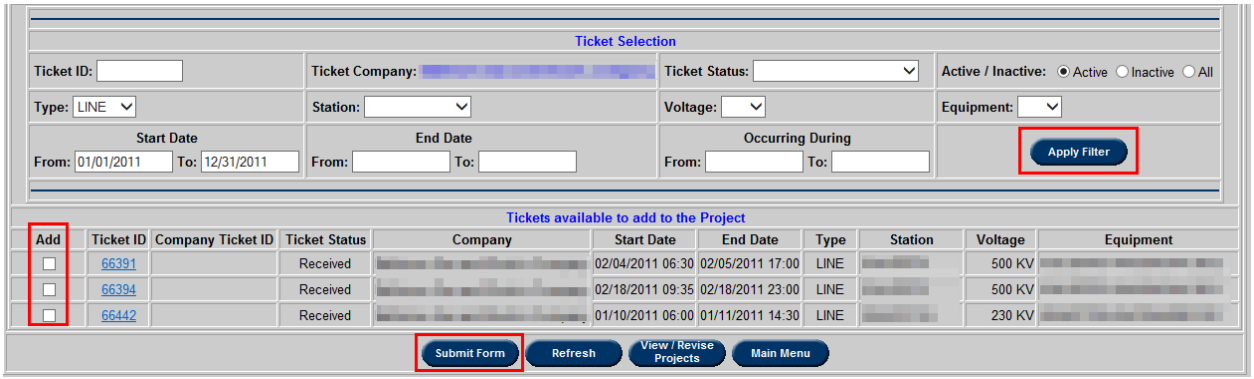
From here, all active projects are displayed by default. To include inactive projects, uncheck the **Active Projects Only** check box.
Projects can also be searched for by project name using the **Project** search box and clicking **Search**.
To edit a project, click the **Project Name**.



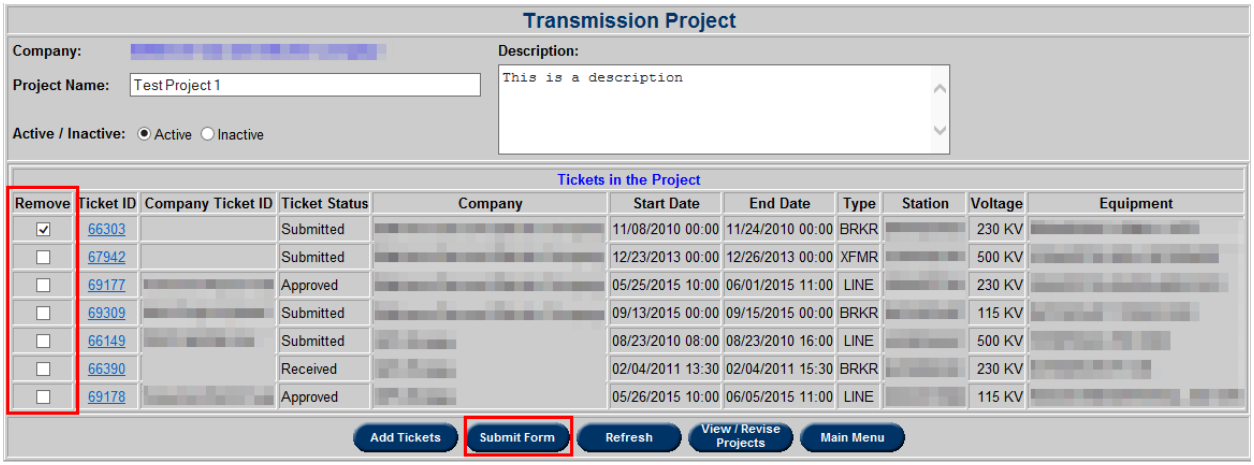
Select a **Project Name** to edit both the project name and description, as well as flag a project as active or inactive. TOs can also add and remove tickets to/from a project. To add tickets, click the **Add Tickets** button.



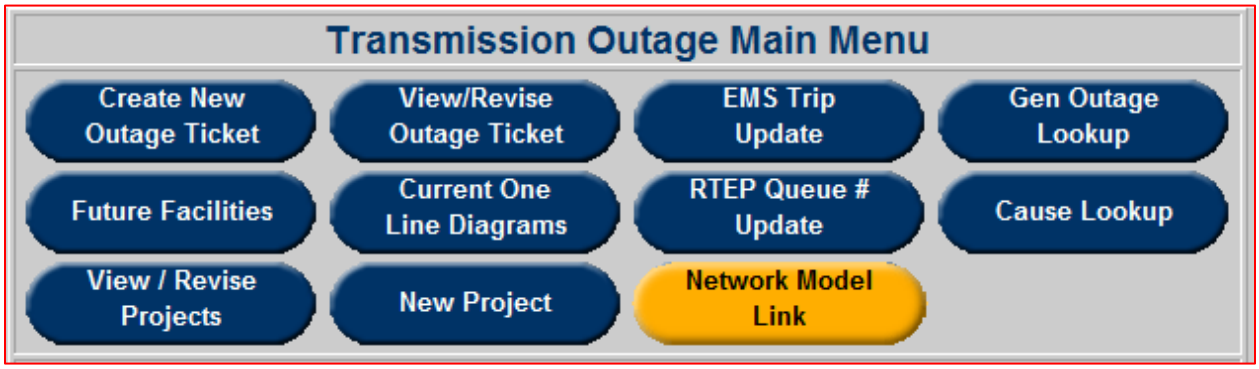
Click **Add Tickets**, filter outage tickets based on relevant criteria and click **Apply Filter** to find tickets to be added to a project.
Tickets can be viewed in more detail by clicking the individual ticket IDs of a ticket.
To add a ticket to the project click the check box in the **Add** column for each ticket to be added and click **Submit Form**.



To remove tickets from a project, check the box in the remove column next to the ticket(s) to be removed and click **Submit Form**.

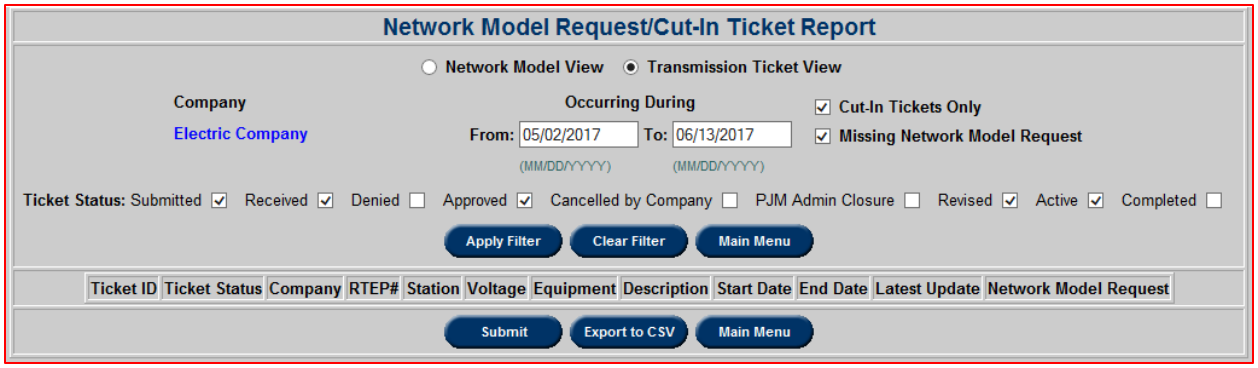


Network Model Link

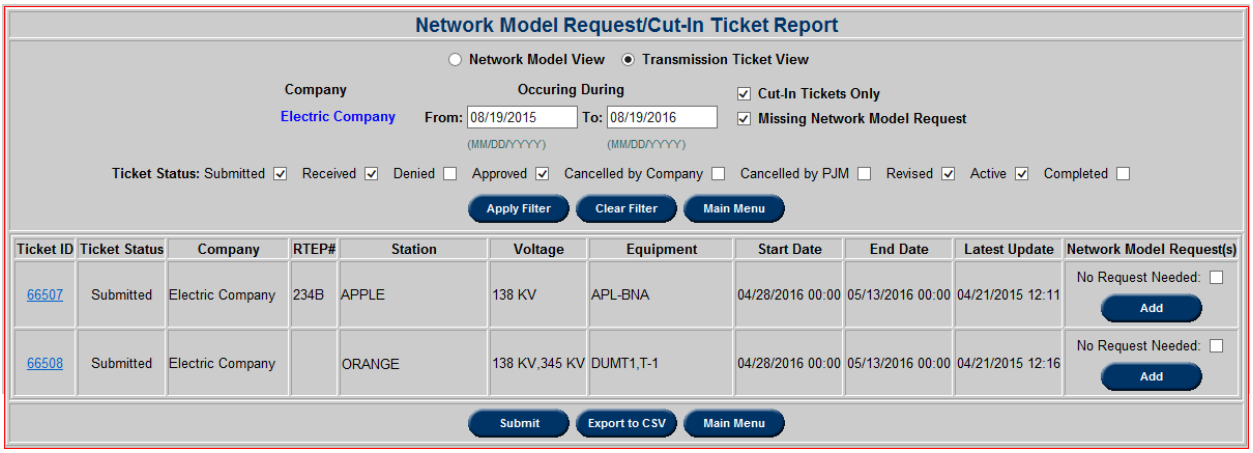


Network Model Link functionality allows PJM and TOs to link Network Model Requests and Transmission Outage Tickets. This is primarily for Cut-In tickets; however, any Transmission Outage Ticket may be linked as well.
This facilitates conversation between modelers, outage schedulers & dispatch staff.
This functionality is also available from the **Network Model Main Menu** – **Cut-In Ticket Link** button.

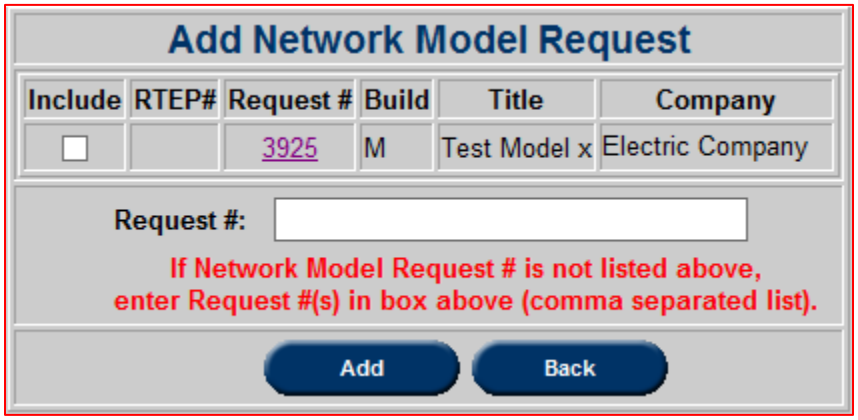
Click on **Network Model Link** to open the **Network Model Request/Cut-In Ticket Report**. By default, the Transmission Ticket View is displayed and the filters are set to return Cut-In Tickets that are not currently linked to a Network Model Request.



Use the filters to search for desired Transmission Outage Tickets and click **Apply Filter**.

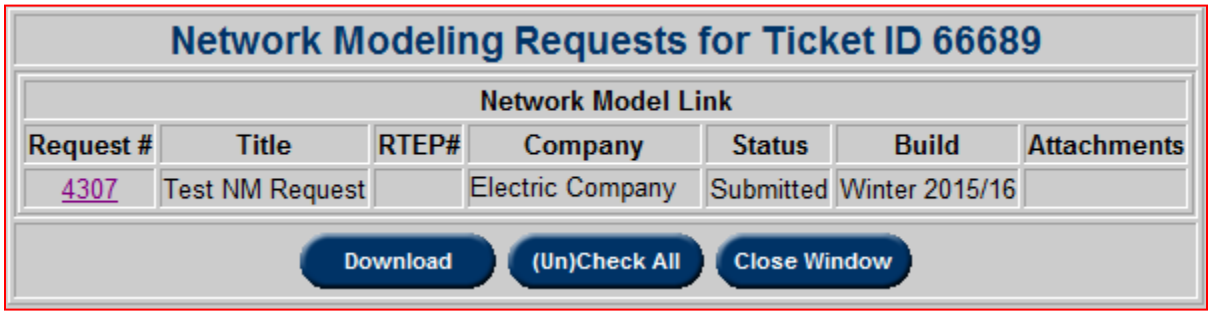


Check the **No Request Needed** box to indicate that the ticket is not related to any model change requests.
Click **Add** to link a ticket to a model change request.
The **Add Network Model Request** form displays requests for model builds within one year before outage ticket start date and one year past the ticket end date that include any of the stations in the outage tickets. If the desired model change request is not listed, add other model requests by typing in the Request ID. Enter comma separated list to link multiple requests at one time.



Linked modeling request information can be viewed from the transmission ticket via the **Modeling Requests** button.

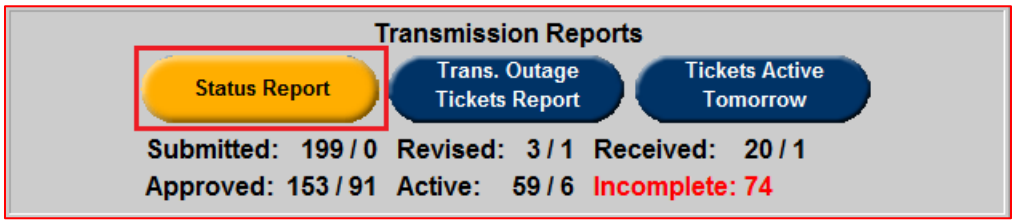
Note that Cut-In outage tickets cannot be Approved or Activated if no model request linked or ticket not identified as not needing one.



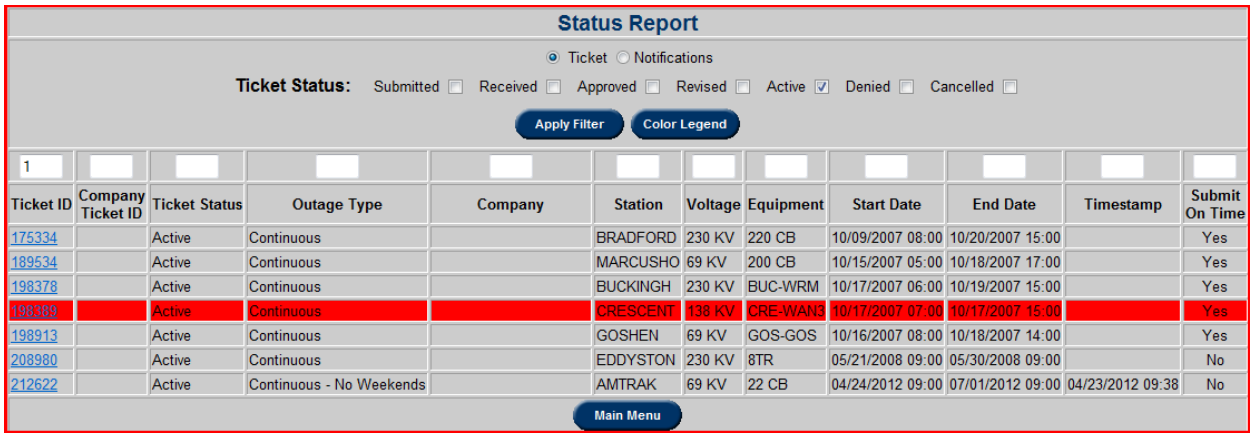
Transmission Reports

Status Report

To open the **Status Report**, click the **Status Report** button in the **Transmission Outage Main Menu** under the section **Transmission Reports**.



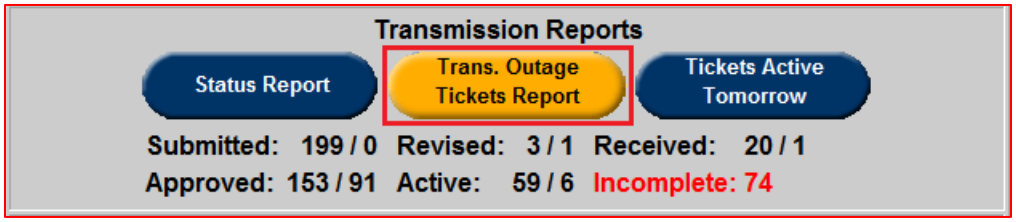
The default setting in **Status Report** produces a report on currently active tickets. Filtering can be used to produce reports for tickets or notifications with other statuses. Additionally, sorting can be used to select criteria to sort the report results by.



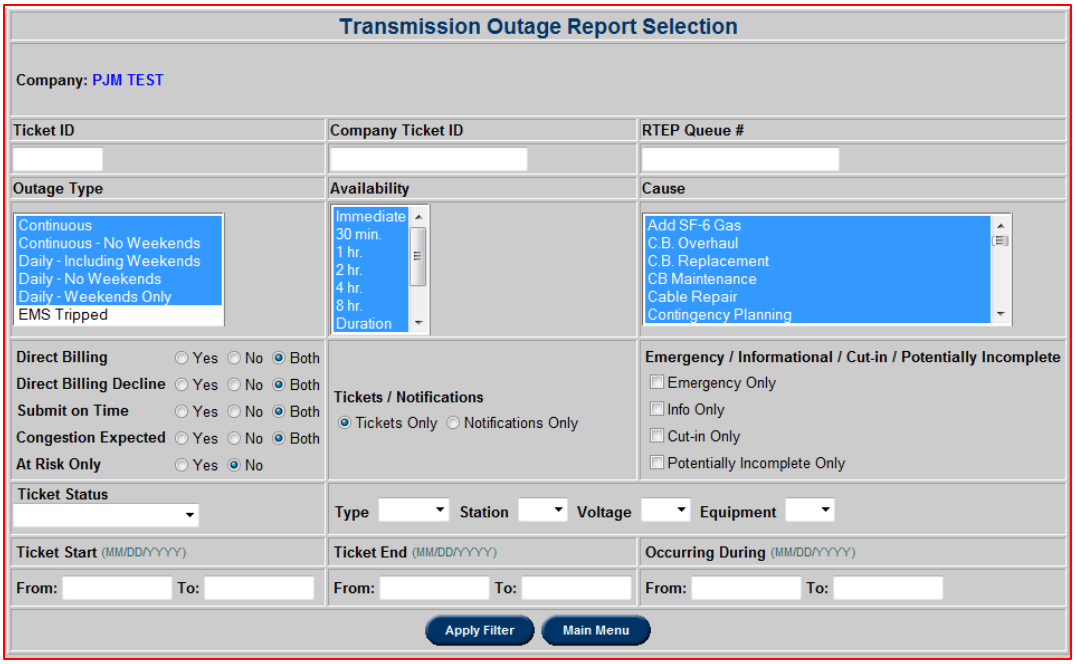
Select a particular **Ticket ID** to view more information on the outage ticket. Status reports can also be filtered to display **Notifications** instead of tickets. It is a list of outage tickets for equipment for which the TO has been granted notification access.

Transmission Outage Tickets Report

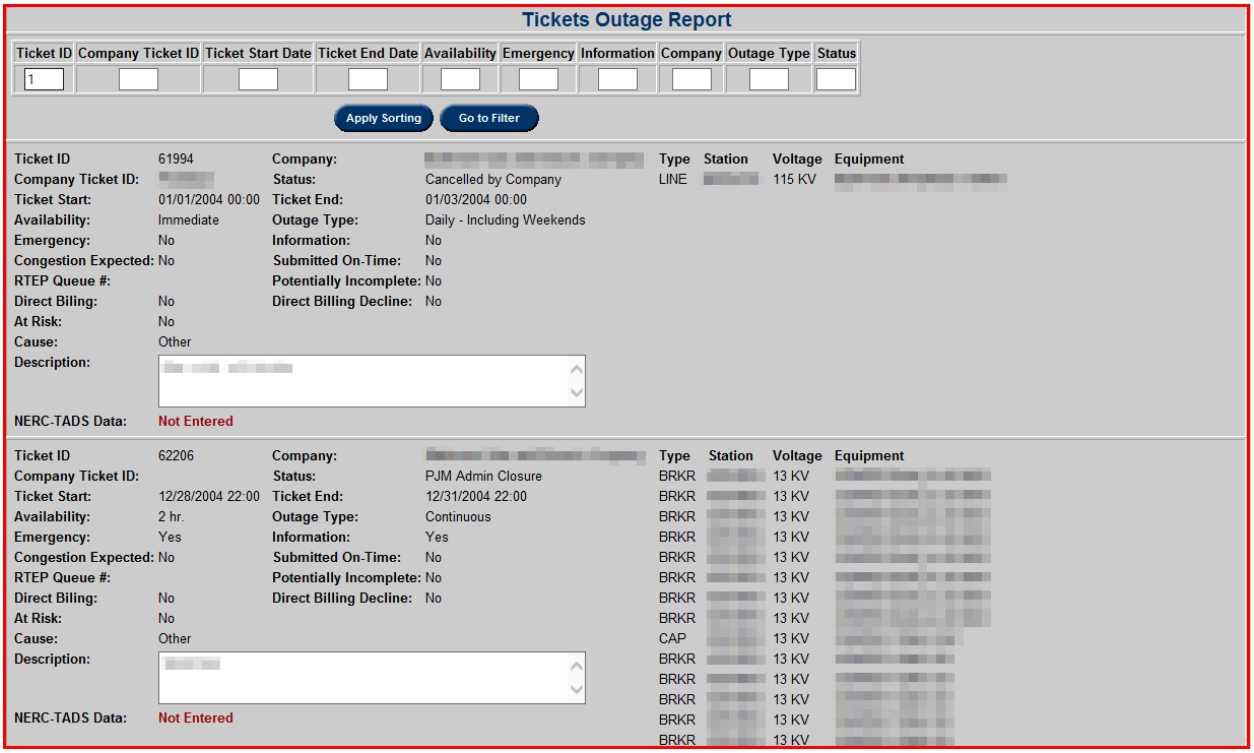
To access the **Transmission Outage Ticket Report**, click the **Trans. Outage Tickets Report** button in the **Transmission Outage Main Menu** under the section **Transmission Reports**.



On the Transmission Outage Report Selection form, filter outage tickets based on relevant criteria. After selecting the desired criteria, click on the **Apply Filter** button to create a filtered report of tickets.

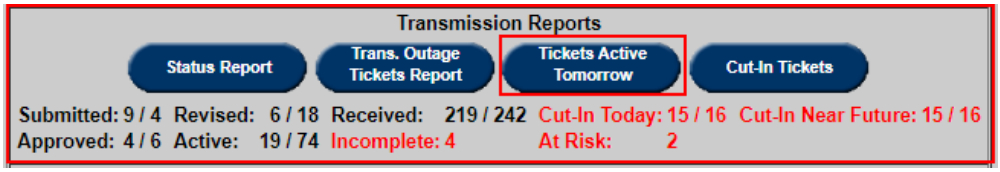


The resulting report is a detailed view of information in the tickets or notifications.

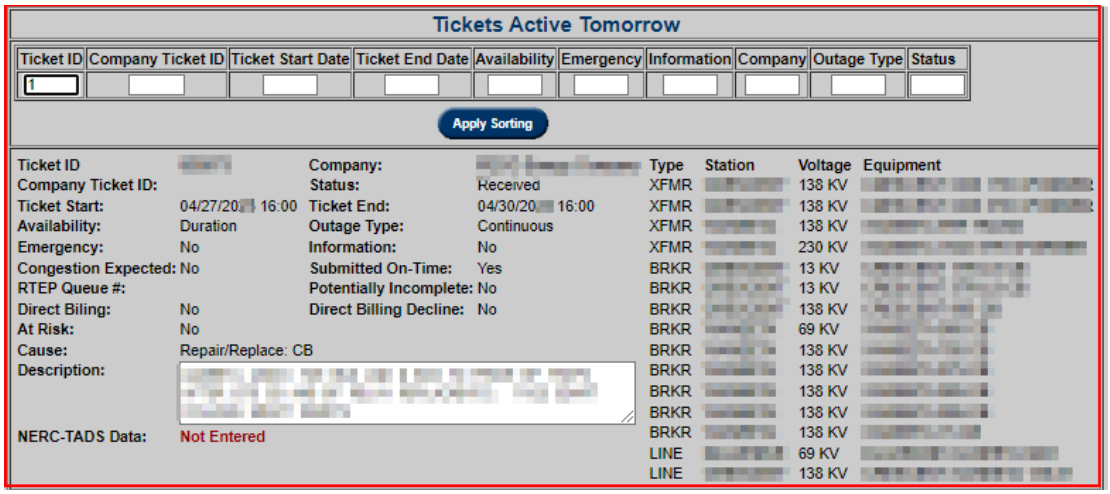


Tickets Active Tomorrow

To open the **Tickets Active Tomorrow** report, click the **Tickets Active Tomorrow** button in the **Transmission Outage Main Menu** under the section **Transmission Reports**.



This report includes outages that are beginning tomorrow, started earlier but are ongoing as of tomorrow, and ongoing but scheduled to end tomorrow.



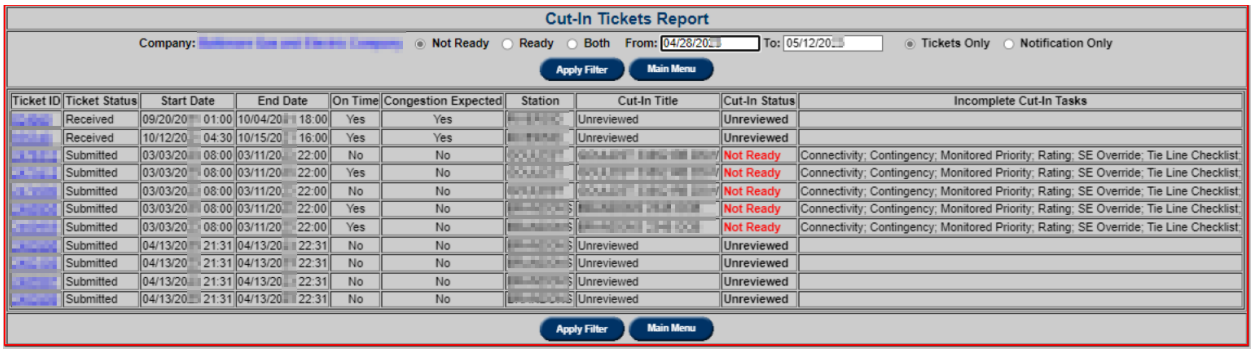
Conflicts

Outage conflict scenarios have been created to flag outages that when scheduled together, have historically caused unreliable transmission issues. Through this functionality, facilities which potentially should not be outaged at the same time can be flagged for review. There are three types of scenarios:

- **Group Scenario Conflicts**: These are conflicts where only a certain number of facilities in a group (e.g. 1 of 2; or 2 of 3 lines) can be out together.
- **Facility Scenario Conflicts**: These are conflicts where several pieces of equipment (secondary) including generator units cannot be out of service together with one specific piece of equipment (primary).
- **Gen Off Scenario List**: These are conflicts where transmission outages would result in the need for generators to be offline. Once these facilities and units are identified, scenarios are created in eDART. As new transmission tickets are submitted, eDART will check the facilities on the ticket to see if they are part of a conflict scenario. It will then check for any conflicting tickets occurring at the same time. If there are, it will flag the outages as in conflict.

Cut-In Tickets

Cut-In tickets report returns a list of Cut-In tickets for next 14 days by default.
Other filters and date range can be adjusted.

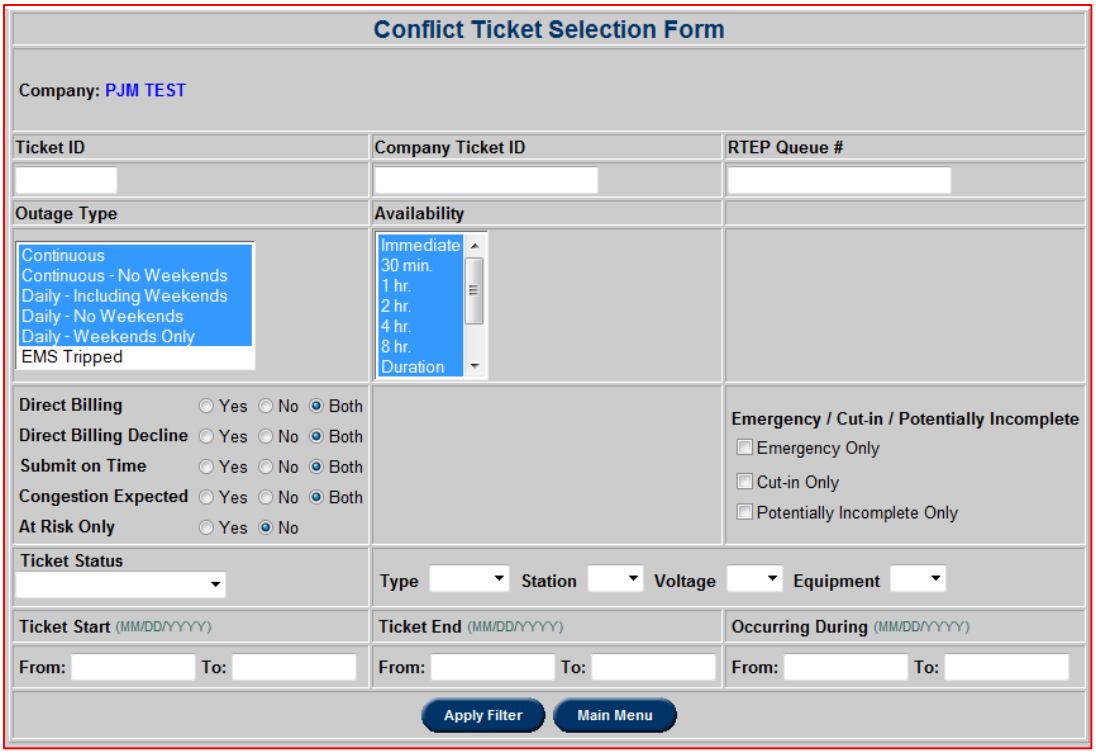


Conflicts

Conflicting Outages

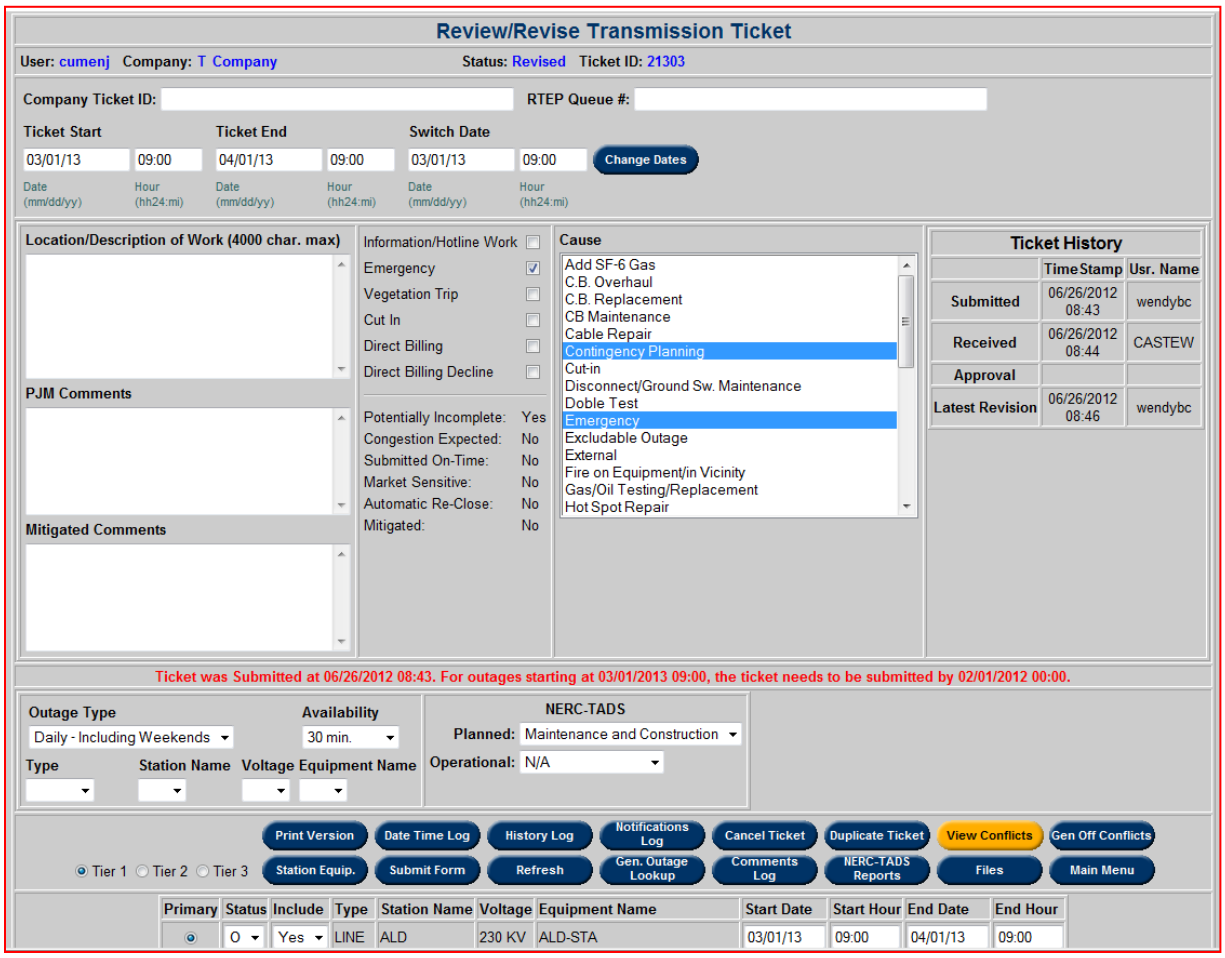
Under the Conflicts section on the Transmission Outage Main Menu, click on the **Conflicting Outages** button to search for conflicts.

Users can use filtering criteria to view specific tickets, or a list of tickets that are in conflict with one another. Ticket conflicts are displayed per scenario.

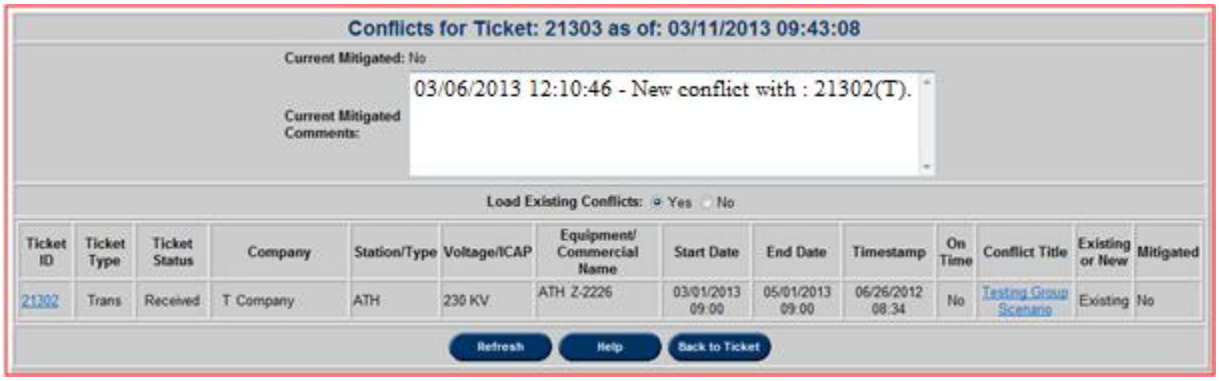


Select/enter the desired criteria and click **Apply Filter** to view the **Conflicting Outages Report**.

When one of the tickets from the filter is selected, the **View Conflicts** button is highlighted to denote that it is in a Group or Facility Conflict with another ticket(s). The **Gen Off Conflicts** button is highlighted to denote that it has a Gen Off Conflict.



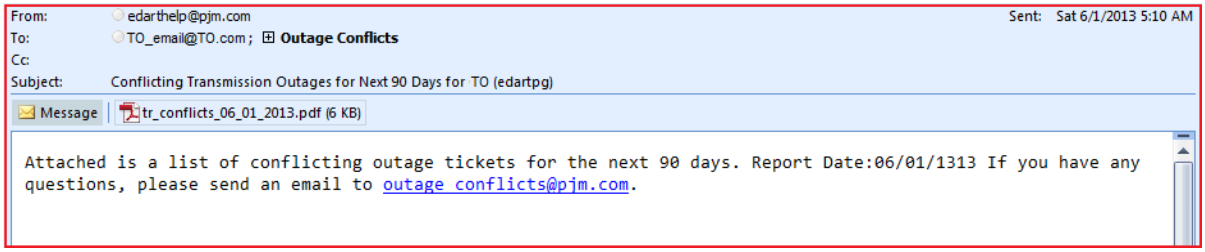
Select **View Conflicts** to see the ticket(s) which the chosen one is in conflict with. The following image is an example of results.



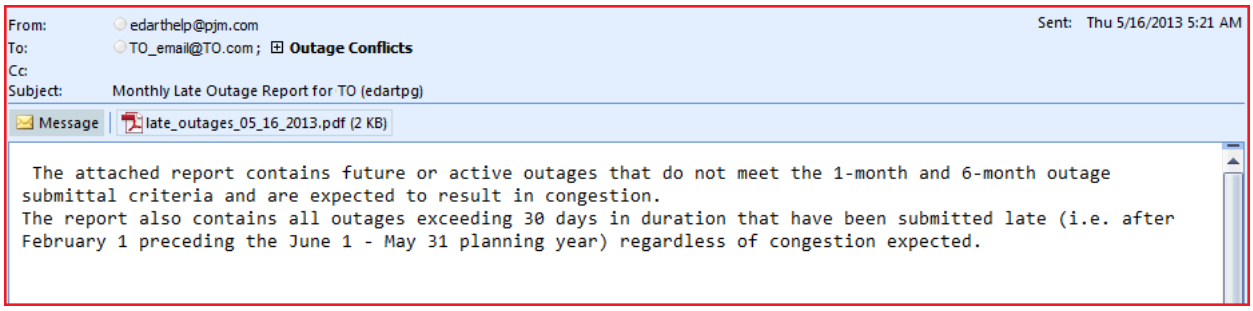
Current Mitigated: indicates if existing conflicts have been resolved or not. If N/A, ticket does not have any conflicts. **Mitigated** reset to 'No' if Date and/or Equipment information change in ticket or in any conflicting tickets.
Current Mitigated Comments: eDART logs new conflicts as conflict analysis is performed. Comments on conflict resolution can also be entered in this field.
Load Existing Conflicts: select 'No' to view New Conflicts that may be present if equipment or outage date changes are made to the ticket.

Note: *TOs can only view generator outage information for units of which their company can view outage data. "****Contact PJM for more info.****" displayed if TO does not have permission to view unit outage information.*

An email is sent from eDART to each TO on the 1st of every month letting them know what conflicts they have in eDART. That email is also sent to the PJM Outage Conflict group email address – outage_conflicts@pjm.com. The attachment is password protected. For issues with the password, users can contact the PJM Outage Conflict group.



Another email is sent from eDART to each TO on the 16th of every month showing the TO's late outages which start from the first day of the following month and are either greater than 30 days in duration OR less than 30 days in duration and flagged as Congestion Expected.
That email is also sent to the PJM Outage Conflict group email address – outage_conflicts@pjm.com. The attachment is password protected.
For issues with the password, users can contact the PJM Outage Conflict group.

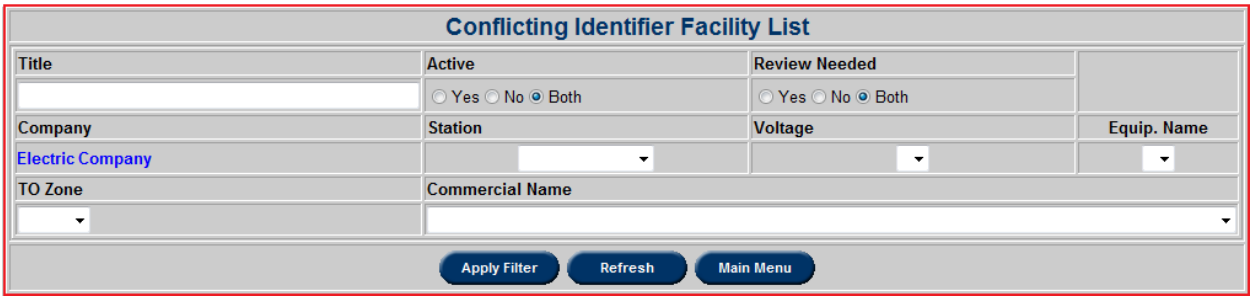


Conflicting Identifier Facility List

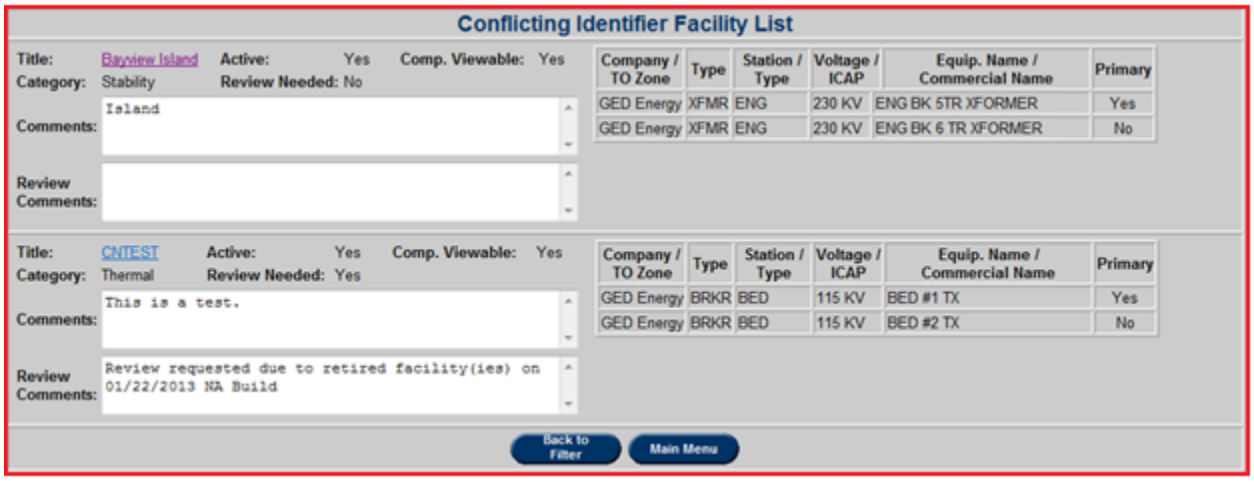
Facility Scenarios have a primary facility and a list of other associated facilities. If an outage

exists on the primary facility, associated facilities cannot have an outage simultaneously. To view the list of conflicting facilities, click on the **Confl. Identifier Facility List** button.

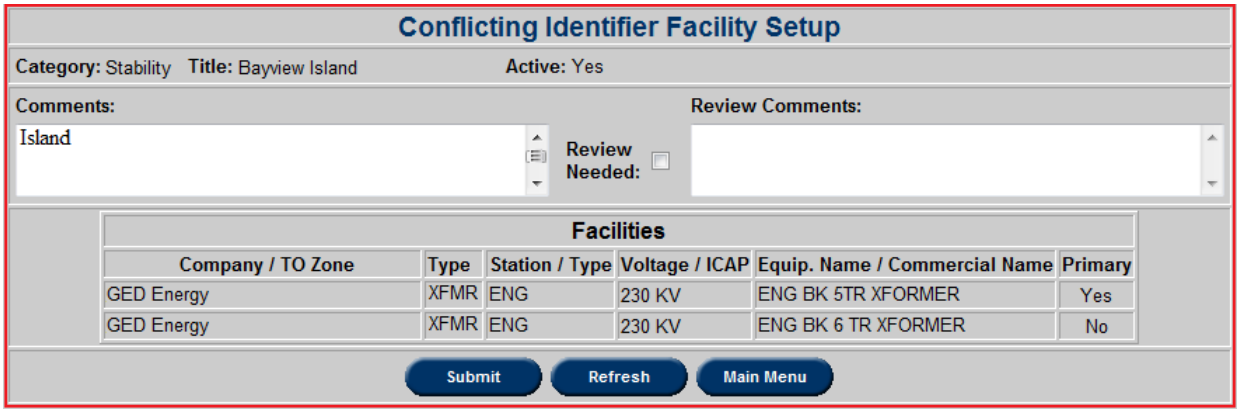
This will take the user to a filter page where specific conflicting facilities can be searched for.



After selecting any desired criteria, click the **Apply Filter** button to produce a report.



Select a specific scenario **Title** to view more information.



The **Review Needed** checkbox should only be checked after a member company or PJM has studied the scenario and believes there is an issue. Enter **Review Comments** stating what changes may be needed.

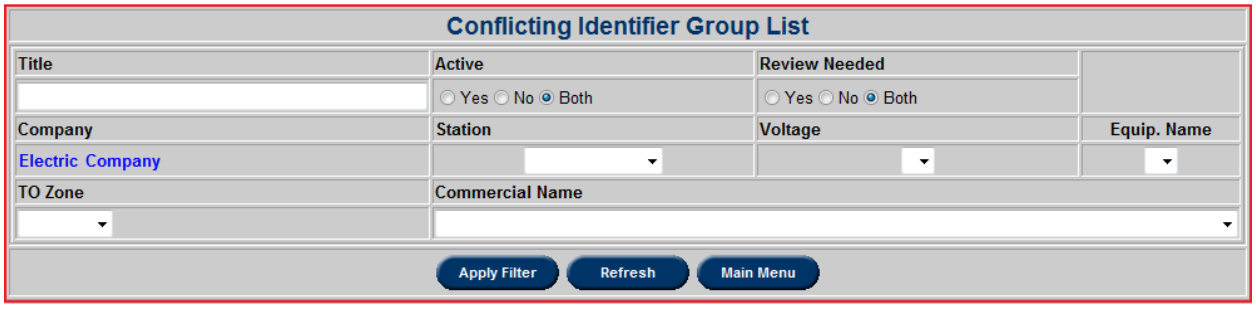
If during PJM's 1-month and 6-month outage studies, it is discovered that two tickets are in conflict with one another but after performing the study there does not seem to be an issue, such a scenario needs to be examined further and the Needs Review checkbox is checked. PJM does quarterly reviews of scenarios in greater detail. During that time, a scenario that needs review is looked at by PJM and is either edited or deactivated.

If a modification is made to a scenario (i.e. if the box is checked or additional comments are made), an email is sent to outage_conflicts@pjm.com stating such. Additionally, an alert (increase in Review Needed count) appears in eDART showing that there is a scenario that needs review as seen in the image below.

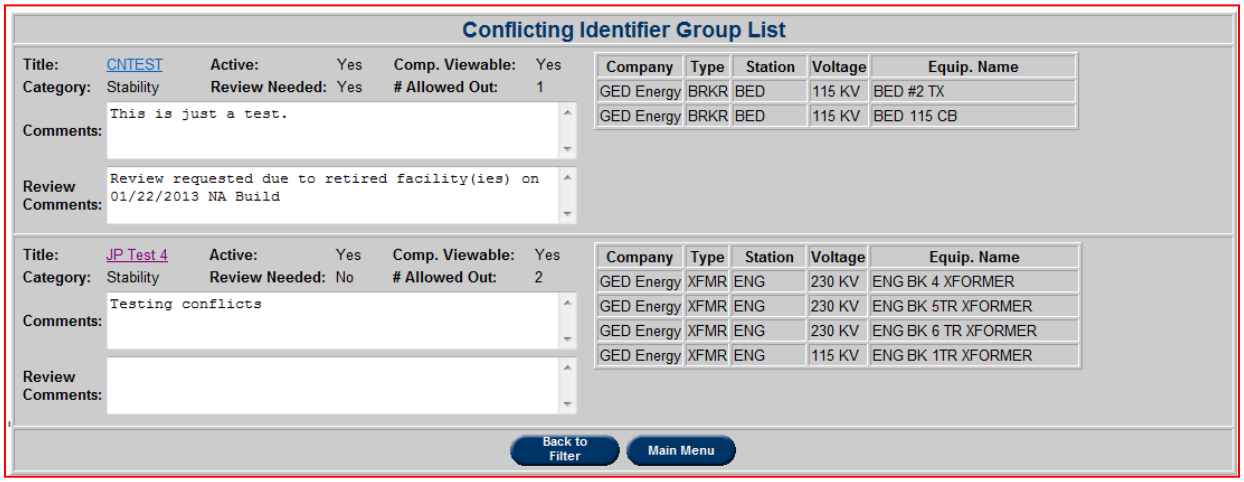
Conflicting Identifier Group List

Group Scenarios contain a list of facilities, along with a number representing the amount of facilities in the group that can be outaged simultaneously. To view the list of conflicting groups, click on the **Confl Identifier Group List** button.

This will take the user to a filter page where specific conflicting groups can be searched for.



After selecting any desired criteria, click the **Apply Filter** button to produce a report.



Select a specific scenario **Title** to view more information.

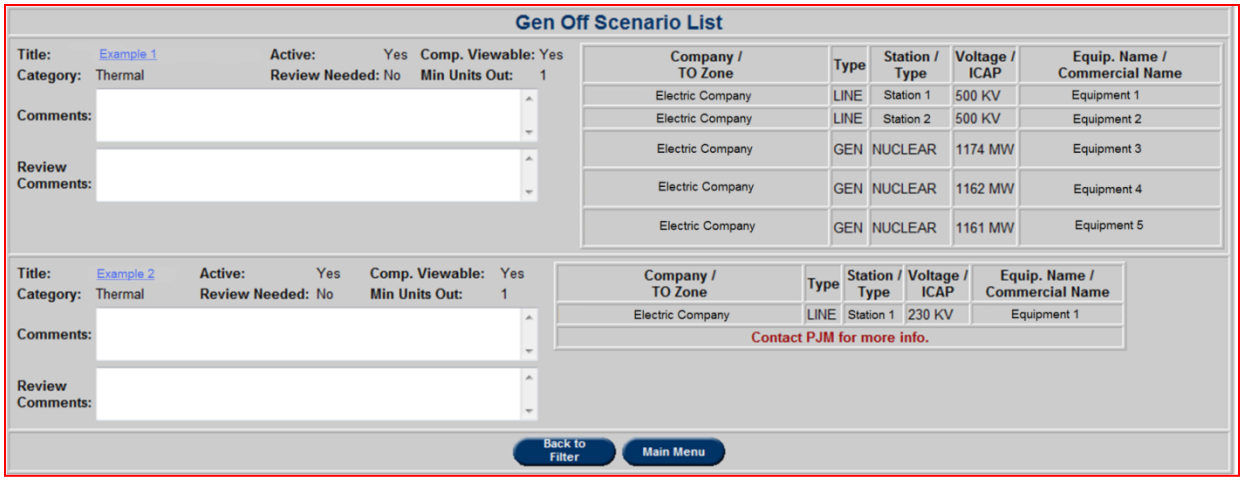
The **Review Needed** checkbox should only be checked after a member company or PJM has studied the scenario and believes there is an issue. Enter **Review Comments** stating what changes may be needed. If a modification is made to a scenario (i.e. if the box is checked or additional comments are made), an email is sent to outage_conflicts@pjm.com stating such.

Gen Off Scenario List

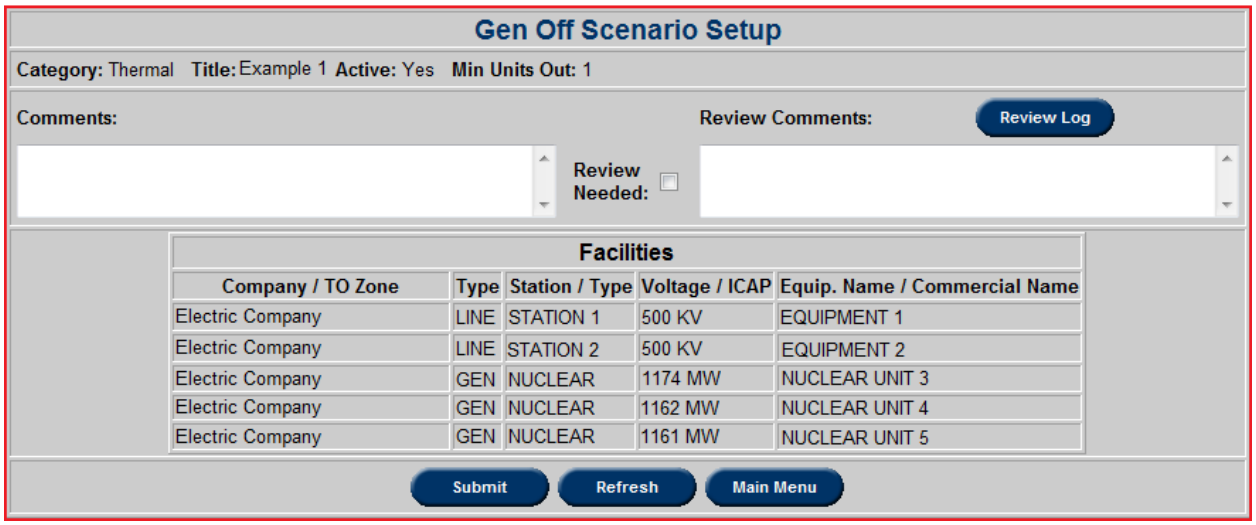
Gen Off scenarios identify the minimum number of units (Min Units Out) from a group of units that must be outaged given the outage of an individual transmission facility. To view the list of conflicting groups, click on the **Gen Off Scenario List** button.

This will take the user to a filter page where specific offline generators can be searched for.

After selecting any desired criteria, click the **Apply Filter** button to produce a report.



Select a specific scenario **Title** to view more information.



The **Review Needed** checkbox should only be checked after a member company or PJM has studied the scenario and believes there is an issue. Enter **Review Comments** stating what changes may be needed. If a modification is made to a scenario (i.e. if the box is checked or additional comments are made), an email is sent to outage_conflicts@pjm.com stating such.

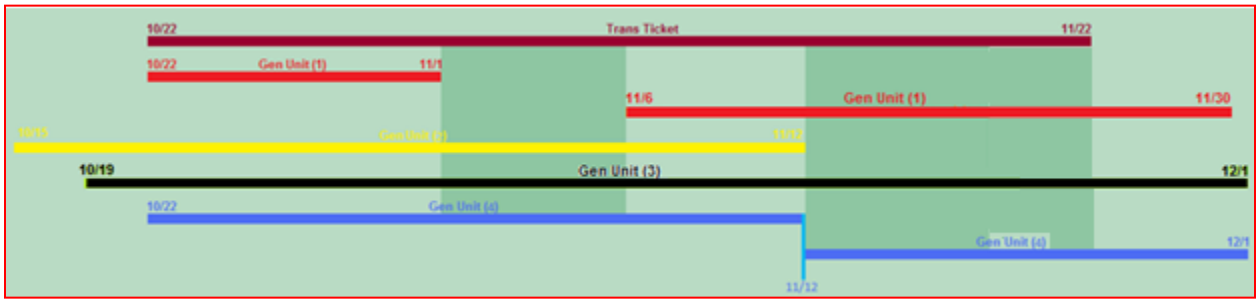
Review Log: History Log of **Review Needed** value and **Review Comments**. **Review Log** button only visible if **Review Needed** value or **Review Comments** have been changed since creation of the scenario.

Conflicting Review Comments Log

Timestamp	Company	User	Review Needed	Review Comments
05/28/2013 13:03	Energy	choprs	Yes	Testing
05/28/2013 10:22	Energy	choprs	No	

Refresh | Close Window

Example



Given:
Min units out = 4
Units in scenario = Gen Units 1-4
All unit outages are full outages.
Transmission ticket duration: 10/22-11/22
Results:
Actual Units Out = 2
Units 1 & 2 not out entire trans ticket length
Potential Gaps = 11/2-11/5 & 11/13-11/22

Gen Off Conflicts for Ticket: 505612 as of: 04/08/2012 10:28:12

Current Mitigated: No

Current Mitigated Comments:

Load Existing Conflicts: (•) Yes ( ) No

Scenario Conflict: Gen Units **Min Units Out:** 4 **Interval Start:** 10/22/2012 08:00 **Interval End:** 11/22/2012 17:00

Comments:

Generator MW Outages

Ticket	Commercial Name	Reduction	Start Date	End Date	Status
34721	URP-GEN01	1300 MW	10/22/2012 00:00	11/01/2012 23:59	Approved
65433	URP-GEN01	1300 MW	11/06/2012 00:00	11/30/2012 23:59	Approved
98523	URP-GEN02	1320 MW	10/15/2012 00:00	11/12/2012 23:59	Approved
28503	URP-GEN03	1300 MW	10/19/2012 00:00	12/01/2012 23:59	Approved
18465	URP-GEN04	1320 MW	10/22/2012 00:00	11/12/2012 23:59	Approved
18466	URP-GEN04	1320 MW	11/12/2012 00:00	12/01/2012 23:59	Approved

Generators

Zone	Type	ICAP	Commercial Name
URP	Steam/Fossil	1300 MW	URP-GEN01
URP	Steam/Fossil	1320 MW	URP-GEN02
URP	Steam/Fossil	1300 MW	URP-GEN03
URP	Steam/Fossil	1320 MW	URP-GEN04
URP	Steam/Fossil	1320 MW	URP-GEN05

Potential Gaps

Start Date	End Date	Act. Units Out
11/02/2012 00:00	11/05/2012 23:59	3
11/13/2012 00:00	11/22/2012 17:00	3

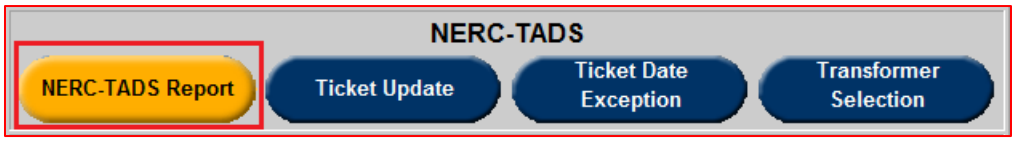
Refresh Help Back to Ticket

NERC-TADS

NERC (North American Electric Reliability Corporation) requires that TOs submit TADS (Transmission Availability Data System) data beginning in January, 2010. eDART has an optional NERC-TADS functionality for TOs to gather TADS data for submission to NERC. NERC also requires TADS reporting for Auto Re-Close tickets, which are user entered EMS Trip tickets for outages lasting less than 10 minutes.
Note: *This functionality is not available to all users/members. TOs can opt to be designated as NERC TADS Optional (TADS data does not need to be entered in eDART) or NERC TADS Required (TADS data needs to be entered in eDART). To opt in as either of these roles please contact eDARThelp@pjm.com.*

NERC-TADS Report

This displays the TADS data entered on outage tickets for the selected date range. This information can be downloaded, saved and uploaded to the NERC website. Click on the **NERC-TADS Report** Button from the Transmission Outage Main Menu to access the reports.



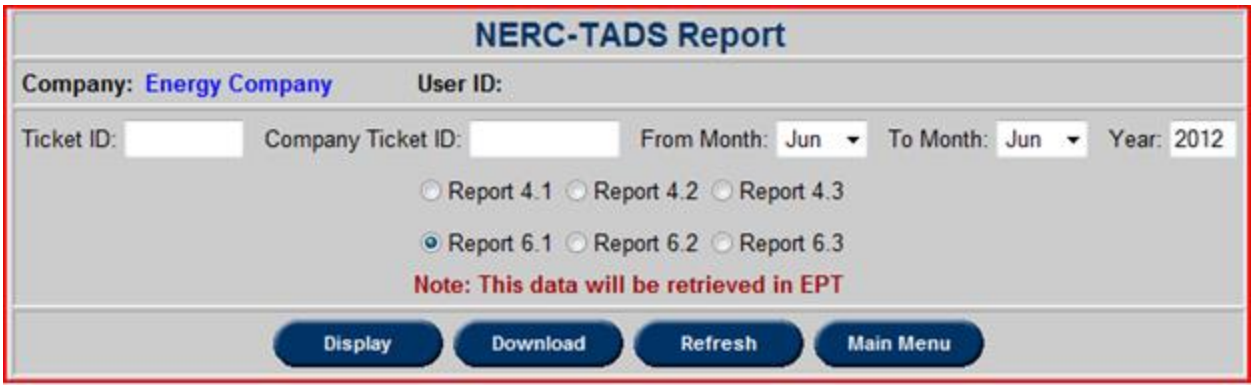
Report can also be displayed for entered Ticket ID.

Reports 4.1, 4.2 and 4.3 are reports for auto-reclose outages.

- **Report 4.1:** AC Line Auto-Reclose Outages of 200kv+.
- **Report 4.2:** DC Line Auto-Reclose Outages 200kv+.
- **Report 4.3:** Transformer auto-reclose outages for high side 200kv+.

Reports 6.1, 6.2 and 6.3 are reports for non-automatic outages.

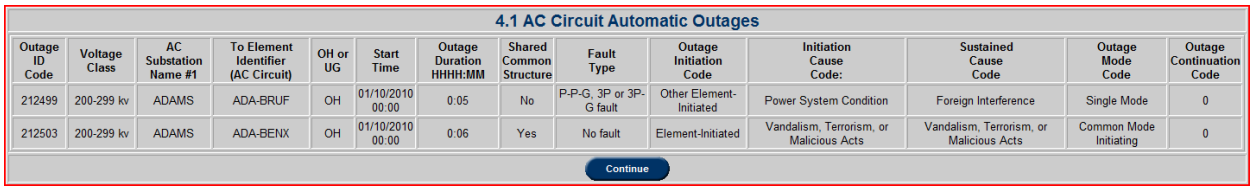
- **Report 6.1:** AC Line Outages 200kv+ Excluding EMS Trip Tickets.
- **Report 6.2:** DC Line Outages 200kv+ Excluding EMS Trip Tickets.
- **Report 6.3:** Transformer Outages for High Side 200kv+ Excluding EMS Trip tickets.



Tickets can be filtered by **Ticket ID** or date range.

- **Display:** Show the **NERC-TADS Report** on the screen.
- **Download:** The report can be saved on a hard drive in Extensible Markup Language (XML) format. The user can log in to the NERC TADS website to post the saved files.

Report 4.1: AC Circuit Automatic Outages



4.1 AC Circuit Automatic Outages

Outage ID Code	Voltage Class	AC Substation Name #1	To Element Identifier (AC Circuit)	OH or UG	Start Time	Outage Duration HHHH:MM	Shared Common Structure	Fault Type	Outage Initiation Code	Initiation Cause Code:	Sustained Cause Code	Outage Mode Code	Outage Continuation Code
212499	200-299 kv	ADAMS	ADA-BRUF	OH	01/10/2010 00:00	0:05	No	P-P-G, 3P or 3P-G fault	Other Element-Initiated	Power System Condition	Foreign Interference	Single Mode	0
212503	200-299 kv	ADAMS	ADA-BENX	OH	01/10/2010 00:00	0:06	Yes	No fault	Element-Initiated	Vandalism, Terrorism, or Malicious Acts	Vandalism, Terrorism, or Malicious Acts	Common Mode Initiating	0

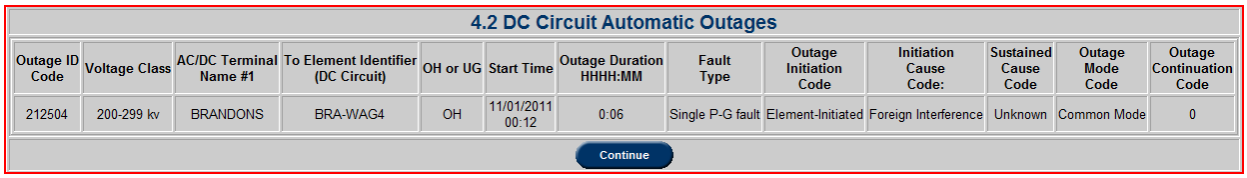
Continue

Fields include:

- **Outage ID Code:** The eDART Ticket number.
- **Voltage Class:** The voltage range of the outaged equipment.
- **AC Substation Name #1:** The eDART Station Name.
- **To Element Identifier (AC Circuit):** The eDART Equipment Name for AC line.
- **OH or UG:** Whether Overhead (DC Circuit that is not an underground circuit) or Underground (DC Circuit that is either below ground or below water).
- **Start Time:** The date and time that the outage started. It is a combination of Active Log and Equipment Start Date/Time.
- **Outage Duration:** The duration of an outage calculated as Active Log/Equipment End Date – Active Log/Equipment Start Date.
- **Shared Common Structure:** Does this substation share a structure with another substation, “Yes” or “No?”
- **Fault Type:** Describes the fault, if any. An Element Outage can have “No Fault,” ‘Phase-to-Phase (P-P),” “Single phase-to-ground (P-G),” “phase-to-phase-to-ground (P-P-G),” “3P,” “3P-G,” or “unknown.”
- **Initiation Cause Code:** This field describes where an Automatic Outage was initiated on the power system.

- **Sustained Cause Code:** This field contains the Automatic Outage Cause Code that describes the cause that contributed to the longest duration of the outage.
- **Outage Mode Code:** This field describes whether an Automatic Outage is related to other Automatic Outages.
- **Outage Continuation Code:**
    - If **"0":** outage begins and ends within reporting year.
    - If **"1":** outage begins in reporting year but continues into next reporting year.
    - If **"2":** outage started in a previous year.

Report 4.2: DC Circuit Automatic Outages



4.2 DC Circuit Automatic Outages

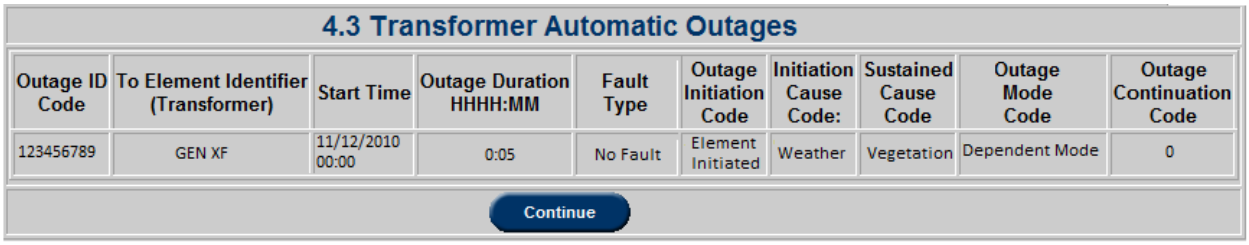
Outage ID Code	Voltage Class	AC/DC Terminal Name #1	To Element Identifier (DC Circuit)	OH or UG	Start Time	Outage Duration HHHH:MM	Fault Type	Outage Initiation Code	Initiation Cause Code:	Sustained Cause Code	Outage Mode Code	Outage Continuation Code
212504	200-299 kv	BRANDONS	BRA-WAG4	OH	11/01/2011 00:12	0:06	Single P-G fault	Element-Initiated	Foreign Interference	Unknown	Common Mode	0

Continue

Report 4.2 Specific Fields:

- **AC/DC Terminal Name #1**: The eDART DC Station Name.
- **To Element Identifier (DC Circuit)**: The eDART Equipment Name for DC line.

Report 4.3: Transformer Automatic Outages



4.3 Transformer Automatic Outages

Outage ID Code	To Element Identifier (Transformer)	Start Time	Outage Duration HHHH:MM	Fault Type	Outage Initiation Code	Initiation Cause Code:	Sustained Cause Code	Outage Mode Code	Outage Continuation Code
123456789	GEN XF	11/12/2010 00:00	0:05	No Fault	Element Initiated	Weather	Vegetation	Dependent Mode	0

Continue

Report 4.3 Specific Fields:

- **High-Side Voltage Class:** For Transformers, the **Voltage Class** reported will be the high-side voltage, even thought the cut-off voltage used in the definition is referenced on the low-side.

Report 6.1: AC Circuit Non-Automatic Outages

6.1 AC Circuit Non-Automatic Outages

Outage ID Code	To Element Identifier (AC Circuit)	Non-Automatic Outage Type	Start Time	Outage Duration HHHH:MM	Planned Outage Cause Code	Operational Outage Cause Code	Outage Continuation Code
208218	TEST		01/01/2017 00:00	391:00			2

Continue

Report 6.1 Specific Fields:

- **Non-Automatic Outage Type:** Whether "Operational" (Non-Automatic Outage for the purpose of avoiding an emergency or to maintain the system within operational limits and that cannot be deferred) or "Planned" (Non-Automatic Outage with advance notice).
- **Planned Outage Cause Code:** One of the following: "Maintenance and Construction," "Third-Party Requests" or "Other Planned Outages."
- **Operational Outage Cause Code:** One of the following: "Emergency," "System Voltage," "System Operation" or "Other."

Report 6.2: DC Circuit Non-Automatic Outages

6.2 DC Circuit Non-Automatic Outages

Outage ID Code	To Element Identifier (DC Circuit)	Non-Automatic Outage Type	Start Time	Outage Duration HHHH:MM	Planned Outage Cause Code	Operational Outage Cause Code	Outage Continuation Code
123456789	TEST-TEST1	Planned	11/12/2016 00:00	96:00	Other Planned Outage	N/A	0

Continue

Report 6.3: Transformer Non-Automatic Outages

6.3 Transformer Non-Automatic Outages

Outage ID Code	High-Side Voltage Class	Located at (AC Sub. Name)	To Element Identifier (Transformer)	Non-Automatic Outage Type	Start Time	Outage Duration HHHH:MM	Planned Outage Cause Code	Operational Outage Cause Code	Outage Continuation Code
172214	400-599 kv	WHITPAIN	WHT 1TR		01/01/2007 23:07	7:11			0
174281	400-599 kv	WHITPAIN	WHT 1TR		02/01/2007 16:14	7999:45			0
162133	400-599 kv	WHITPAIN	WHT 1TR		04/07/2007 03:44	518:15			0

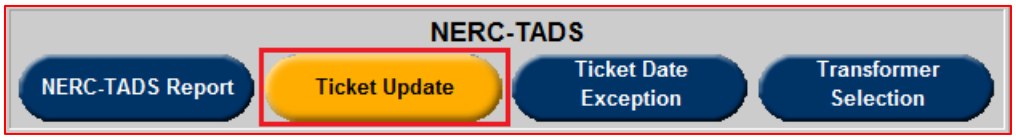
Continue

Report 6.3 Specific Fields:

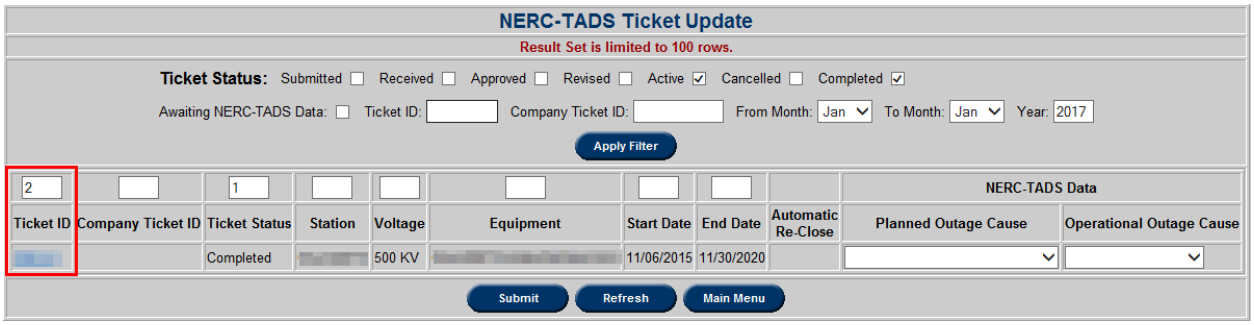
- **Located at (AC Sub. Name)**: the eDART Station Name.

Ticket Update

If a TO is designated as NERC TADS optional, a company user can either enter/update TADS information when creating a ticket or revise a locked ticket by using the **NERC-TADS Ticket Update** form which can be accessed from the Ticket Update button.

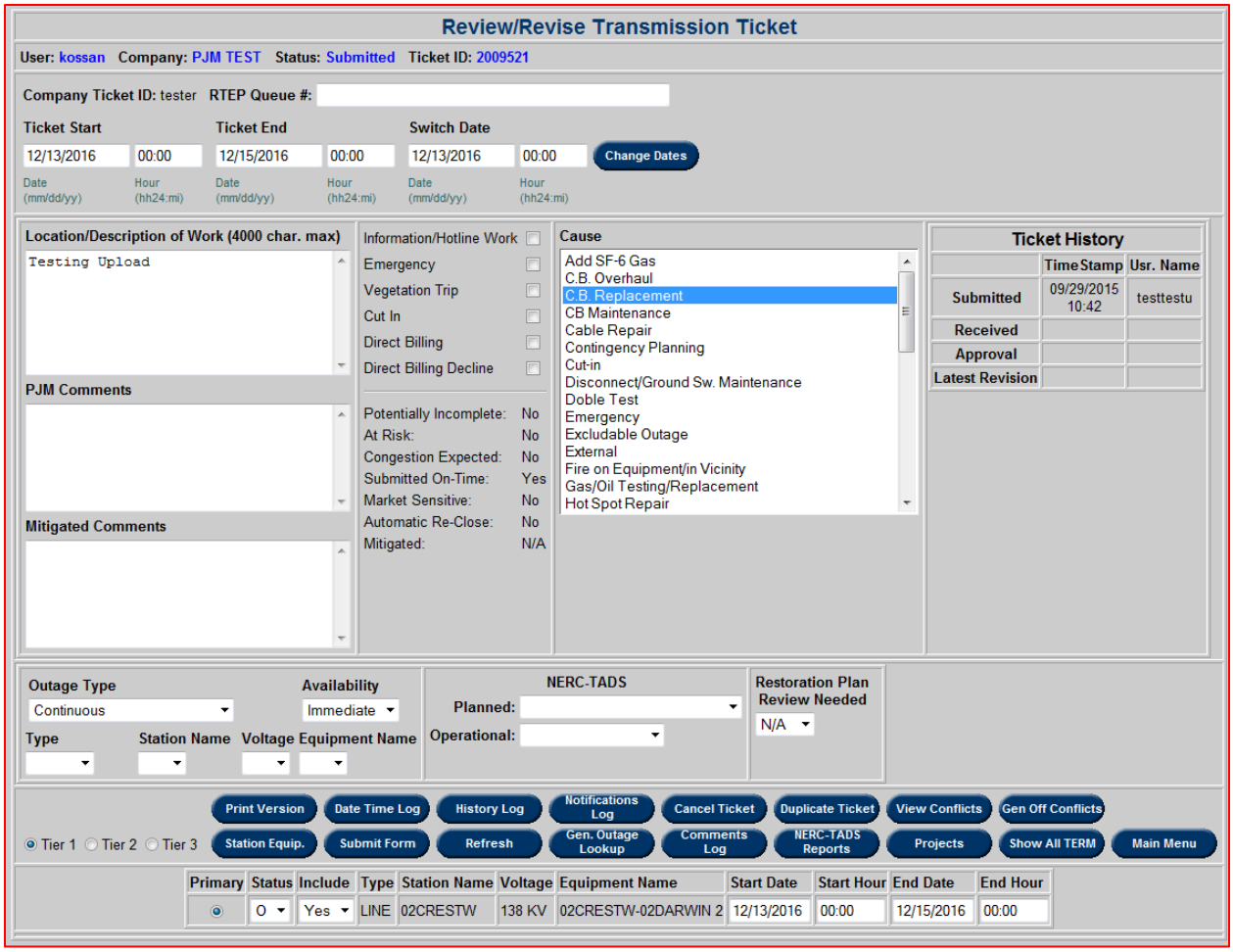


The **NERC-TADS Ticket Update** can be used whether the ticket is locked or not. For the **NERC-TADS Ticket Update** page, filtering is available by **Ticket Status**, **Ticket ID/Company ID** and date range.



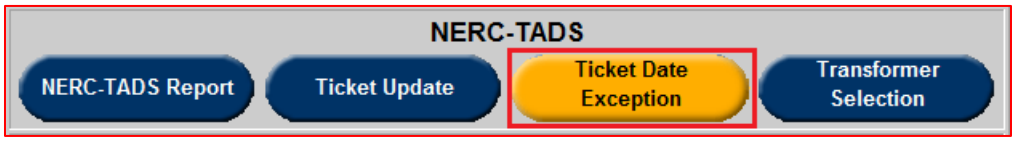
The update can be submitted from the filtering page, or by selecting a specific Ticket ID and updating that ticket.

- **Planned Outage Cause:** One of the following: "N/A," "Third Party Request," "Other Planned Outage," or "Maintenance and Construction."
- **Operational Outage Cause:** One of the following: "N/A," "System Voltage," "System Operation," "Other," and "Emergency."

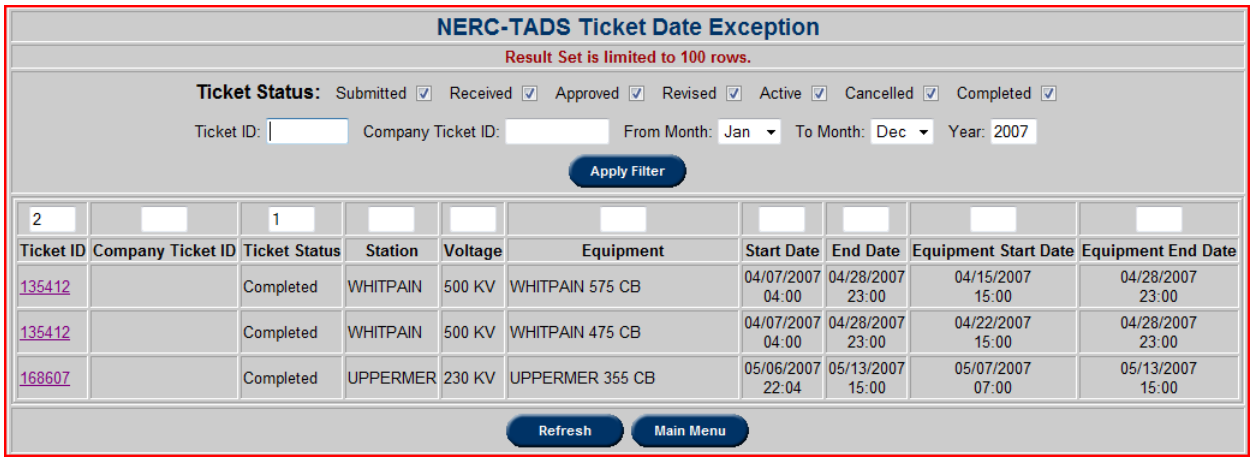


Ticket Date Exception

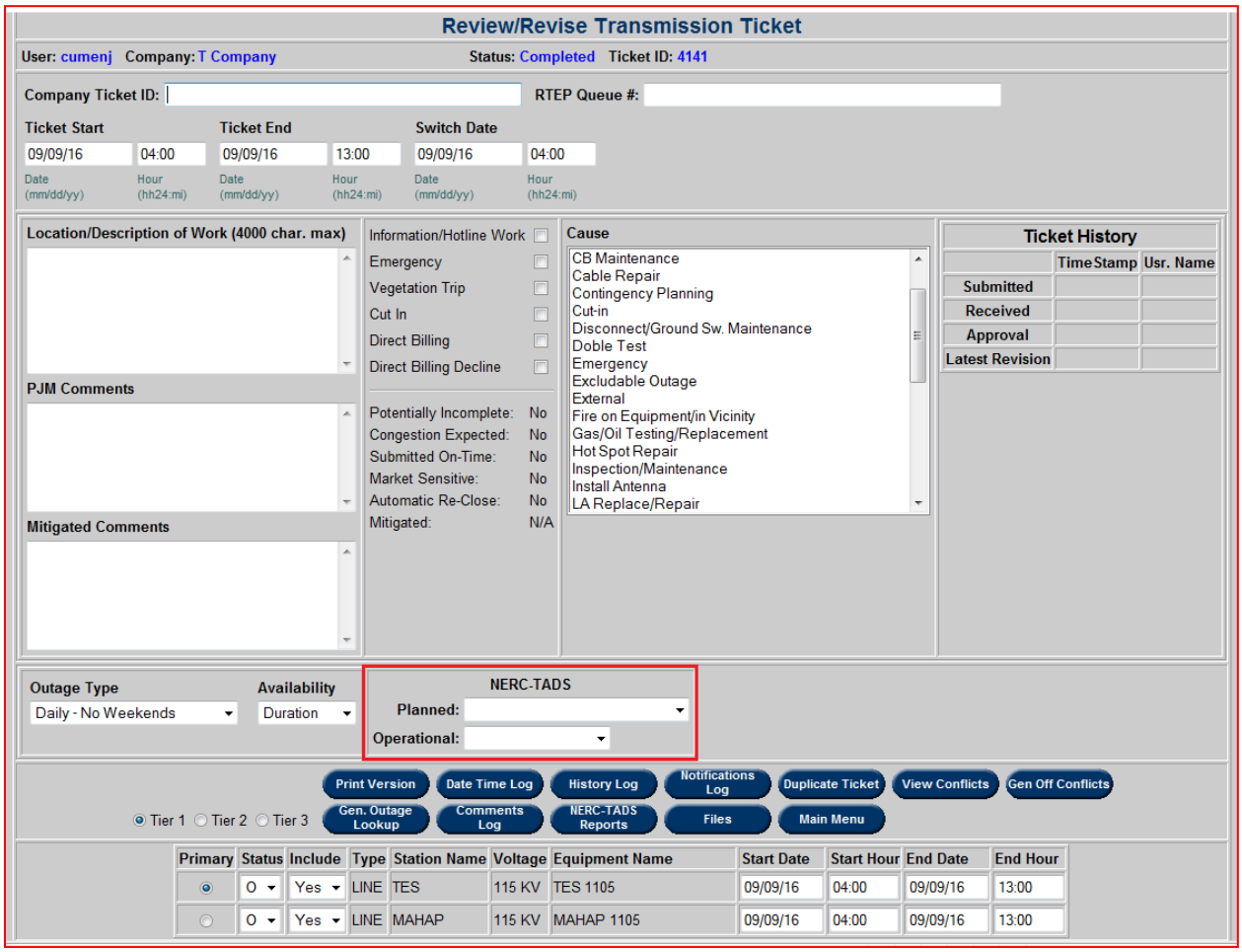
The **NERC-TADS Ticket Date Exception** form displays tickets with equipment that have different start or end times from the ticket start and end times. Filtering is available by **Ticket Status**, **Ticket ID**, and date range. To access this report, click on the **Ticket Date Exception** button from the **Transmission Tickets Main Menu**.



NERC TADs data may not be required for all tickets as it serves as additional information and updates may not be needed on all tickets displayed.



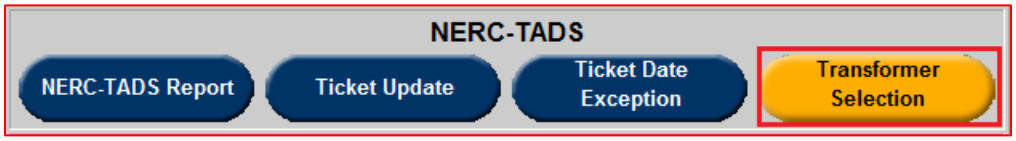
Click on a **Ticket ID** to open a ticket and update the TADS data.



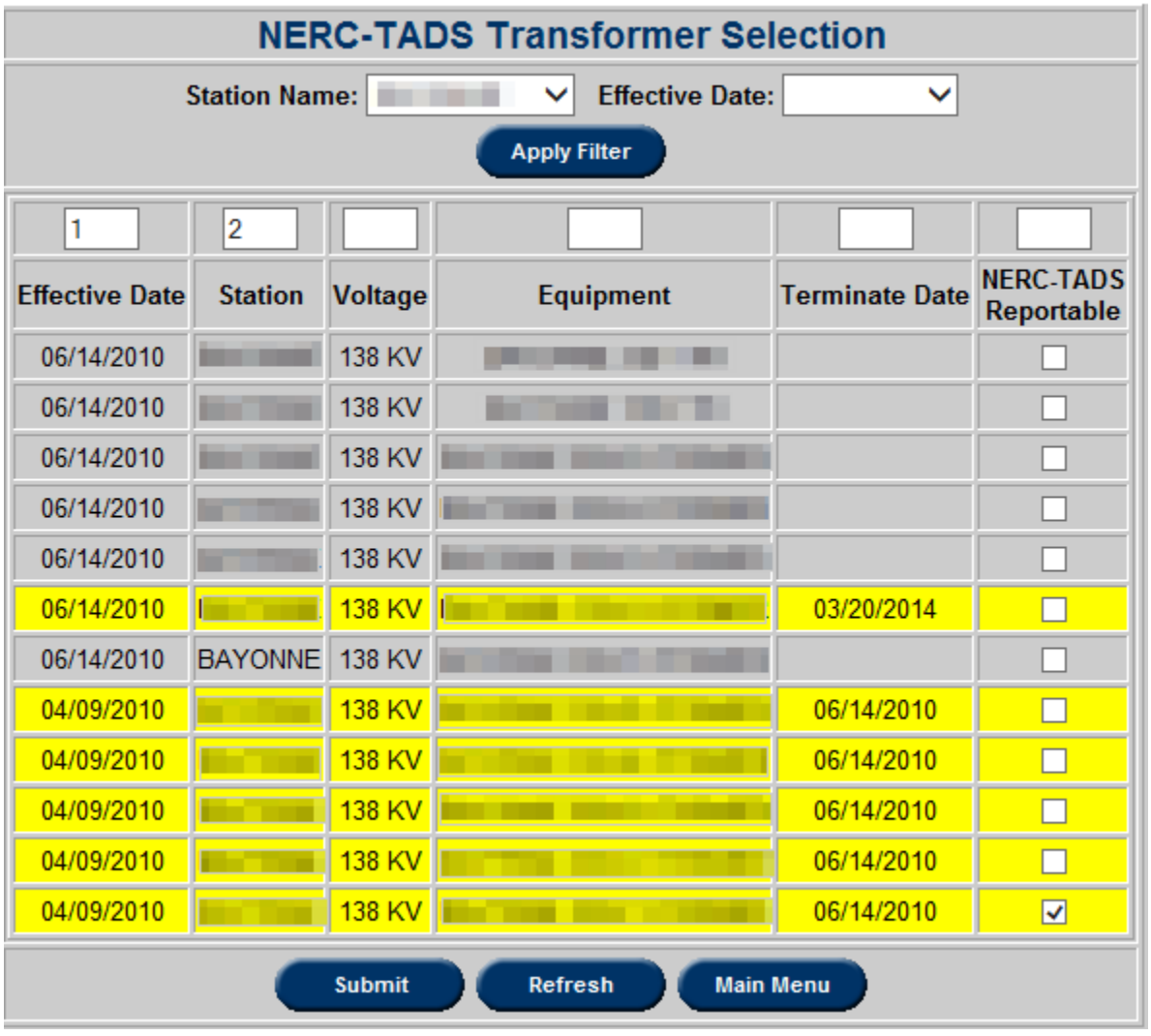
Transformer Selection

All transformers where the low-side voltages of 200 kV or higher are TADS reportable.

However, the TO can select other transformers to be reported. The list of transformers must be filtered by **Station Name** and/or **Effective Date**. **Voltage** class information for transformers less than 200kV will not be displayed on the reports. To access this list, click on the **Transformer Selection** button from the **Transmission Tickets Main Menu**.



Once clicked, the user will be able to select the equipment that are NERC-TADS reportable.



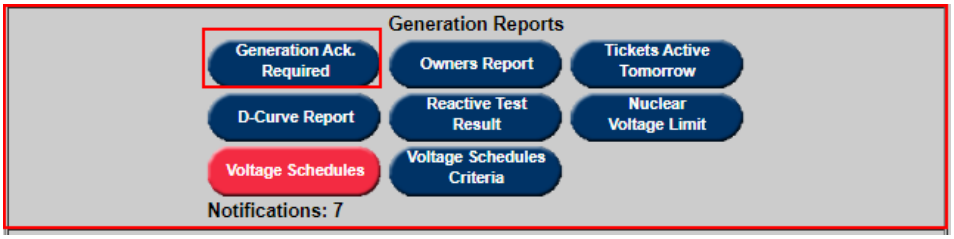
- **Effective Date:** The date that the facility was added to the transformer model in eDART.
- **Terminate Date:** The date that the facility was removed from the transformer model in PJM's EMS. (Transformers highlighted in yellow have been terminated/retired).
- **NERC-TADS Reportable:** Check this for transformers that should be included in the

NERC TADS 4.3 and 6.3 reports.

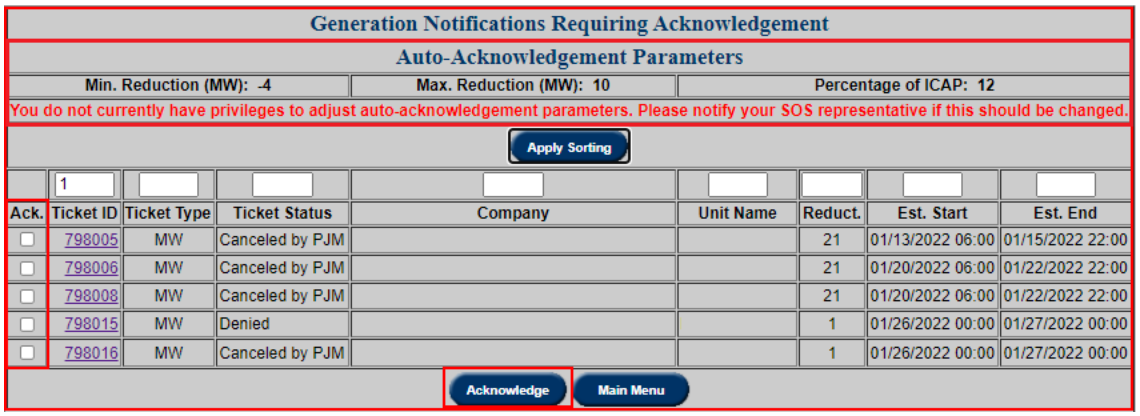
Generation Reports

Generation Acknowledgment Required

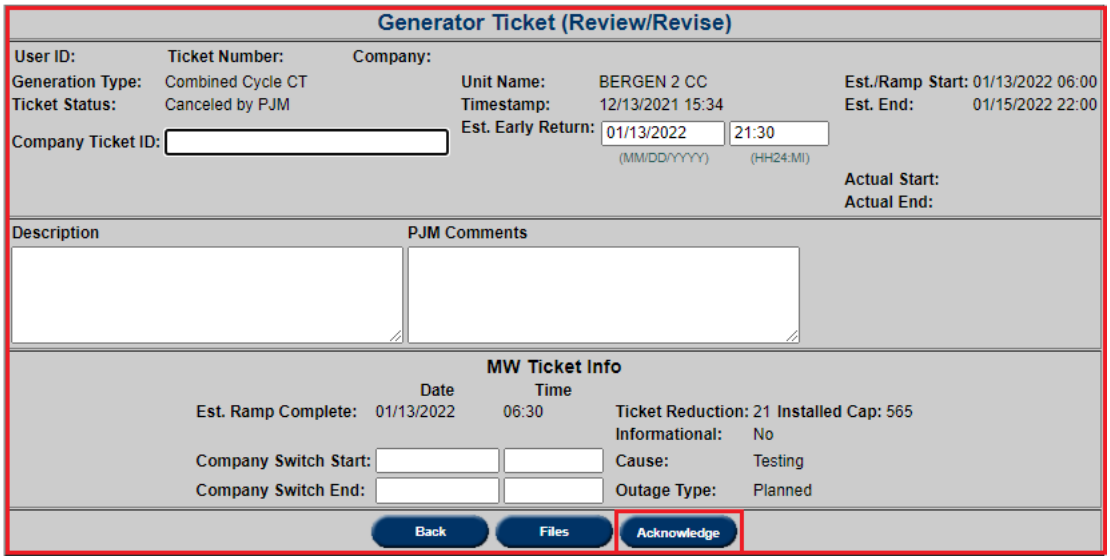
To reach the **Generation Acknowledgment Required** report, click the **Generation Ack. Required** button in the **Transmission Outage Main Menu** under the section **Generation Reports**.



This will bring the user to a list of required acknowledgments. From here, transmission owners can determine the acknowledgement for each ticket in the list.

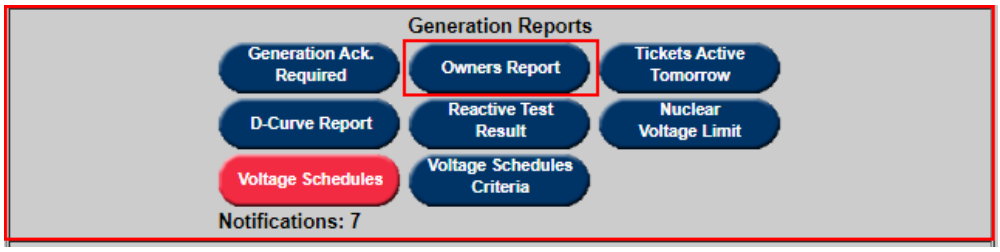


- **Ack.:** The user can check this box for tickets and click on the **Acknowledge** button to acknowledge selected tickets.
- **Ticket ID:** This refers to the ticket identification number given to a ticket in the PJM eDART system.
- **Ticket Status:** The status of the generator outage ticket.
- **Company:** The entity that owns the generator.
- **Unit Name:** The name given to a generation unit by a company.
- **Reduct.:** The total megawatt reduction of an outage.
- **Est. Start:** The estimated start of equipment outage.
- **Est. End:** The estimated end of equipment outage.



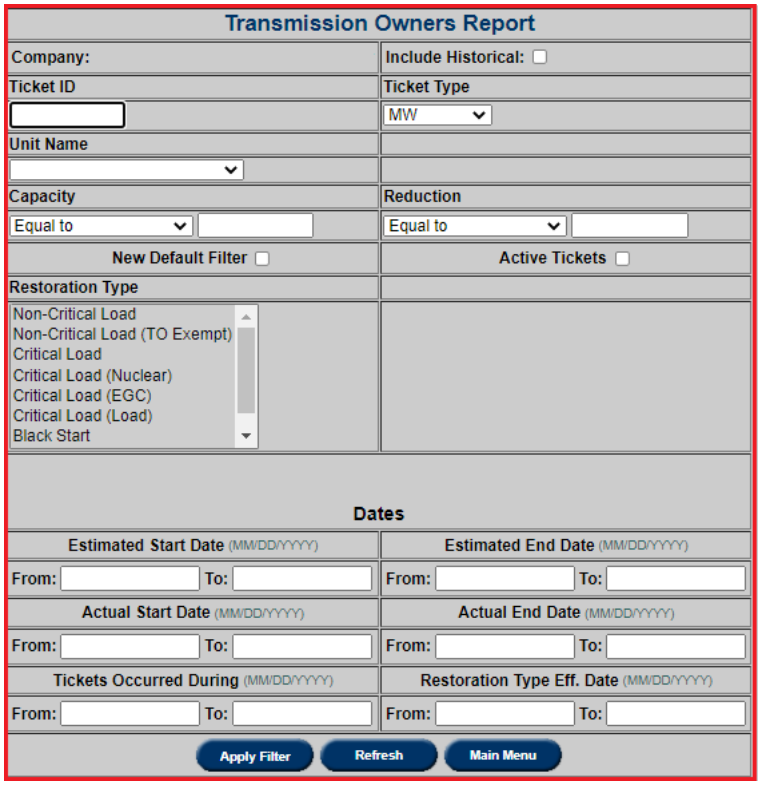
Owners Report

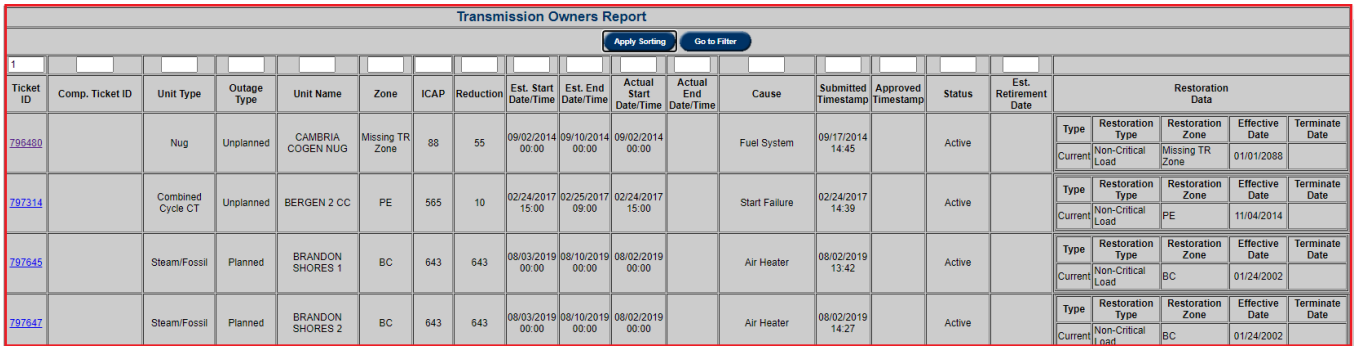
To open the **Owners Report** section, click the **Owners Report** button in the **Transmission Outage Main Menu** under the section **Generation Reports**.



The purpose of the **Owners Report** is to provide access to other companies to view any outages created by the company that that has the right to report outages on the facility they jointly own.

The **Owners Report** displays generator outage tickets for generators in the TO's transmission zone, or for which the TO is an approved viewer. To view the Owner's Report, select any desired filtering criteria and click the **Apply Filter** button.



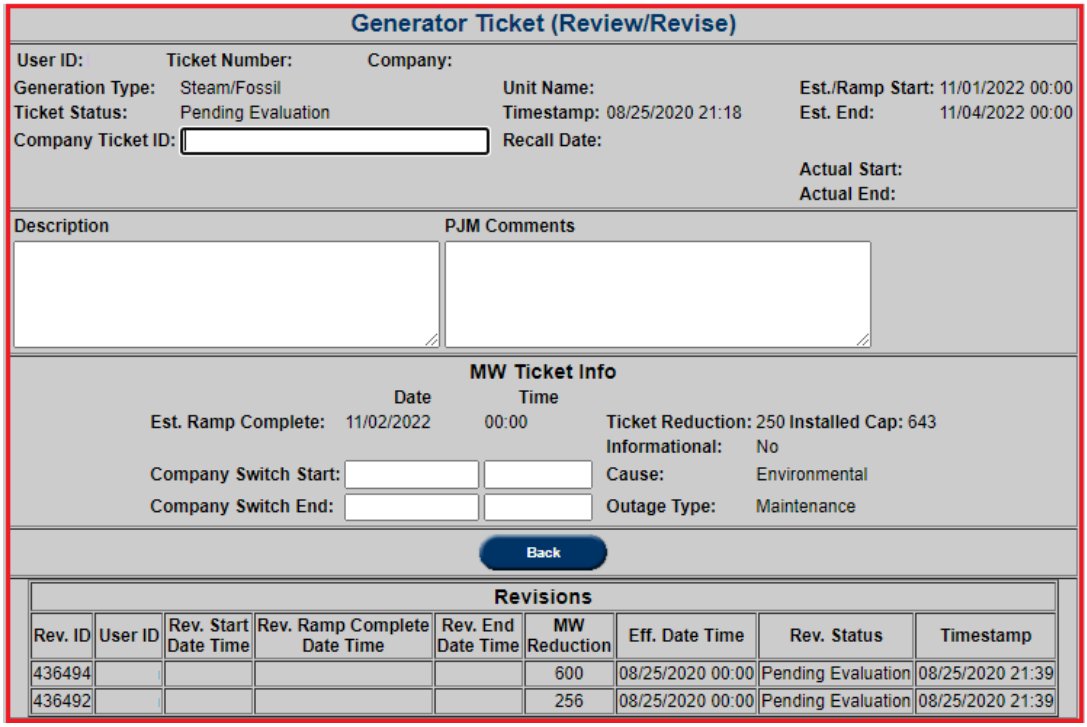


Fields include: (***Note*** *The fields displayed may vary depending on the gen. outage ticket type. See the* ***Gen. Outage Ticket*** *sections of the* ***eDART Users Guide*** *for more information.*)

- **Ticket ID:** This refers to the ticket identification number given to a ticket in the PJM eDART system.
- **Comp. Ticket ID:** This refers to the ticket identification number given to a ticket by a company's own internal identification system.
- **Unit Type:** The generation method of a unit.
- **Outage Type:** Outage types include "Planned,' "Maintenance" or "Unplanned."
- **Unit Name:** The name given to an individual unit.
- **ICAP:** This field refers to the Installed Capacity of the unit.
- **Reduction:** This field refers to scheduled reduction in capacity in the ticket.

- **Est. Start/End:** The estimated start/end of outage.
- **Actual Start/End:** The actual start/end of outage.
- **Cause:** The circumstances leading to or requiring an outage.
- **Submitted/Approved Timestamp:** The official times for the submittal and approval of an outage.
- **Status:** The status of an outage ticket, including "Complete," "Active" and others.
- **Blackstart/Blackstart in Service Date:** Indicates if unit is a Blackstart unit and if so, the unit's blackstart in-service date.
- **Critical Load/Non-Critical Load:** Indicates whether unit is Critical Load unit or not.
- **BS Terminate Date:** Date unit is no longer a blackstart unit.
- **Est. Retirement Date: Estimated retirement date of unit.**

Select a **Ticket ID** and more detailed information about the specified ticket will appear. To acknowledge the ticket, click the **Acknowledge** button.



Generator Ticket (Review/Revise)

User ID: Ticket Number: Company:
Generation Type: Steam/Fossil Unit Name: Est./Ramp Start: 11/01/2022 00:00
Ticket Status: Pending Evaluation Timestamp: 08/25/2020 21:18 Est. End: 11/04/2022 00:00
Company Ticket ID: Recall Date:
Actual Start:
Actual End:

Description PJM Comments

MW Ticket Info

	Date	Time		
Est. Ramp Complete:	11/02/2022	00:00	Ticket Reduction: 250 Installed Cap: 643	
			Informational:	No
Company Switch Start:			Cause:	Environmental
Company Switch End:			Outage Type:	Maintenance

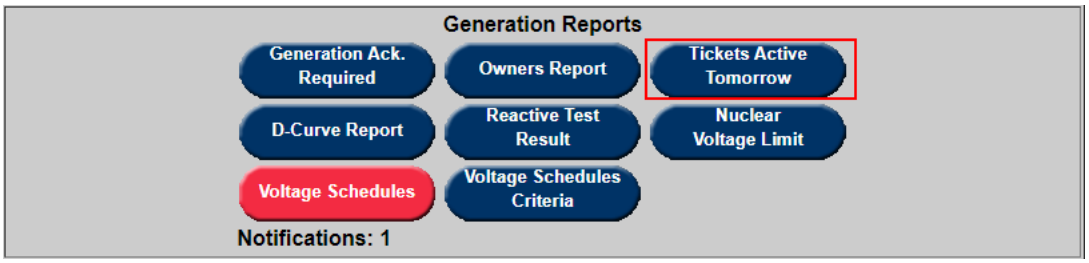
Back

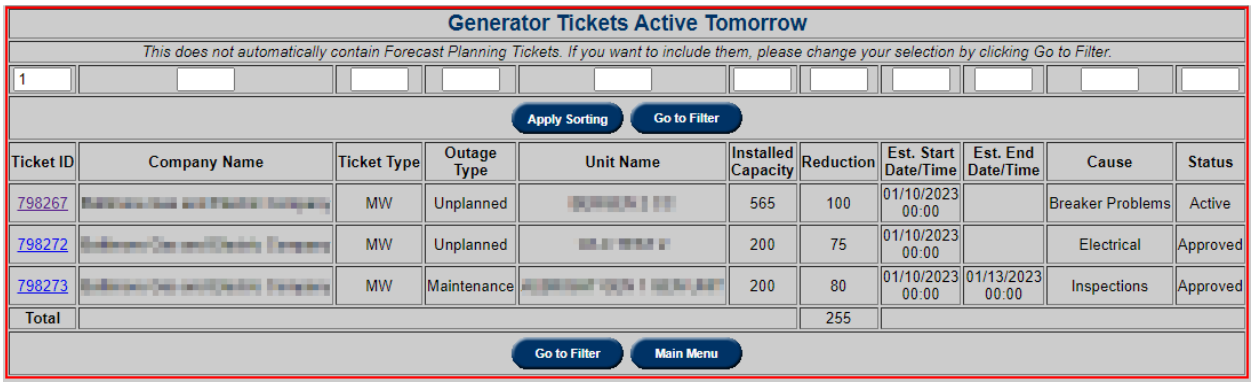
Revisions

Rev. ID	User ID	Rev. Start Date Time	Rev. Ramp Complete Date Time	Rev. End Date Time	MW Reduction	Eff. Date Time	Rev. Status	Timestamp
436494					600	08/25/2020 00:00	Pending Evaluation	08/25/2020 21:39
436492					256	08/25/2020 00:00	Pending Evaluation	08/25/2020 21:39

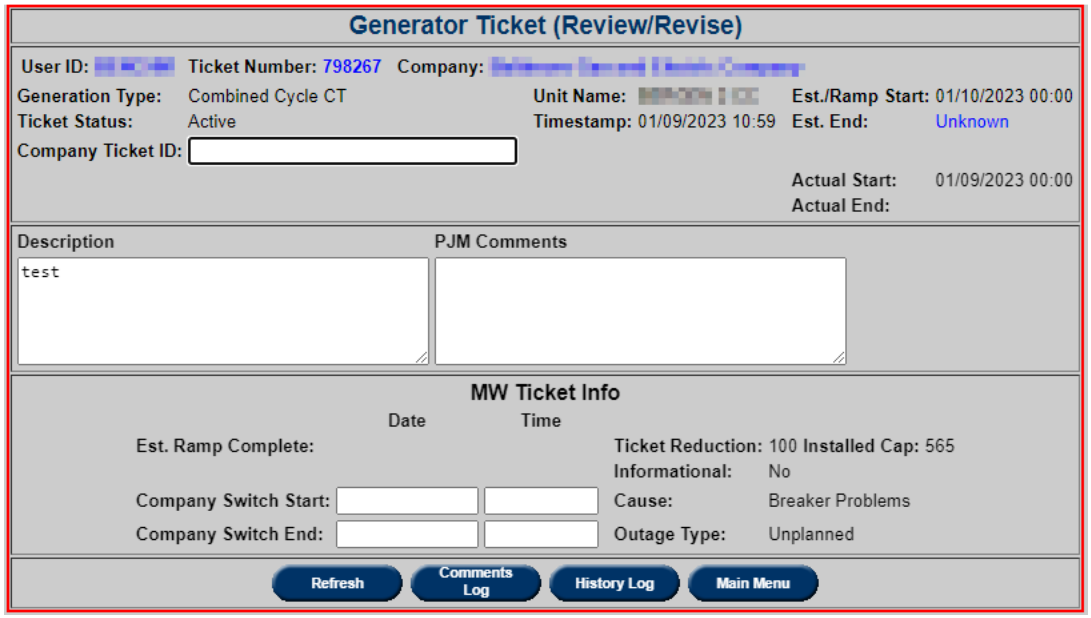
Tickets Active Tomorrow

Click on the **Tickets Active Tomorrow** button on the main menu and this opens the **Generator Tickets Active Tomorrow** as shown in the example below:



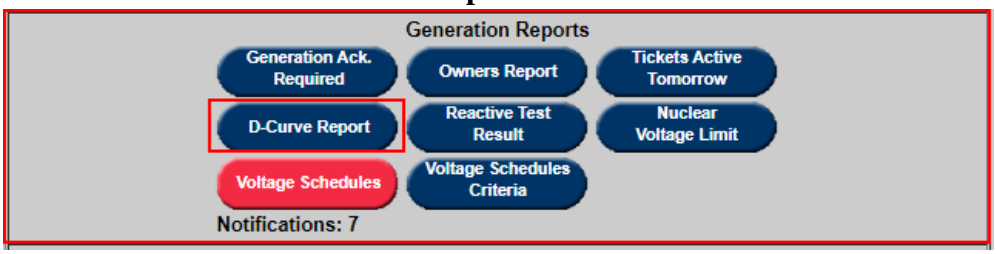


Click on the **Ticket ID** hyperlink to open Generator ticket.

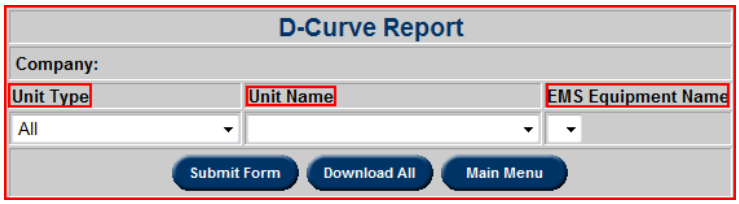


D-Curve Report

To open the **D-Curve Report**, click the **D-Curve Report** button in the **Transmission Outage Main Menu** under the section **Generation Reports**.

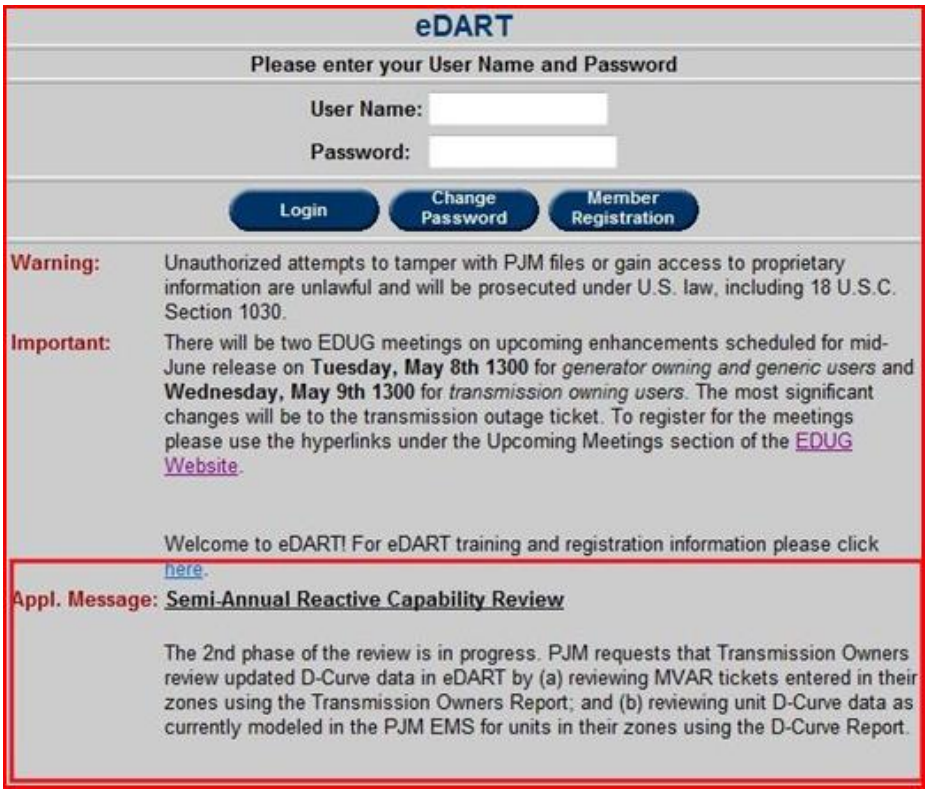


This shows the D-Curve for each unit. This process was added to keep all the Generation Operators, Transmission Operators and PJM Dispatch in sync with the reactive capability of the system. Transmission Owners can review curves for accuracy and EMS update. After the company reviews it, they can click the **Acknowledge** button on D-Curve report.



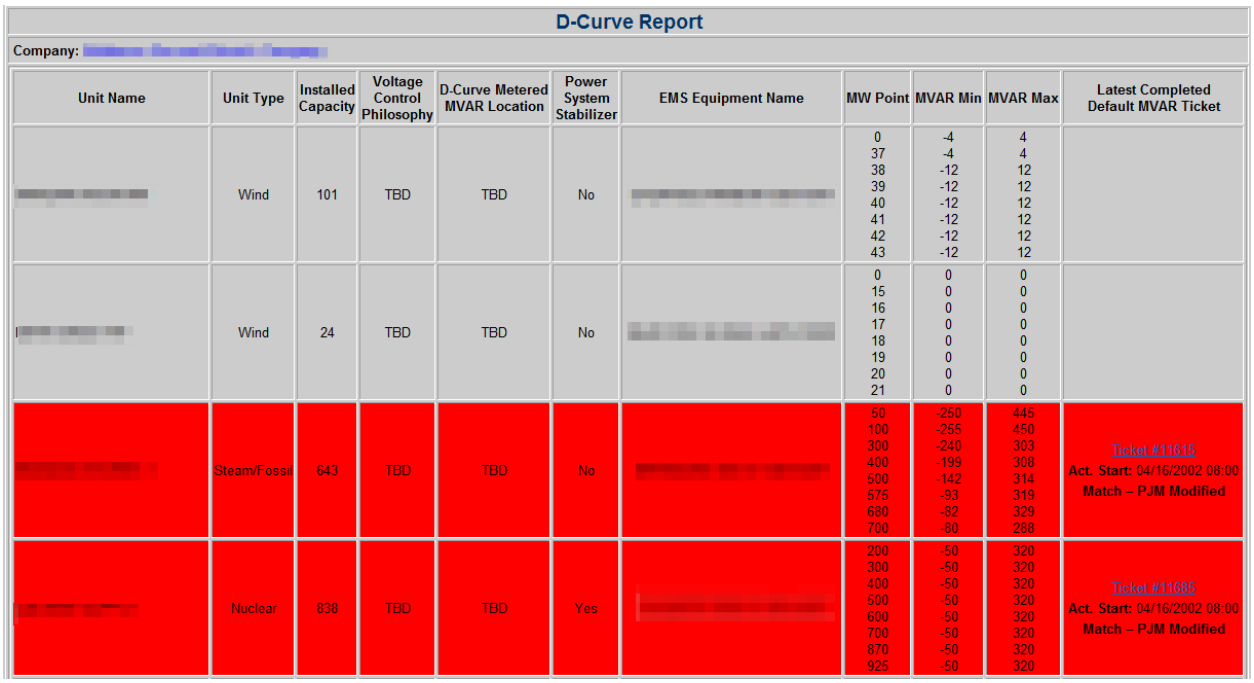
To save a D-Curve information file, select **Download All** and then select a destination for the file. To view the records, click **Submit Form**.

When a Transmission Operator is asked to review capability curves, a notification message will be posted to the log-in screen labeled “Application Message.”



Generation Operators will update the D-Curve information in their systems. The **D-Curve Report** button will change to **RED** on the Transmission Menu and remain so until company completes the review process by acknowledging the information in their system.

Once the information is entered for all units, the Transmission Operator can acknowledge the report by clicking the **Acknowledge** button on the D-Curve Report. The **D-Curve Report** button will then return to its **BLUE** color.



D-Curve Report

Company: [redacted]

Unit Name	Unit Type	Installed Capacity	Voltage Control Philosophy	D-Curve Metered MVAR Location	Power System Stabilizer	EMS Equipment Name	MW Point	MVAR Min	MVAR Max	Latest Completed Default MVAR Ticket
[redacted]	Wind	101	TBD	TBD	No	[redacted]	0 37 38 39 40 41 42 43	-4 -4 -12 -12 -12 -12 -12 -12	4 4 12 12 12 12 12 12	
[redacted]	Wind	24	TBD	TBD	No	[redacted]	0 15 16 17 18 19 20 21	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	
[redacted]	Steam/Fossil	643	TBD	TBD	No	[redacted]	50 100 300 400 500 575 680 700	-250 -255 -240 -199 -142 -93 -82 -80	445 450 303 308 314 319 329 288	Ticket #11615 Act. Start: 04/16/2002 08:00 Match – PJM Modified
[redacted]	Nuclear	838	TBD	TBD	Yes	[redacted]	200 300 400 500 600 700 870 925	-50 -50 -50 -50 -50 -50 -50 -50	320 320 320 320 320 320 320 320	Ticket #11685 Act. Start: 04/16/2002 08:00 Match – PJM Modified

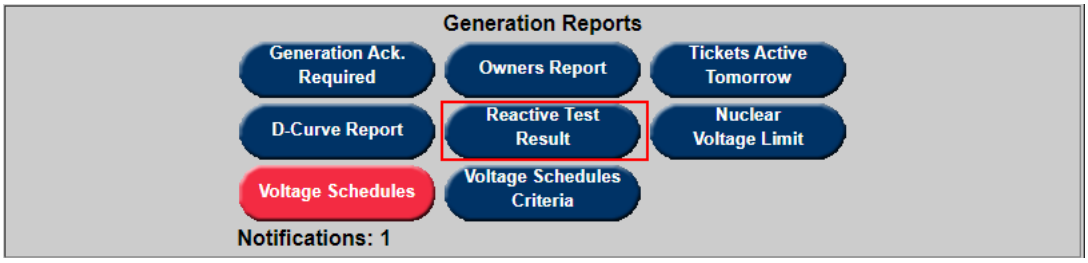
The **D-Curve Report** is a report of the reactive capability of the generators in TO's transmission zone. The user can execute a search by only name or no criteria to get all units. To produce the report, click the **D-Curve Report** button.

- **Unit Name:** The name given to the unit by the company.
- **Unit Type:** This refers to the kind of generator the unit is. Examples include: "Steam/Fossil," "Nuclear," "Hydro" and more.
- **Installed Capacity:** This field refers to the amount of MW a unit can put out.
- **Voltage Control Philosophy:** This field describes how voltage support is assigned for the unit; either "Voltage Schedule" or "Reactive Power Schedule."
- **Metered MVAR Value:** The point/side from which PJM receives telemetry or metering information; one of the following: "Low-side Gross," "Low-side Net" or "High-side Net."
- **Power System Stabilizer:** This field indicates whether the TO has designated the unit as having a Power System Stabilizer (PSS) or not.
- **EMS Equipment Name:** The unit name as displayed in PJM's EMS.
- **MW Point/MVAR Min/MVAR Max:** The capability of unit to supply or absorb VARS based on MW loading.

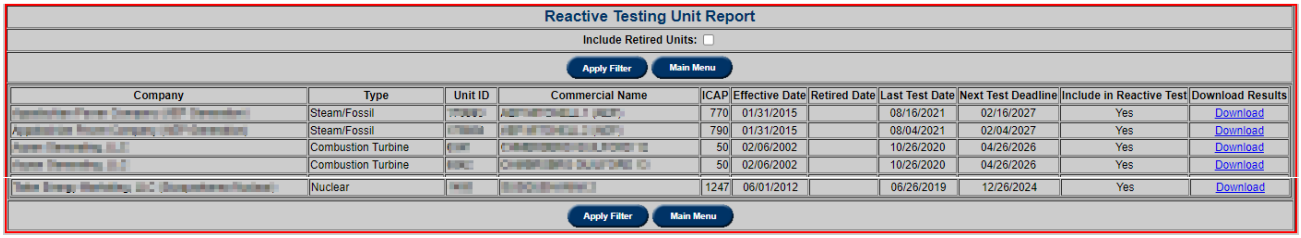
D-Curve values are reviewed every year in April and October. In May and November, TOs and PJM will review eDART data and update their EMS systems.

Reactive Test Results

Click on the **Reactive Test Results** button on the main menu and this opens the **Reactive Testing Unit Report** as shown in the example below:

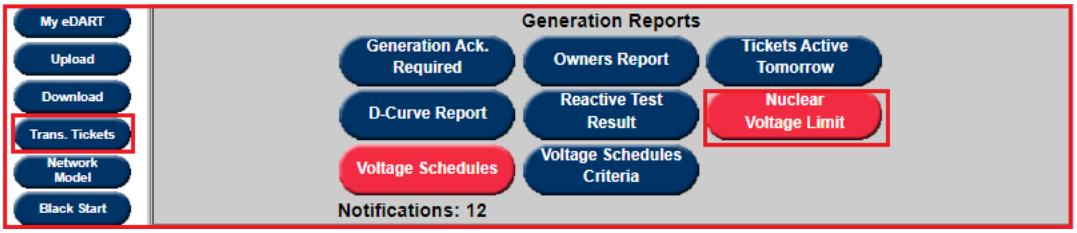


Click on the **Download** hyperlink (when available) to download Reactive Testing Results.



Nuclear Voltage Limit

For more information about Nuclear Voltage Limit process refer to Nuclear Voltage Limit for GO in Generation section.
To get to Nuclear Voltage Limits menu, click on Trans Tickets button and then on Nuclear Voltage Limit located in the Generation Reports section.

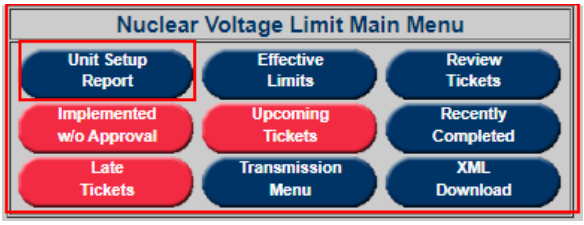


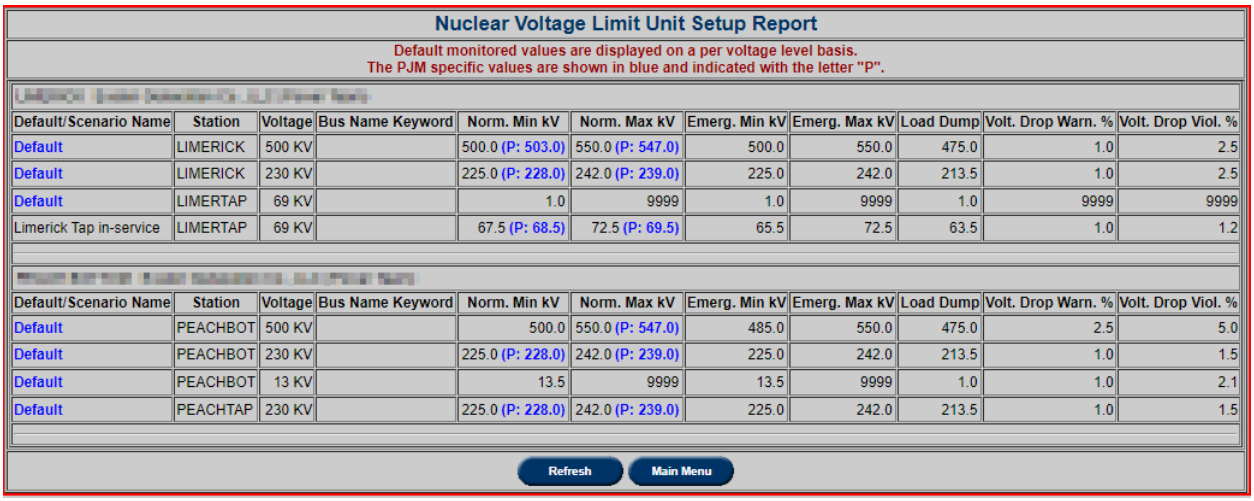
Nuclear Voltage Limit button highlighted in Red indicate required actions or items for review.

Unit Setup Report

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

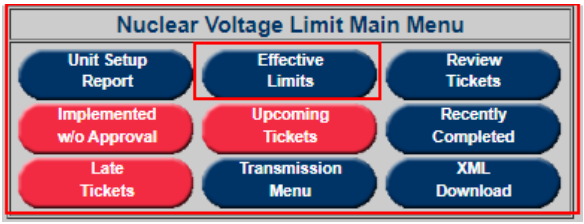
Indicates the Default monitored values on a per voltage level basis, including the PJM specific value shown in blue and indicated with the letter ‘P’.
Displays all unit group specific scenarios and the associated voltage limits.

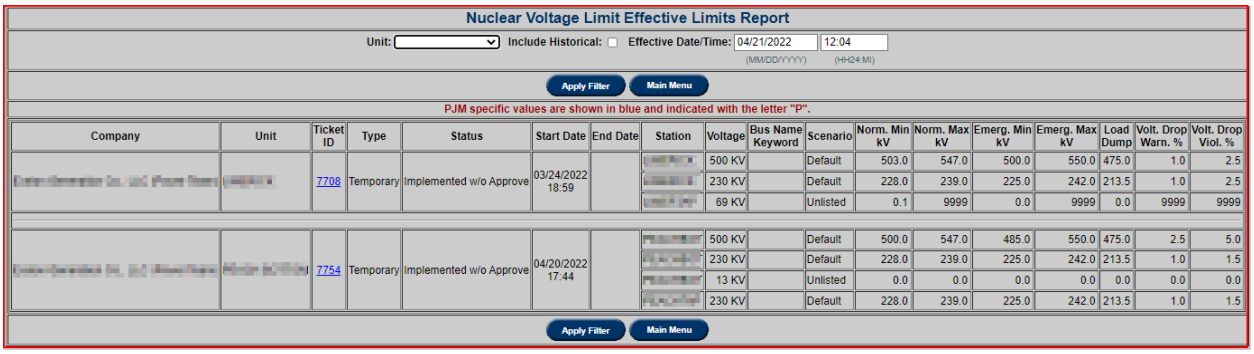




Effective Limits Report

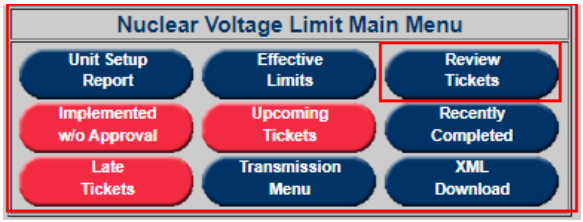
The Effective Limits Report provides applicable limits for a chosen timeframe. The filter will take into account any current and future tickets.

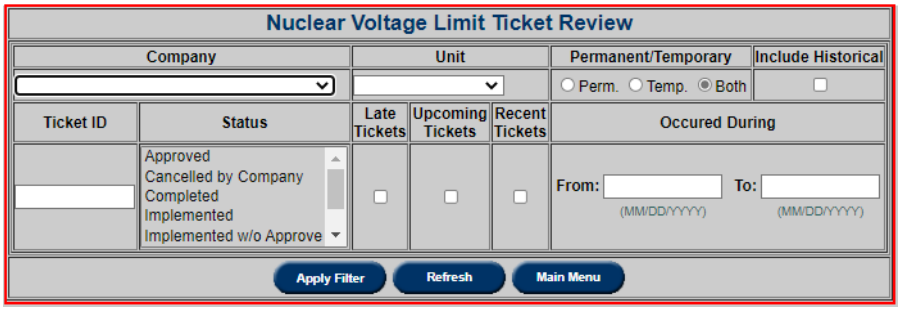


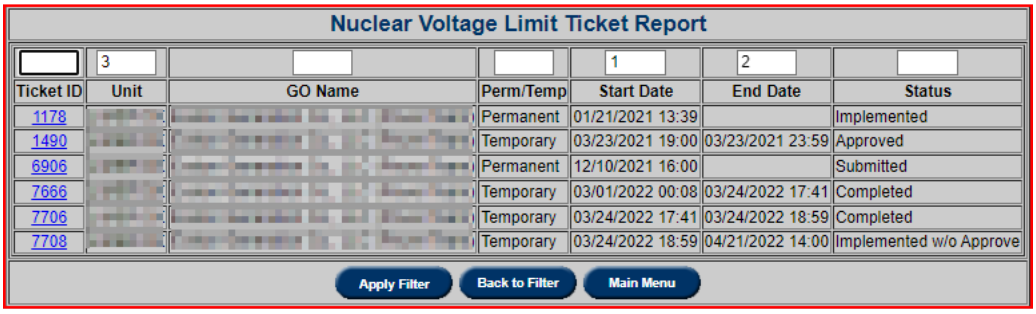


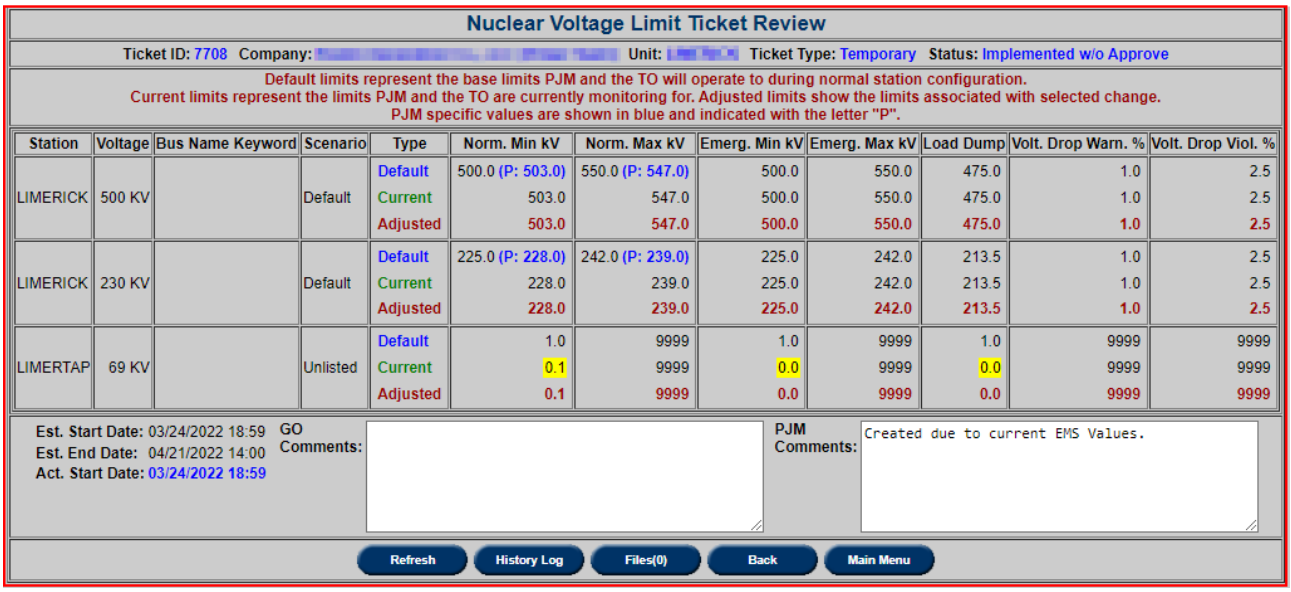
Review Tickets

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.









Nuclear Voltage Limit Ticket Review

Ticket ID: 7708 Company: [redacted] Unit: [redacted] Ticket Type: Temporary Status: Implemented w/o Approve

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. %
LIMERICK	500 KV		Default	Default	500.0 (P: 503.0)	550.0 (P: 547.0)	500.0	550.0	475.0	1.0	2.5
				Current	503.0	547.0	500.0	550.0	475.0	1.0	2.5
				Adjusted	503.0	547.0	500.0	550.0	475.0	1.0	2.5
LIMERICK	230 KV		Default	Default	225.0 (P: 228.0)	242.0 (P: 239.0)	225.0	242.0	213.5	1.0	2.5
				Current	228.0	239.0	225.0	242.0	213.5	1.0	2.5
				Adjusted	228.0	239.0	225.0	242.0	213.5	1.0	2.5
LIMERTAP	69 KV		Unlisted	Default	1.0	9999	1.0	9999	1.0	9999	9999
				Current	0.1	9999	0.0	9999	0.0	9999	9999
				Adjusted	0.1	9999	0.0	9999	0.0	9999	9999

Est. Start Date: 03/24/2022 18:59
Est. End Date: 04/21/2022 14:00
Act. Start Date: 03/24/2022 18:59

GO Comments:

PJM Comments: Created due to current EMS Values.

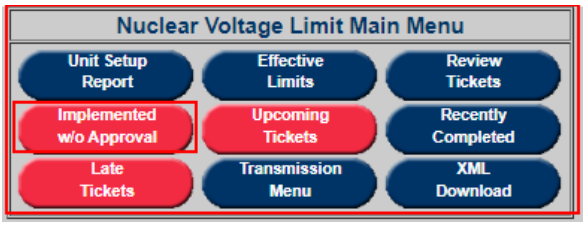
Refresh | History Log | Files(0) | Back | Main Menu

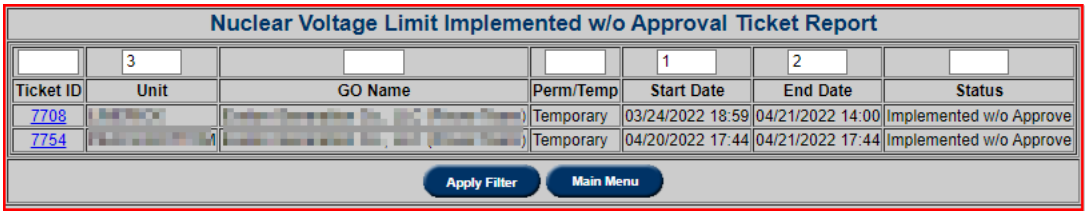
Ticket Status

- **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.

Implemented w/o Approval

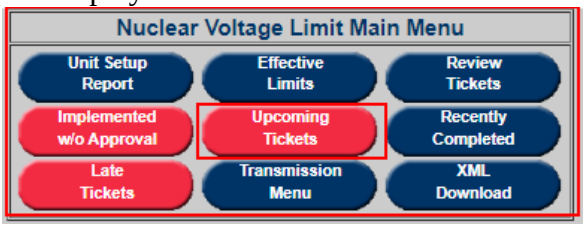
The Implemented without Approval screen shows tickets which are created when the currently active limits in eDART does not match the limits monitored by PJM.

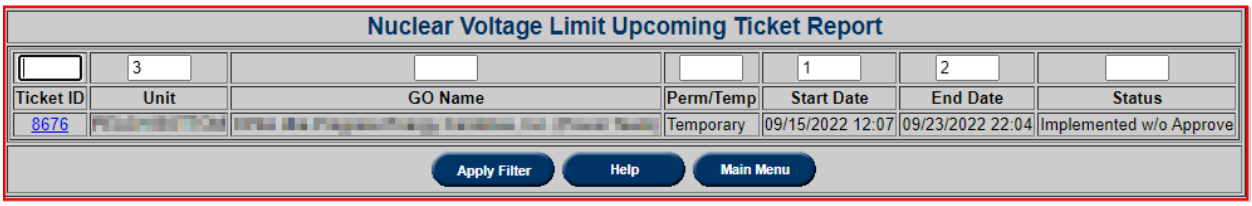




Upcoming Tickets

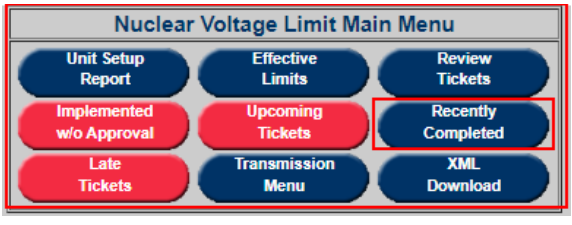
The Upcoming Tickets report displays all tickets scheduled to start in the next 7 days.





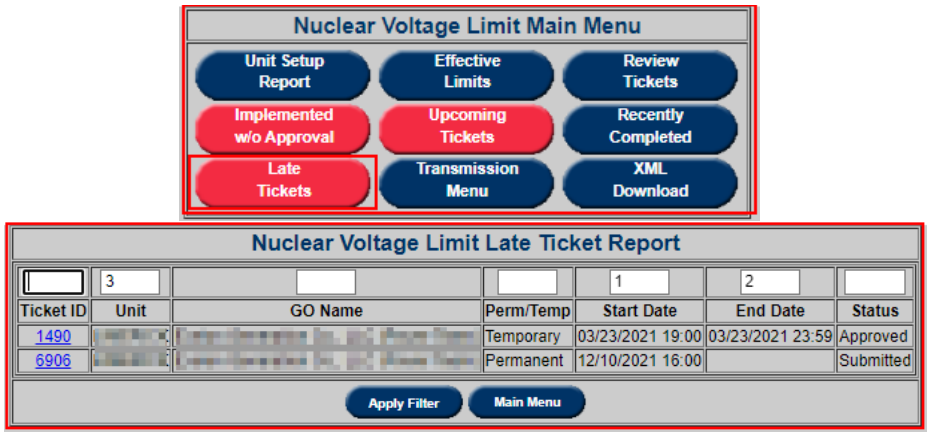
Recently Completed

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



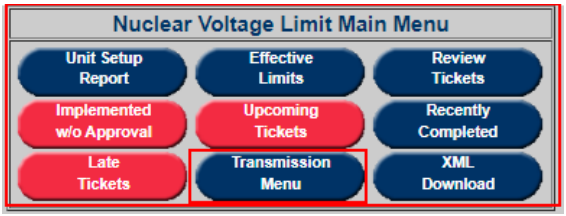
Late Tickets

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.

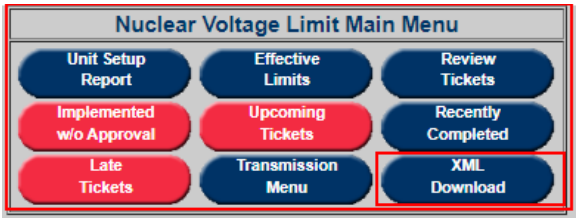


Transmission Menu

Transmission Menu returns to Transmission Outage Main Menu.

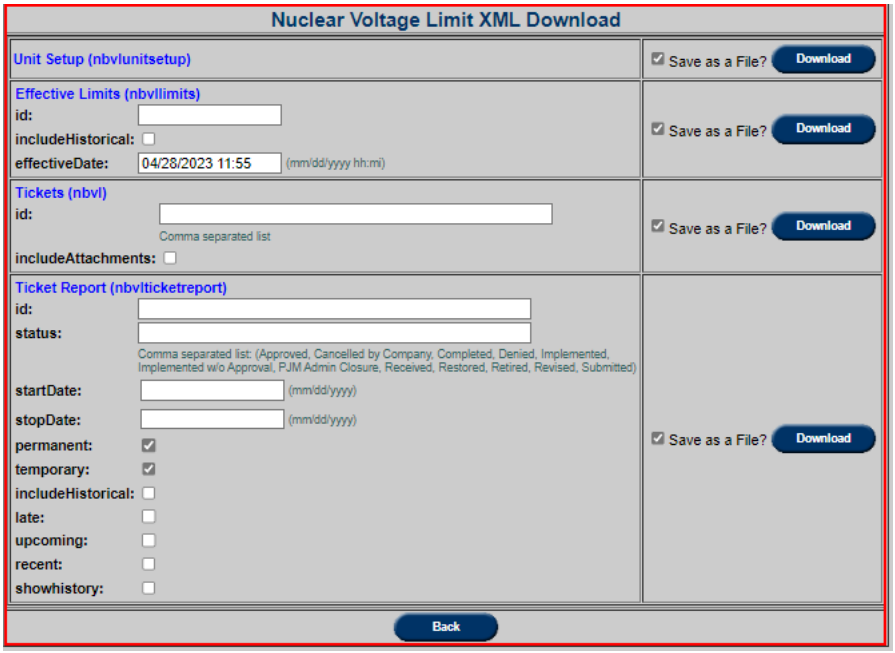


XML Download



XML Download option provides opportunity to view or download the following xml files:

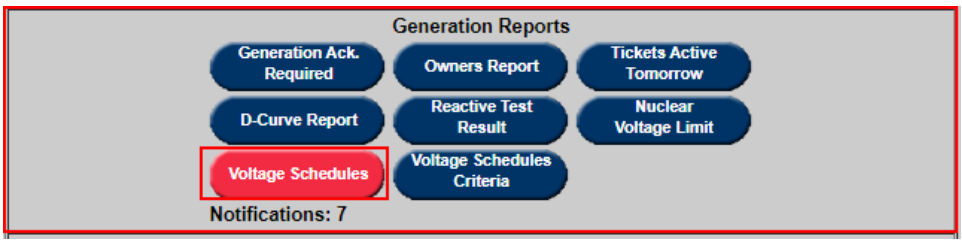
- Unit Setup (nbvlunitsetup)
- Effective Limits (nbvllimits)
- Tickets (nbvl)
- Ticket Report (nbvlticketreport)

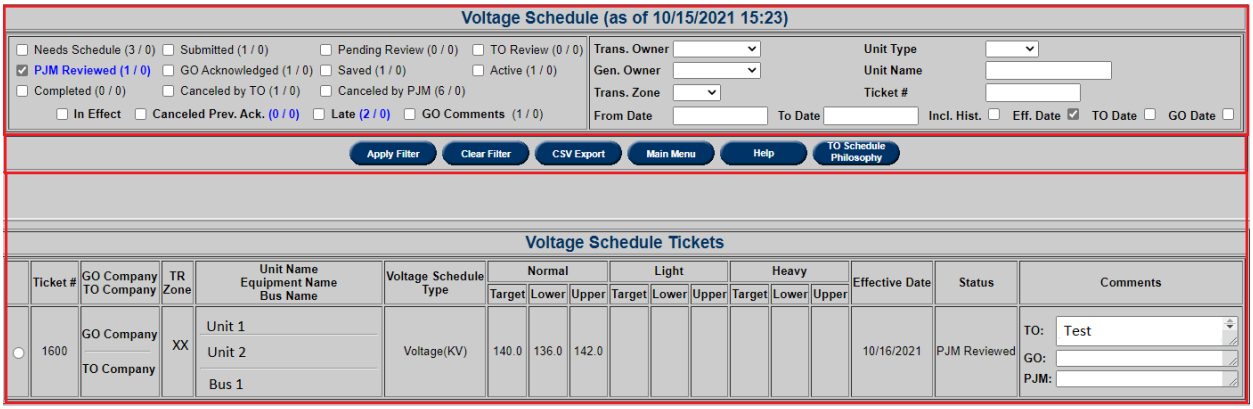


For more information, please refer to [Dart Browserless User Guide (pjm.com)](https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx)
(https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx)

Voltage Schedules

To view Voltage Schedule page, click on the Voltage Schedule button in Transmission Tickets Main Menu. The button will be red if there is a required action by the Transmission Owner (TO).



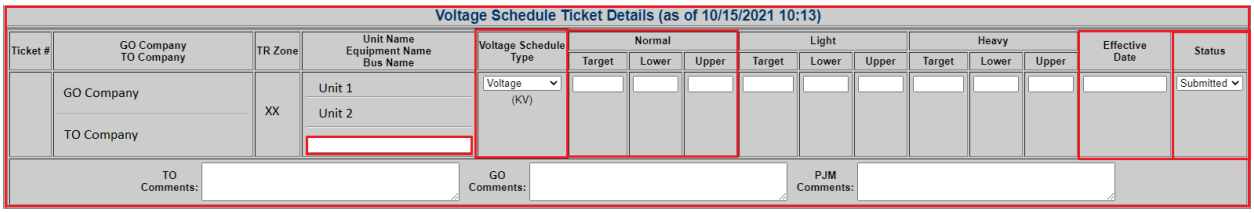


Please see the Voltage Schedules section under Generator tickets for the information below:

- Ticket Process Flow
- Voltage Schedules Main Screen
- Ticket Status Definitions
- Ticket and Data Filters
- Acknowledging a Voltage Schedule Ticket
- Voltage Schedule Ticket Details
- Download Files from the Voltage Schedule Tickets Listing Screen
- Annual Review for GO

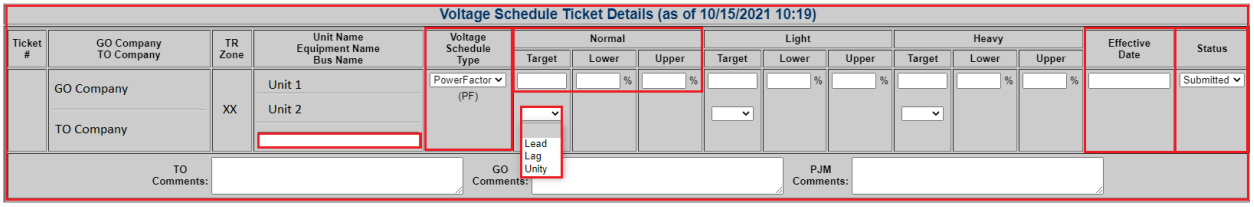
Voltage Schedule Ticket Types

Voltage (KV) Schedule Type



- Most units in the PJM footprint have schedules of the Voltage (KV) schedule type, i.e. operate in voltage control mode with a target voltage set-point, and upper and lower voltage bandwidths. PJM's default voltage schedule specified in **PJM Manual 3.11** is based on this voltage schedule type.
- Voltage (KV) schedule type has a Target (KV) value, as well as Lower Tolerance (KV) and Upper Tolerance (KV) required values, that are required data-entries for the Normal load condition, and optional for other load conditions. In addition, Bus Name, Effective Date, and Status selection are required data-entries.
- The following reasonability limits for data validation have been specified for Voltage Schedule type entries:
    - 1 < Target < 1000
    - 0% of Target < Upper/Lower Tolerances < 25 % of Target

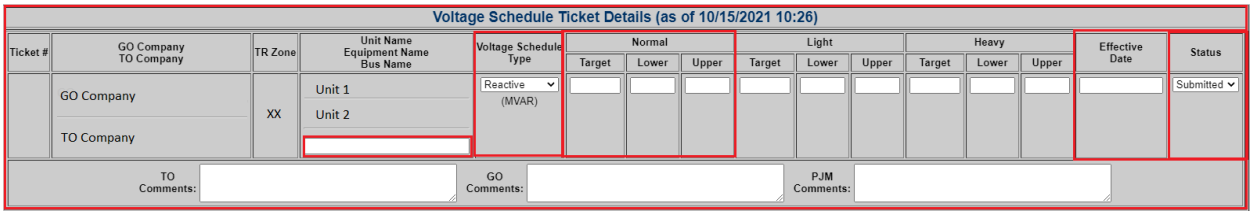
Power Factor (PF) Schedule Type



- These are the second most common voltage schedule types within PJM, and units with this schedule type operate in power factor control mode with a target power factor, and specified upper and lower tolerances.
- Power Factor (PF) schedule type has a Target (PF) value with associated Target power factor designation (Unity, Lag, Lead), Lower tolerance (%) and Upper tolerance (%) values as required data-entries for the Normal load condition, and optional for other load conditions. In addition, Bus Name, Effective Date, and Status selection are required data-entries.
- The following reasonability limits for data validation have been specified for Power Factor type entries: o Only a Power Factor Target value of 1.0 may be associated with a selection of Unity power factor designation
    - 0.7< Target < 1.0

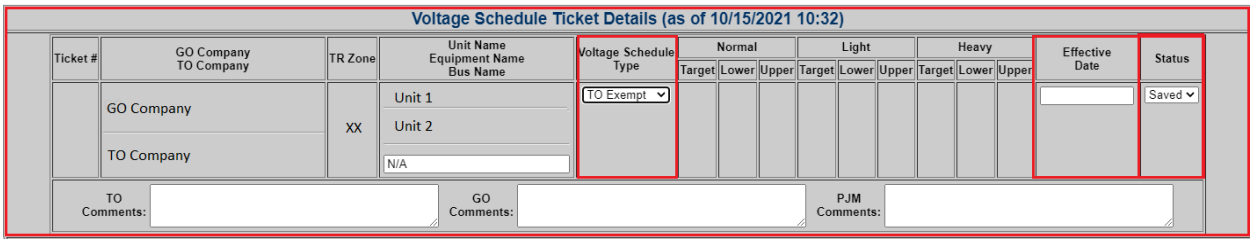
- 0% < Upper/Lower Tolerances < 100 %

Reactive Power (MVAR) Schedule Type



- These are the least common voltage schedule types within PJM, and units with this schedule type operate in reactive power control mode with a target reactive power output, and specified upper and lower tolerances.
- Reactive Power (MVAR) schedule type has a Target (MVAR) value, Lower tolerance (MVAR) and Upper tolerance (MVAR) values as required data-entries for the Normal load condition, and optional for other load conditions. In addition, Bus Name, Effective Date, and Status selection are required data-entries.
- The following reasonability limits for data validation have been specified for Reactive Power type entries:
- 1000< Target < 1000
- 0 < Upper/Lower Tolerances < 1000

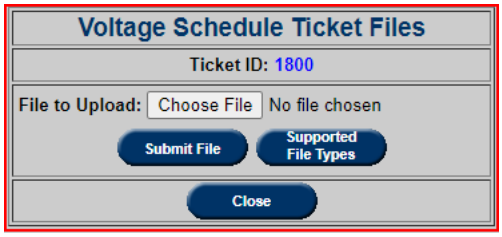
TO Exempt Type



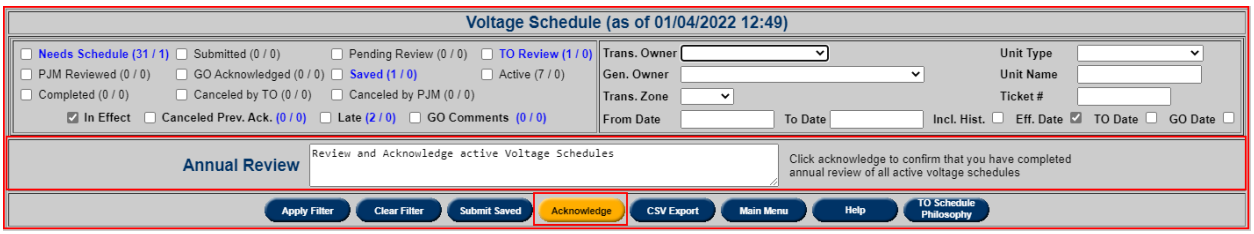
- This schedule type is used to indicate that an exemption from having a voltage schedule has been requested by the Transmission Owner for an applicable generator.
- No schedule values are required for the TO Exempt schedule type. However, at least one file must be attached to the voltage schedule ticket to provide engineering justification for the requested exemption. In addition, Effective Date, and Status selection are required data-entries. The Bus Name entry is automatically generated as “N/A” for this voltage schedule type.
- TO Exempt tickets must be placed in Saved status initially. Once in Saved status, file attachments may then be included and the ticket moved into Submitted status.

File Attachments

TO users may attach one or more files to each voltage schedule ticket by clicking **Files (#)** c while in the Voltage Schedule Ticket Details form. The number (#) in the parenthesis represents the number of attached files associated with the ticket.
TO Exempt voltage schedule tickets require that at least one file must be attached prior to placing the tickets in *Submitted* status.



Annual Review for TO



On an annual basis, PJM will initiate a review of all current voltage schedules, starting with a review by TOs. Following the initiation of the review, a new **Annual Review** section and **Acknowledge** button will become visible to TO users on the Voltage Schedules main screen.

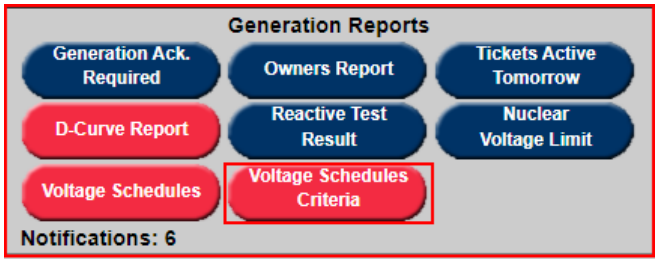
Steps for Completing the TO Annual Review Phase Following initiation of the annual voltage schedule review by PJM, TOs should perform a review of all effective voltage schedules, by clicking the *In Effect* filter option. This selects all *Active* and *Needs Schedule* status tickets for all units within the TO's zone, and upon clicking Apply Filter, the list of tickets with these statuses will be displayed.
For *Needs Schedule* tickets, the TO should submit new voltage schedules as soon as possible, and for *Active* tickets, the TO should review them for accuracy and submit replacement voltage schedule tickets if they need to be updated. If no changes are needed, proceed to the next step.
Following the above step, the TO should click the orange Acknowledge button to indicate that all *Active* voltage schedule tickets have been reviewed and that the TO's review is complete. Once the Acknowledge button has been clicked, the Annual Review section vanishes from the screen.
All Active status tickets that have been reviewed during the TO annual review phase will be logged with a *TO Date* time stamp based on when the TO Acknowledge button was clicked. Tickets with this *TO Date*, can be searched for using the date filter selection options for *TO Date.*

For more information on Voltage Schedules, please see:
PJM eDART Voltage Schedules for TO presentation
(pjm-edart-voltage-schedules-for-transmission-owners.ashx)
Voltage Schedules Help document in eDART accessible by clicking the Help button.

Contact: voltageschedules@pjm.com

Voltage Schedule Criteria

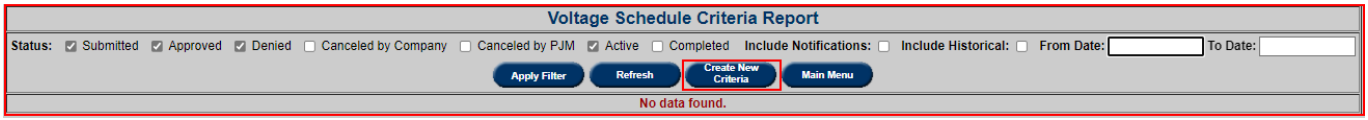
Functionality that enables TOs to submit and review Voltage Schedule (VS) Criteria in accordance with VAR-001-5 R5.3 standard.
To get to VS Criteria, go to Transmission Outage Main Menu and click on Voltage Schedules Criteria.

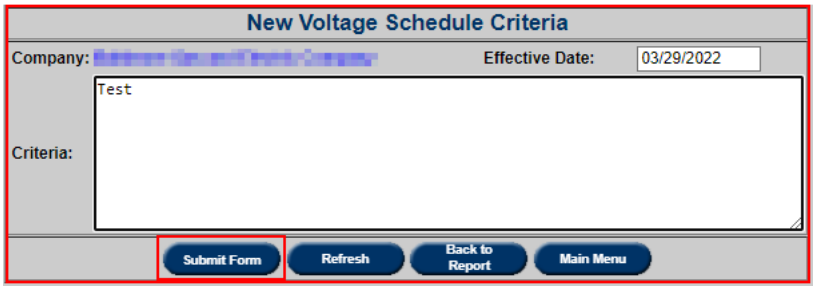


The Voltage Schedule Criteria button is **RED** if there is no Submitted, Approved or Active VS Criteria OR VS Criteria was Denied in the last 7 days.
Submitted, Approved Denied and Active tickets statuses are checked by default in the report.
Status Definitions

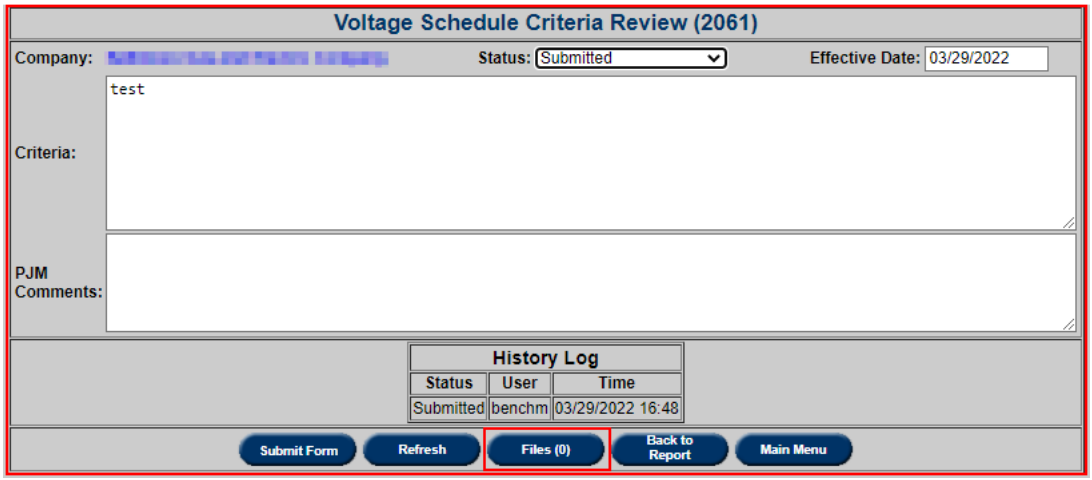
- **Submitted:** new VS Criteria status when submitted to PJM
- **Approved:** VS Criteria reviewed and approved by PJM
- **Denied:** VS Criteria reviewed and not approved by PJM. PJM Comments will include reason for denial and necessary actions if any.
- **Active:** Approved VS Criteria is in effect
- **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

To create a new Voltage Schedule Criteria, click on Create New Criteria button and enter Effective Date and Criteria.

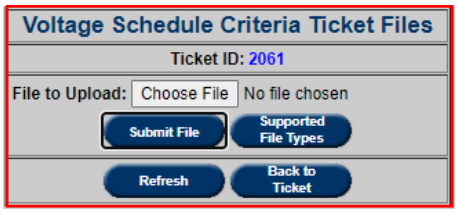




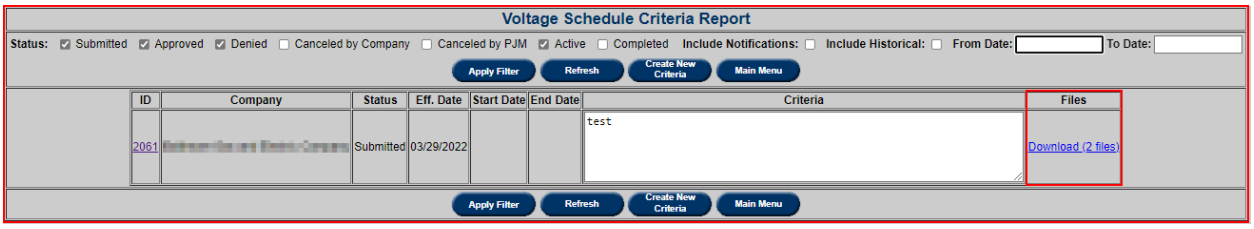
Files can be attached to the VS Criteria after ticket submission.

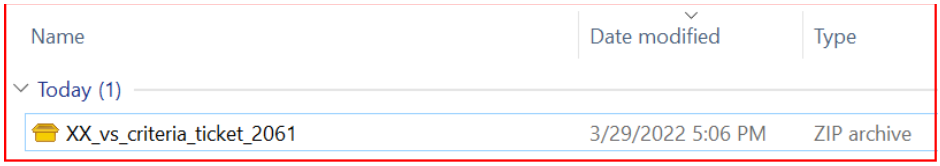


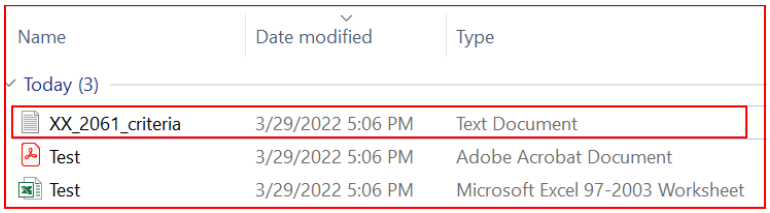
Supported File Types provides a pop-up with a list of supported file types that could be used for attachments.



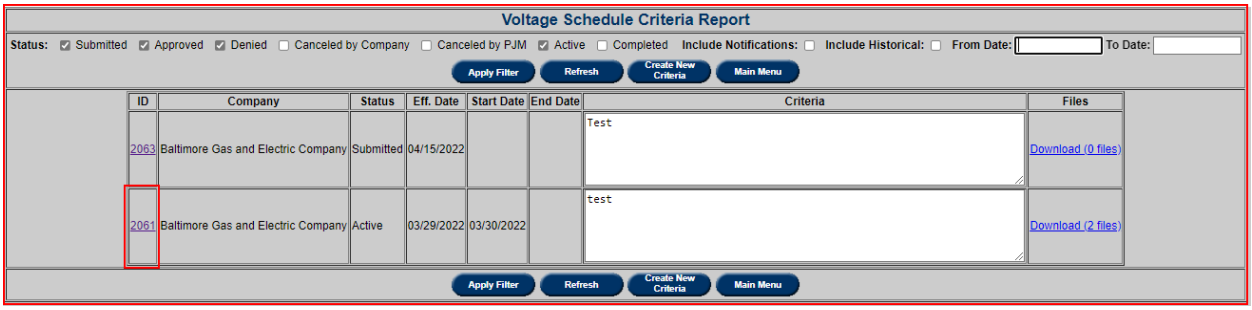
To download VS Criteria from the report, click on **Download (X files)** hyperlink.



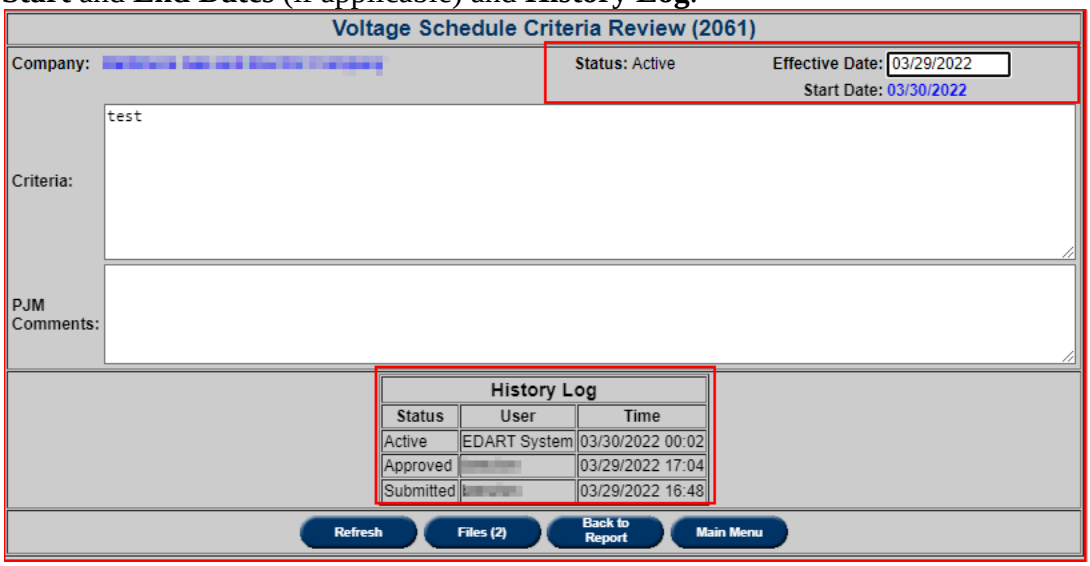




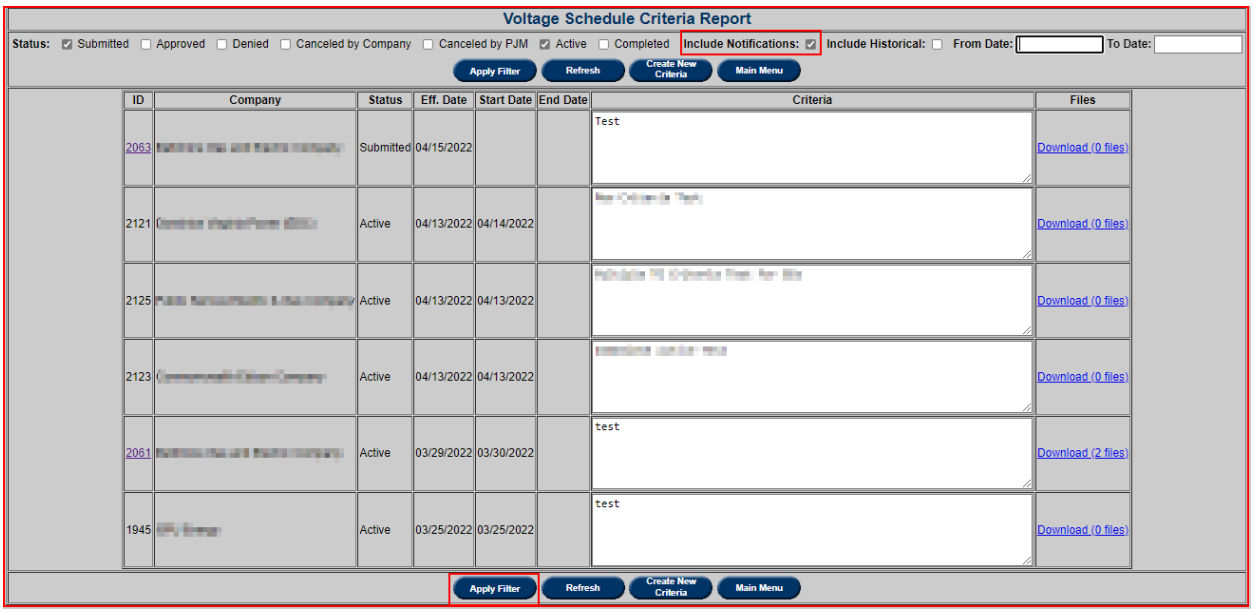
Note: If there are no attached files, "Download (0 Files)", download functionality still will generate a zip file with a single text file with the information in Criteria field.
To View/Review VS Criteria, click in **ID** hyperlink.



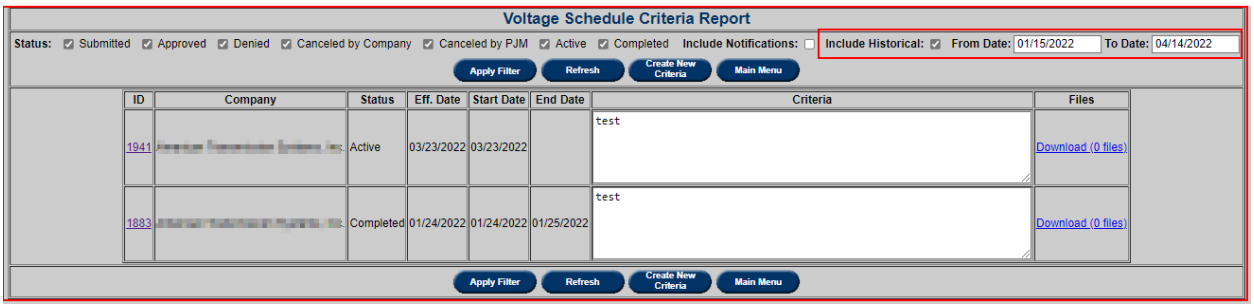
Voltage Schedule Criteria Review page displays ticket information like ticket **Status**, **Effective Date**, **Start** and **End Dates** (if applicable) and **History Log**.



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



To view VS Criteria completed or cancelled 40 or more days ago, check "**Include Historical**" and enter desired dates.
Note: **From** and **To Dates** cannot be more than 3 months apart.

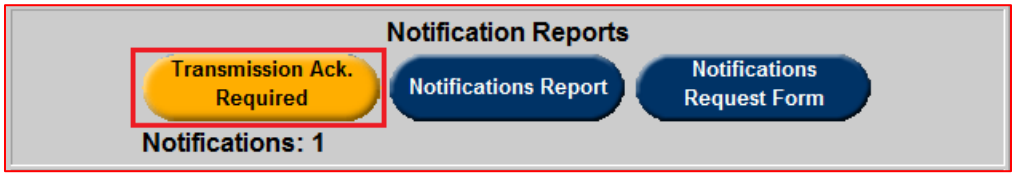


For more information or assistance on Voltage Schedules Criteria, please contact:
VoltageSchedules@pjm.com

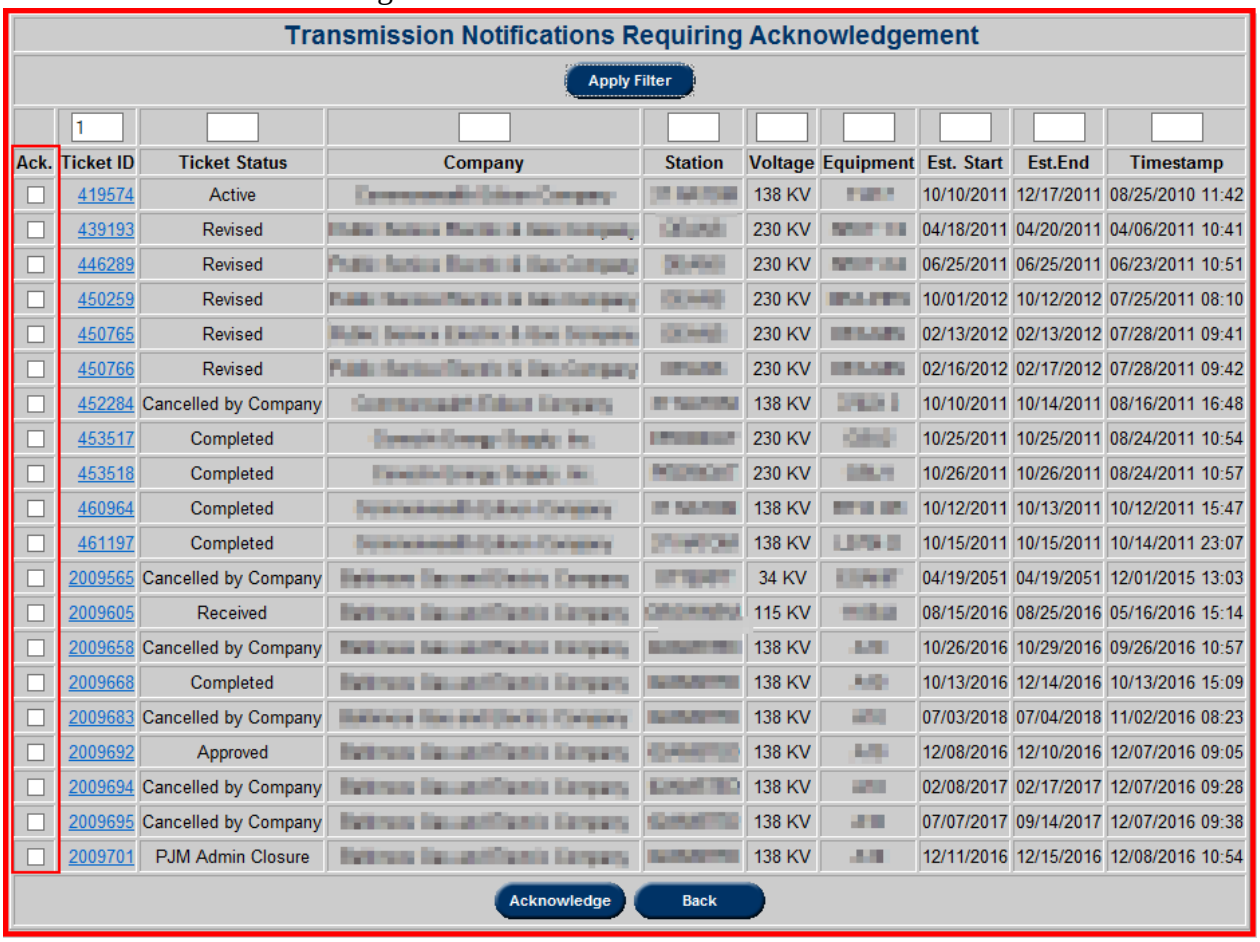
Notification Reports

Transmission Acknowledgment Required

To open the **Transmission Acknowledgment Required** report, click the **Trans. Ack. Required** button in the **Transmission Outage Main Menu** under the section **Notification Reports**.



This will bring the user to a list of required acknowledgments. From here, transmission owners can determine the acknowledgement for each ticket in the list.



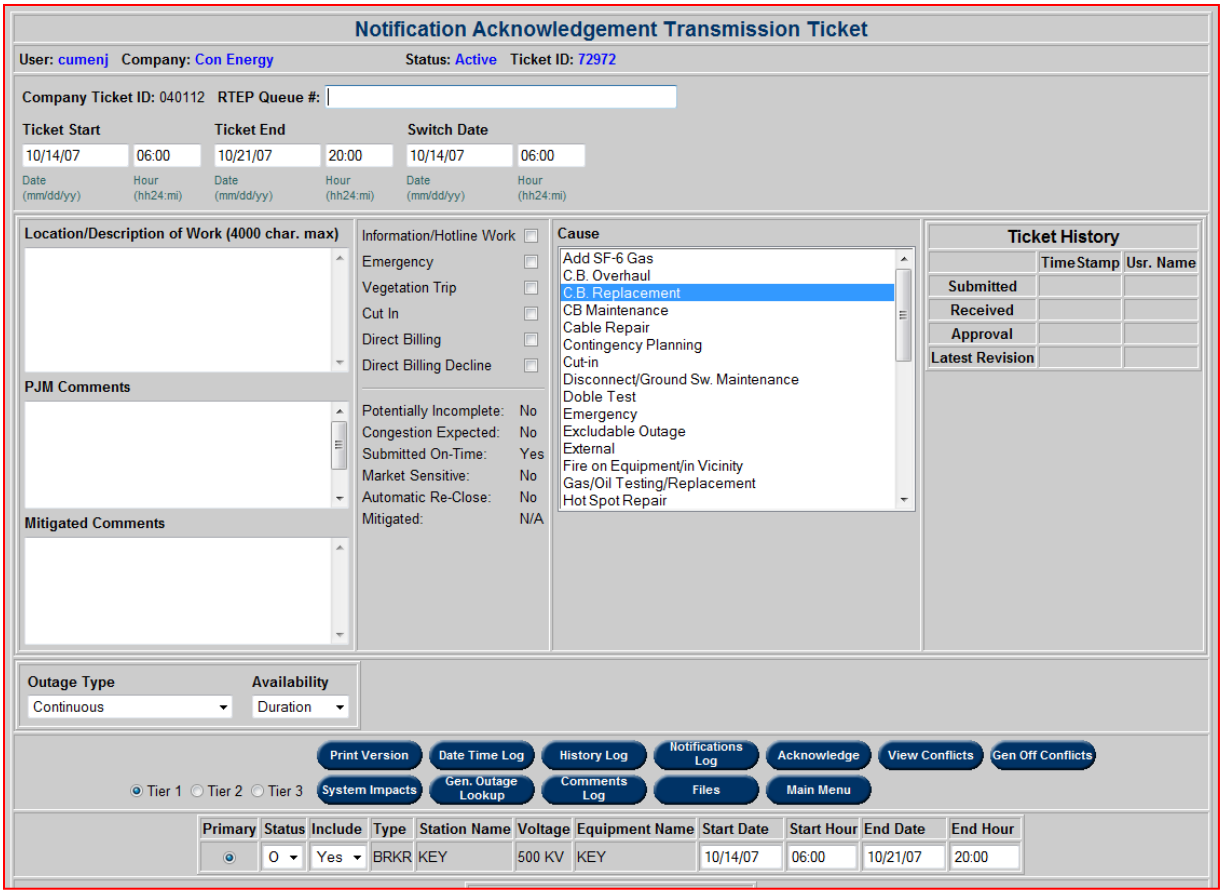
Transmission Notifications Requiring Acknowledgement

Apply Filter

Ack.	Ticket ID	Ticket Status	Company	Station	Voltage	Equipment	Est. Start	Est.End	Timestamp
☐	419574	Active	[redacted]	[redacted]	138 KV	[redacted]	10/10/2011	12/17/2011	08/25/2010 11:42
☐	439193	Revised	[redacted]	[redacted]	230 KV	[redacted]	04/18/2011	04/20/2011	04/06/2011 10:41
☐	446289	Revised	[redacted]	[redacted]	230 KV	[redacted]	06/25/2011	06/25/2011	06/23/2011 10:51
☐	450259	Revised	[redacted]	[redacted]	230 KV	[redacted]	10/01/2012	10/12/2012	07/25/2011 08:10
☐	450765	Revised	[redacted]	[redacted]	230 KV	[redacted]	02/13/2012	02/13/2012	07/28/2011 09:41
☐	450766	Revised	[redacted]	[redacted]	230 KV	[redacted]	02/16/2012	02/17/2012	07/28/2011 09:42
☐	452284	Cancelled by Company	[redacted]	[redacted]	138 KV	[redacted]	10/10/2011	10/14/2011	08/16/2011 16:48
☐	453517	Completed	[redacted]	[redacted]	230 KV	[redacted]	10/25/2011	10/25/2011	08/24/2011 10:54
☐	453518	Completed	[redacted]	[redacted]	230 KV	[redacted]	10/26/2011	10/26/2011	08/24/2011 10:57
☐	460964	Completed	[redacted]	[redacted]	138 KV	[redacted]	10/12/2011	10/13/2011	10/12/2011 15:47
☐	461197	Completed	[redacted]	[redacted]	138 KV	[redacted]	10/15/2011	10/15/2011	10/14/2011 23:07
☐	2009565	Cancelled by Company	[redacted]	[redacted]	34 KV	[redacted]	04/19/2051	04/19/2051	12/01/2015 13:03
☐	2009605	Received	[redacted]	[redacted]	115 KV	[redacted]	08/15/2016	08/25/2016	05/16/2016 15:14
☐	2009658	Cancelled by Company	[redacted]	[redacted]	138 KV	[redacted]	10/26/2016	10/29/2016	09/26/2016 10:57
☐	2009668	Completed	[redacted]	[redacted]	138 KV	[redacted]	10/13/2016	12/14/2016	10/13/2016 15:09
☐	2009683	Cancelled by Company	[redacted]	[redacted]	138 KV	[redacted]	07/03/2018	07/04/2018	11/02/2016 08:23
☐	2009692	Approved	[redacted]	[redacted]	138 KV	[redacted]	12/08/2016	12/10/2016	12/07/2016 09:05
☐	2009694	Cancelled by Company	[redacted]	[redacted]	138 KV	[redacted]	02/08/2017	02/17/2017	12/07/2016 09:28
☐	2009695	Cancelled by Company	[redacted]	[redacted]	138 KV	[redacted]	07/07/2017	09/14/2017	12/07/2016 09:38
☐	2009701	PJM Admin Closure	[redacted]	[redacted]	138 KV	[redacted]	12/11/2016	12/15/2016	12/08/2016 10:54

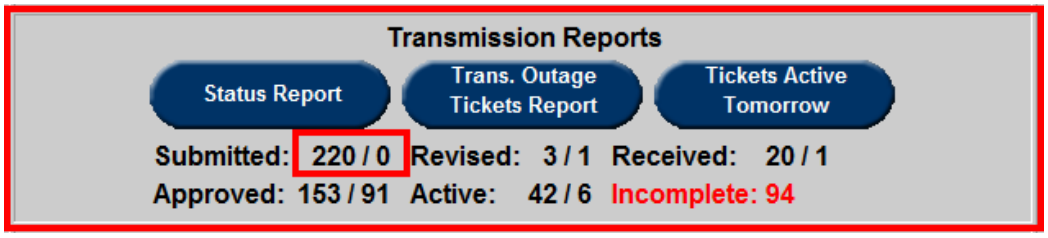
Acknowledge Back

- **Ack.:** The user can check this box for tickets and click on the Acknowledge to acknowledge selected tickets.
- **Ticket ID:** Click on Ticket ID to view ticket.
- View and acknowledge tickets from other companies.



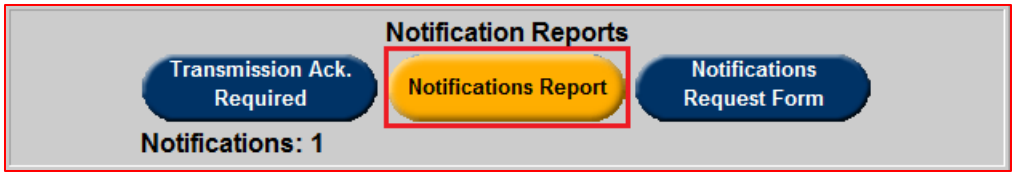
Ticket/Notification Counter

This section displays the number of tickets/notifications that are in each status currently. In the example displayed below, there are 18 tickets and 2 outage notifications in the Submitted status category. Tickets listed as Incomplete are flagged as Potentially Incomplete. These tickets also count toward the total number of submitted tickets.

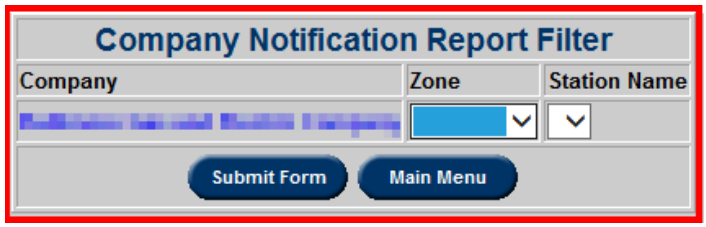


Notifications Report

To open the **Notifications Report** section, click the **Notifications Report** button in the **Transmission Outage Main Menu** under the section **Notification Reports**.



Choose the **Zone** and **Station Name** in the **Company Notification Report Filter** to get a list of equipment within the Zone and Station that the company has requested notification on. Notifications are sent on outages for the listed equipment.

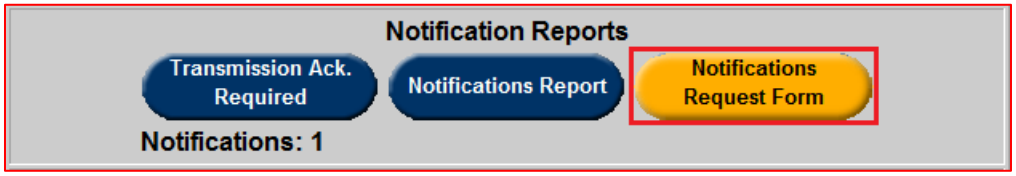


View and update notification access to other companies' facilities.

- **Notification Type:**
  - If "X": The TO owns the facility.
  - If "Y": The TO receives notification on outages scheduled for the facility.
- **Remove From List:** Select "Yes" and click the **Submit Form** button to remove equipment from the notification list.

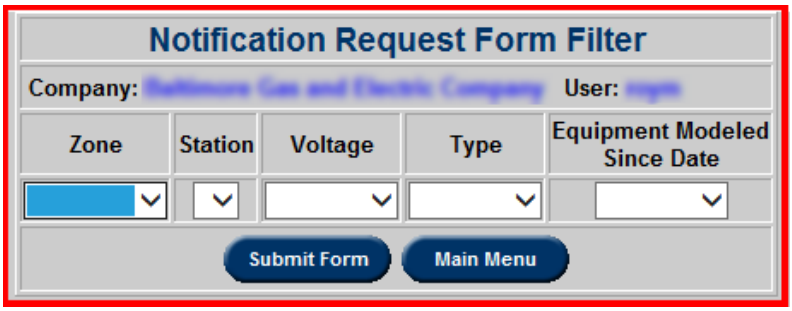
Notifications Request Form

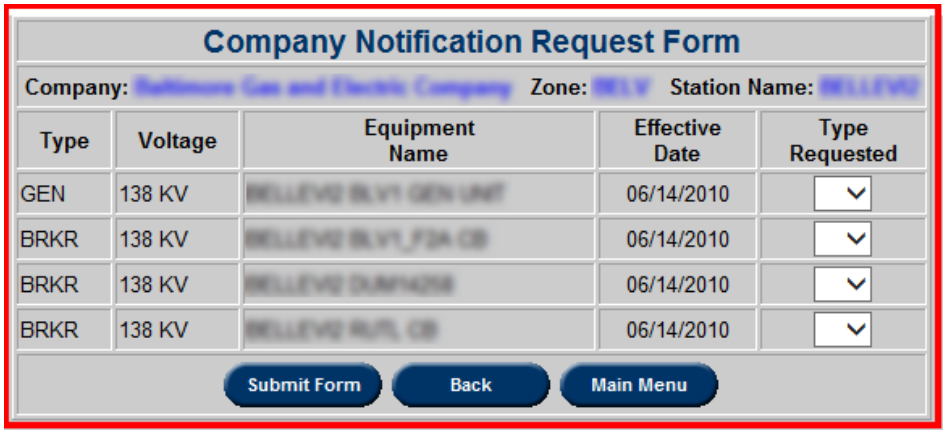
To open the **Notifications Request Form**, click the **Notifications Request Form** button in the **Transmission Outage Main Menu** under the section **Notification Reports**.



Using the **Notifications Request Form**, those with permission can modify the list of users

receiving notifications for a company. To request notification adjustment for a company's facilities, the user must have formal permission via the company's SOS-T representative. The representative must email eDART Equipment Notification (eDartEquipmentNotification@pjm.com) stating their approval.





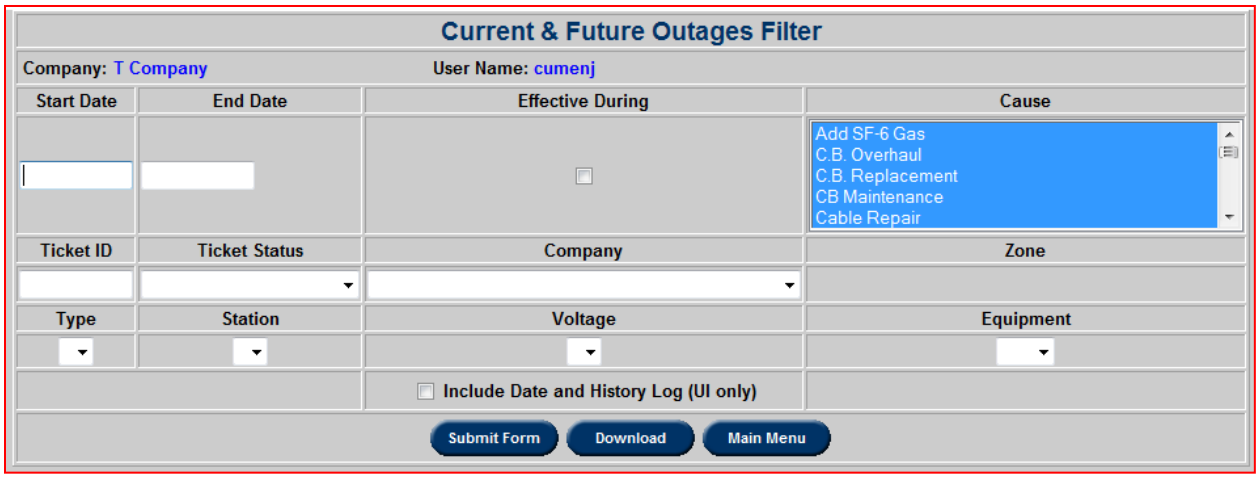
Facility Outages Reports

These reports allow the user to view the eDART current, future, historical and EMS Trip outages The EMS Trip outages are also reported in the PJM Open Access Same-Time Information System (OASIS). For more information on OASIS, go to http://www.pjm.com/markets-and-operations/etools/oasis.aspx.

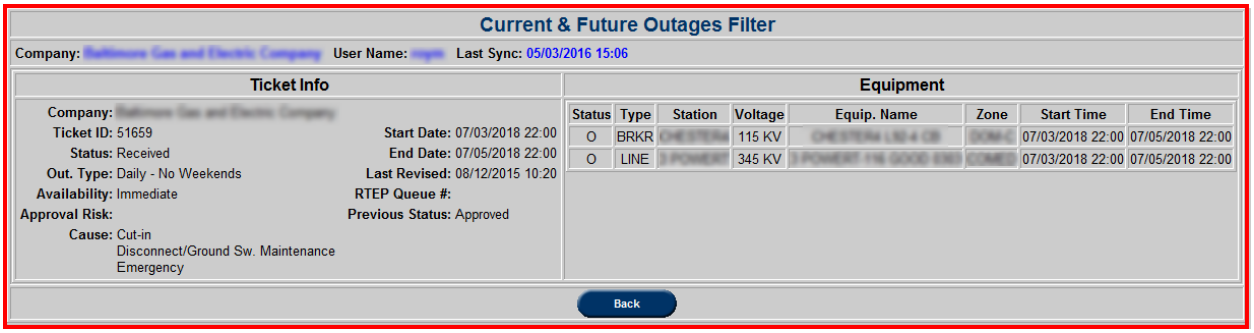
Current & Future

To view a report of non-market sensitive current and future transmission outages in eDART, click the **Current & Future** button in the **Transmission Outage Main Menu** under the section **Facility Outages Reports** and search for reports using the filter criteria in the **Current & Future Outages Filter** window.

By default, all **Cause** types are selected. Users can select one or more Cause types by holding down the "Shift" key and selecting other Cause types.



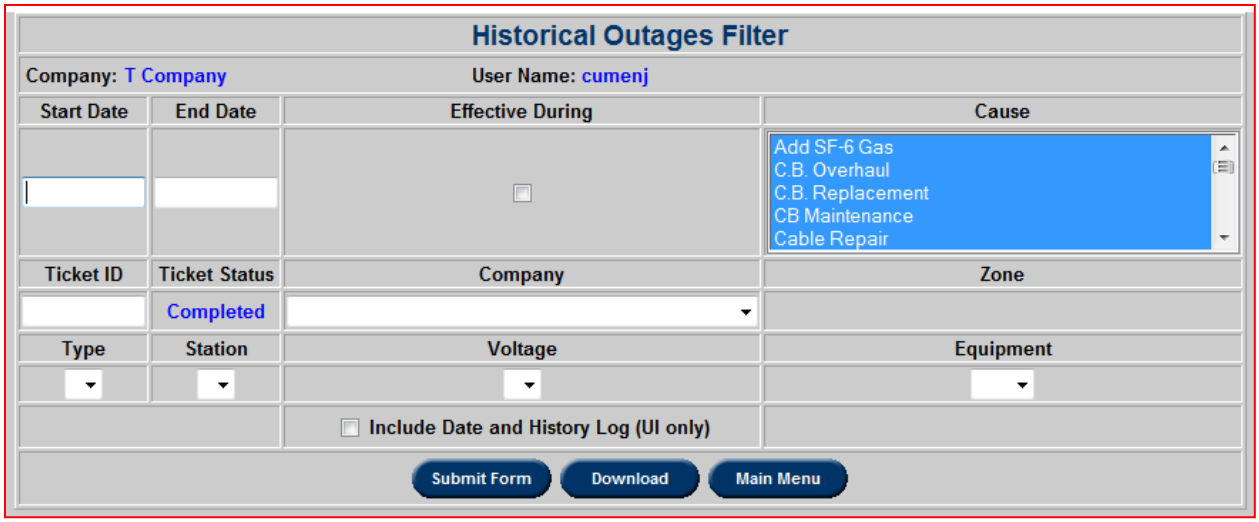
User must select a Company and a Zone or enter a Ticket ID. After filling out other desired criteria, select **Submit Form** and a list similar to the one below will appear.



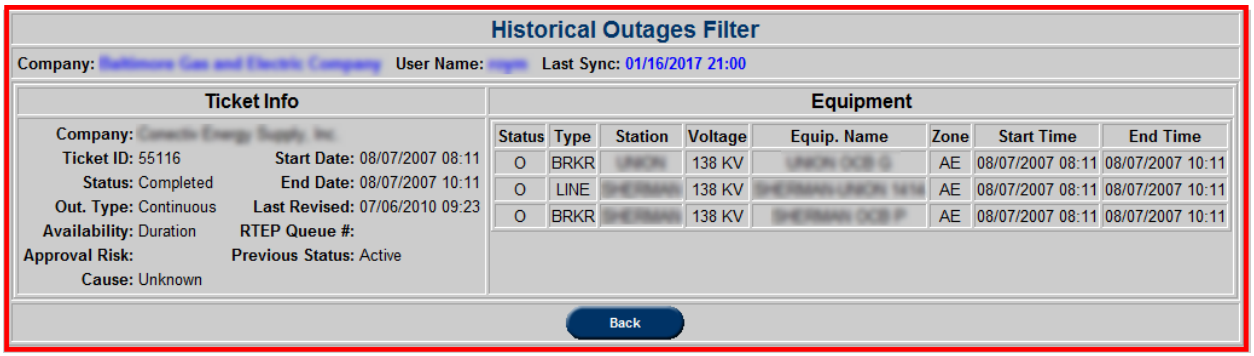
Historical

To open the **Historical** outages report, click the **Historical** button in the **Transmission Outage Main Menu** under the section **Facility Outages Reports**.

The Historical report is a report of past tickets in the status of "Complete."



- **Submit Form:** View a report based on any selected criteria.
- **Download:** Download the report in Extensible Markup Language (XML).



Tickets are sorted by start date.

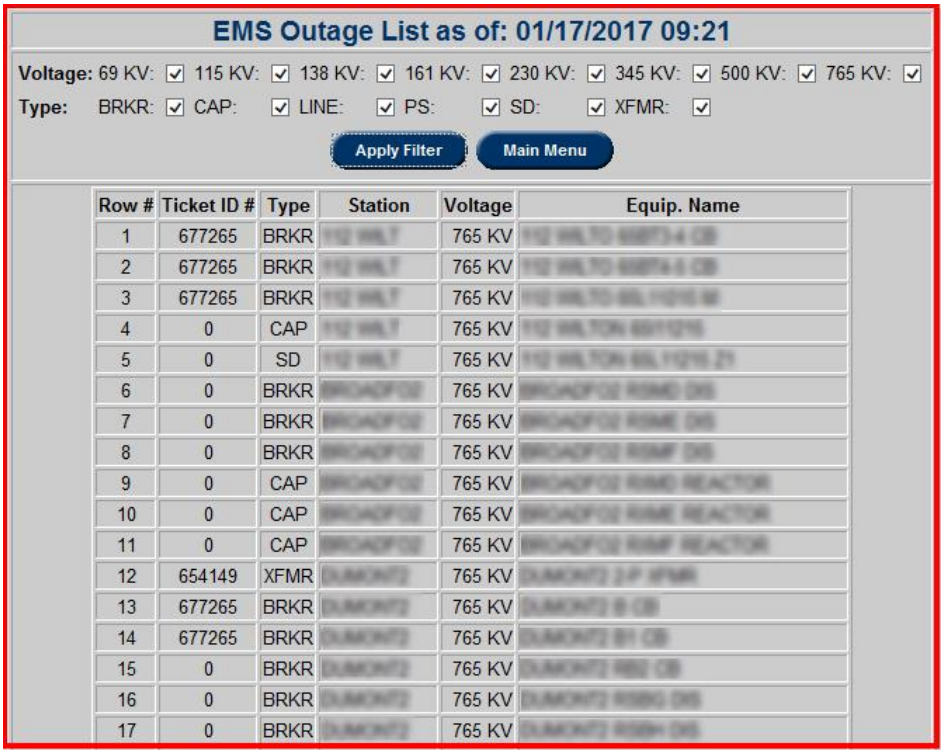
EMS Outage List

The EMS outage list is a report of facilities in outage posted in OASIS every 15 minutes.

To open the **EMS Outage List** report, click the **EMS Outage List** button in the **Transmission Outage Main Menu** under the section **Facility Outage Reports**.

Tickets can be sorted by **Voltage** or **Type**. All tickets for the specified information will appear in order of **Station Name**.

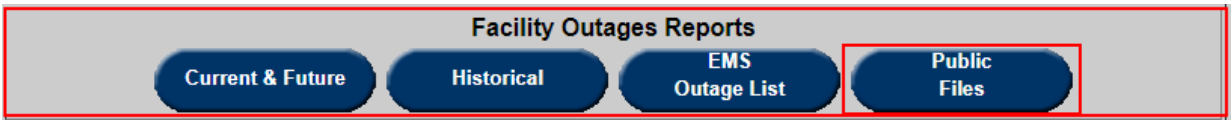
Ticket ID # of "0" indicates the outaged equipment is not in any current active eDART tickets entered by PJM TOs.
Note: eDART will create automatic tickets for outage lines and transformers as described in the [EMS Trip Section].



Row #	Ticket ID #	Type	Station	Voltage	Equip. Name
1	677265	BRKR	[redacted]	765 KV	[redacted]
2	677265	BRKR	[redacted]	765 KV	[redacted]
3	677265	BRKR	[redacted]	765 KV	[redacted]
4	0	CAP	[redacted]	765 KV	[redacted]
5	0	SD	[redacted]	765 KV	[redacted]
6	0	BRKR	[redacted]	765 KV	[redacted]
7	0	BRKR	[redacted]	765 KV	[redacted]
8	0	BRKR	[redacted]	765 KV	[redacted]
9	0	CAP	[redacted]	765 KV	[redacted]
10	0	CAP	[redacted]	765 KV	[redacted]
11	0	CAP	[redacted]	765 KV	[redacted]
12	654149	XFMR	[redacted]	765 KV	[redacted]
13	677265	BRKR	[redacted]	765 KV	[redacted]
14	677265	BRKR	[redacted]	765 KV	[redacted]
15	0	BRKR	[redacted]	765 KV	[redacted]
16	0	BRKR	[redacted]	765 KV	[redacted]
17	0	BRKR	[redacted]	765 KV	[redacted]

Public Files

Public files are available via the Transmission Tickets Menu in eDART.
Click on **Public Files** button, select which files to download. Zip file will be downloaded with selected files.



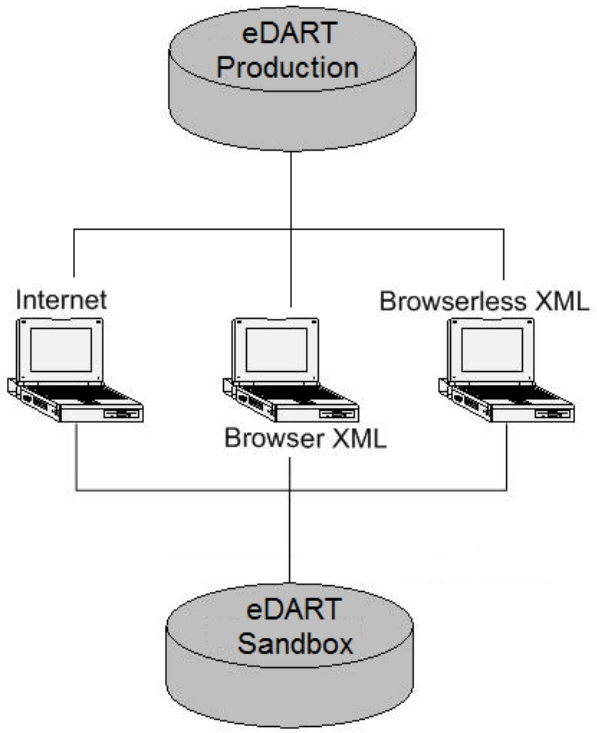
Public Files

Include	File	Description	Timestamp
☐	equiplist.csv	Equipment List/Complete Descriptions file	03/15/20 09:56:40
☐	voltagelimits.csv	PJM RTO and TO Voltage Limits	05/15/20 00:02:02
☐	linesout.txt	Transmission Facilities Outages List	05/15/20 09:54:34
☐	linesout_new.txt	Staging version of Transmission Facilities Outages List	05/15/20 09:54:34
☐	rtep.txt	List of RTEP Transmission Outage Tickets	05/15/20 09:55:06
☐	nercalertlinesout.txt	NERC Alert Transmission Outages	05/14/20 13:01:23
☐	pjm_term_reason_list.txt	List of the available reasons for ratings change	05/15/20 05:37:04
☐	pjm_line_ratings.txt	Current ratings for all reportable facilities in PJM	05/15/20 09:30:01
☐	pjm_temp_line_ratings.txt	Active temporary changes and future changes to ratings	05/15/20 09:30:01
☐	nercratingsalertchanges.txt	Ratings changes due to NERC Alert	05/15/20 09:30:01
☐	dlr_real_time_current.csv	Current DLR Real-Time Ratings	05/15/20 09:51:04
Download	term_ratings_current.zip	Current TERM Ratings	05/15/20 09:52:07
Download	term_ratings_today.zip	Historical TERM Ratings for Today	05/15/20 09:02:21
Download	term_ratings_yesterday.zip	Historical TERM Ratings for Yesterday	05/15/20 00:02:16
Download	term_ratings_2days_ago.zip	Historical TERM Ratings for 2 Days ago	05/15/20 00:02:16
Download	term_ratings_3days_ago.zip	Historical TERM Ratings for 3 Days ago	05/15/20 00:02:16
Download	toimwg_current.zip	Full TOIMWG-Current XML	05/15/20 09:54:33

Download | Refresh | Main Menu

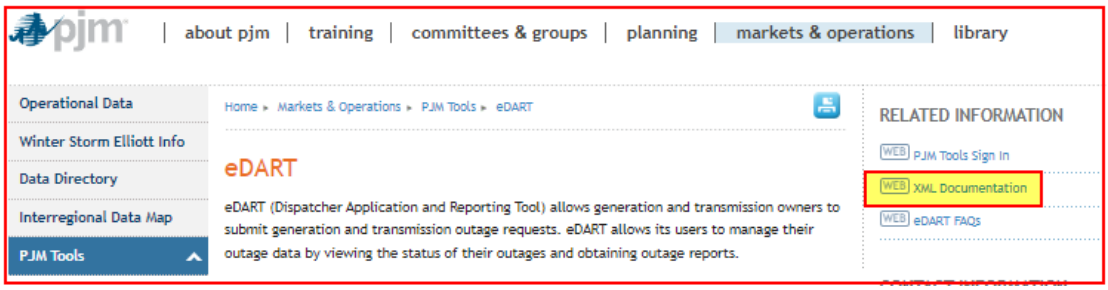
XML and Browserless Functionality

eDART has three member facing interfaces as shown in the image below. Members can link their in-house applications to eDART via the Browserless XML interface.



XML Documentation Page

PJM provides helpful materials on the eDART XML Documents page including: schema diagrams, schema documents, .xsd and xml example files. The page can be reached through the eDART page (https://www.pjm.com/markets-and-operations/etools/edart) on PJM.com.



Alternatively the eDART XML Documents can be accessed directly through the following link: pjm.com/pub/etools/edart/xmldocs/xmldoc.html.

eDART XML Documents

Description	File Name/Link	Modification Date	Notes
Command Line Interface (CLI) User Guide	PJM Command Line Interface	11/18/2020	User Guide for PJM Command Line Interface.
Command Line Interface (CLI)- Java 8+ Zip File	Command Line Interface - Java 8+	3/11/2021	PJM Command Line Interface Files.
Dart Browserless User Guide	Dart Browserless User Guide(PDF)	04/15/2024	User Guide for use of eDART with PJM Command Line Interface.

Command Line Interface (CLI) User Guide (https://pjm.com/~/media/etools/dr-hub/cli-user-guide.ashx) – provides an overview of the command line interface (CLI), a Java based interface for transferring formatted files to and from PJM participant facing applications

Command Line Interface (CLI)- Java 8+ Zip File – a .zip file containing pjm-cli.jar, cmd files and helpful documentation to guide and execute browserless functionalities.

Dart Browserless User Guide (https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx) - provides details of the Dart Browserless interface, which uses the PJM CLI to access the eDART system.

Description	Schema Diagram	Schema Document	.xsd	Example File	Modification Date	Notes
General						
Company Names	Schema Diagram	Schema Document	xsd	Example File		
Control Zones	Schema Diagram	Schema Document	xsd	Example File	12/21/2021	Updated XML Documents for eDART Browserless Refresh.
Response	Schema Diagram	Schema Document	xsd	Example File	01/03/2022	Added Response to XML Documents.
Transmission Zones	Schema Diagram	Schema Document	xsd	Example File	12/21/2021	Updated XML Documents for eDART Browserless Refresh.

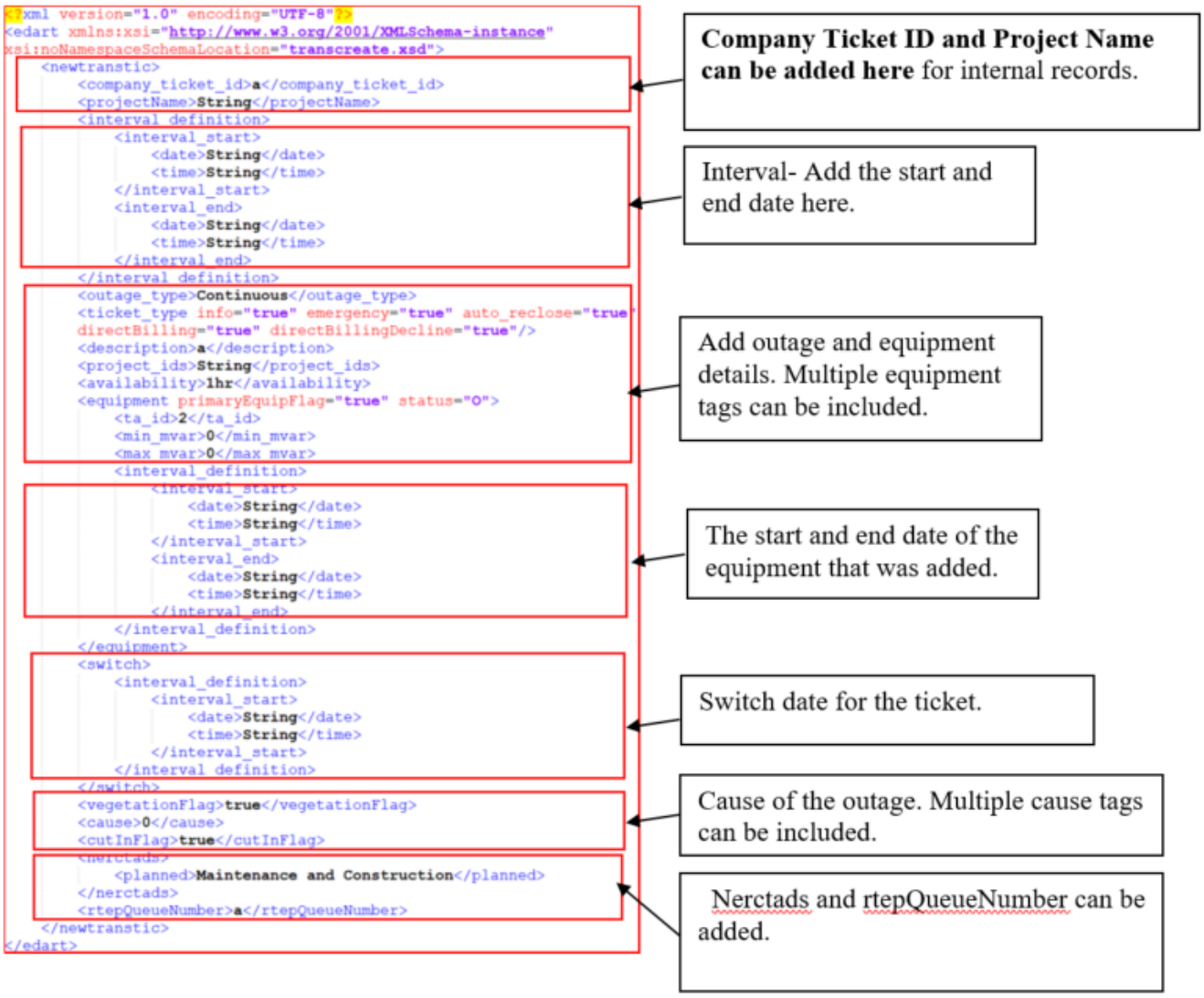
Schema Diagrams - Pictorial representation of elements (Tag).

Schema Documentation - details the property of each element in the schema.

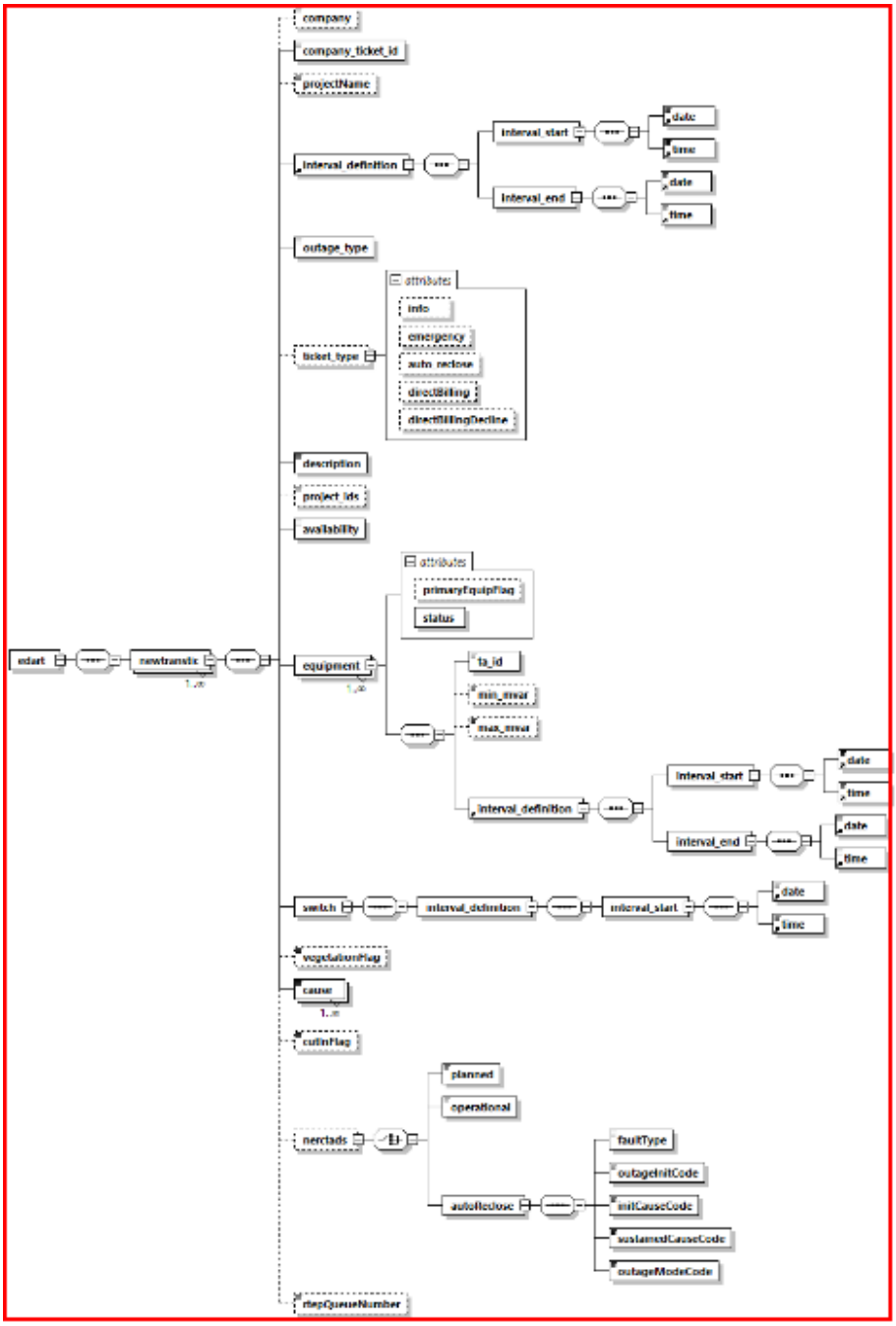
XSD - XML Schema diagrams for each upload/download.

Examples – Several XML Upload and Download example files are available for reference.

The following is an example for a new transmission outage ticket (transticcreate.xml):



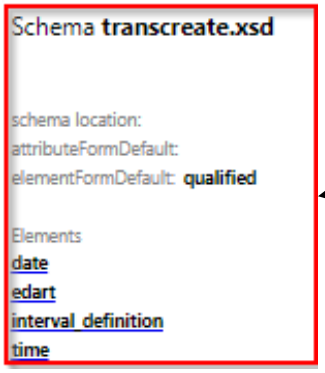
A **Schema Diagram** is a pictorial view of the elements that are included in the specific XML file:



All these elements can be accessed by the user and used to create the desired ticket/report submission via an XML file.

Schema Documentation details the property of each element in the schema.

Elements are shown with detailed explanation.



At the beginning of the documentation the user can view all the elements that are used in the schema.

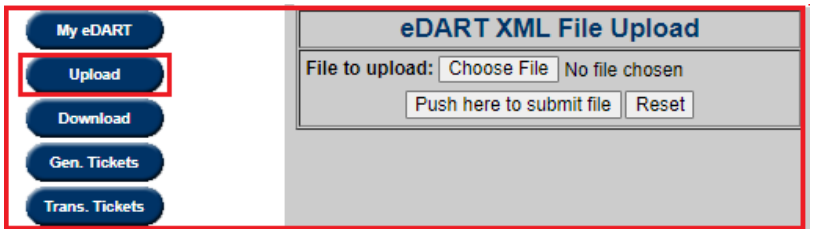
Click the element name to see more details about the element.

eDART XML File Upload

XML (Extensible Markup Language) Upload functionality allows users to submit information to eDART via uploaded files. Only users with Generation or Transmission Read and Write access will be able to upload files to eDART.

After logging into eDART, select the **Upload** button.

Click **Browse** to locate the file to be uploaded. After selecting a file for upload, click **Push here to submit file**. A confirmation page will be displayed once the upload is successful. If an upload is unsuccessful, an error message will be returned.

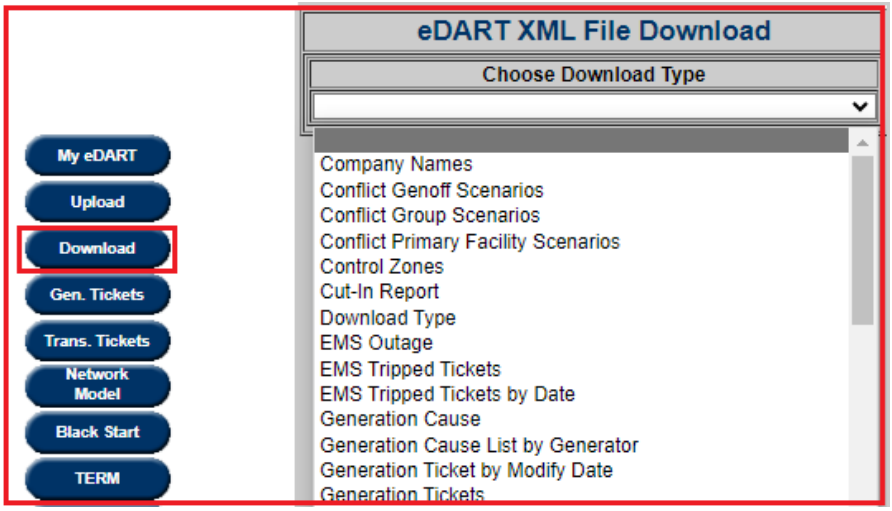


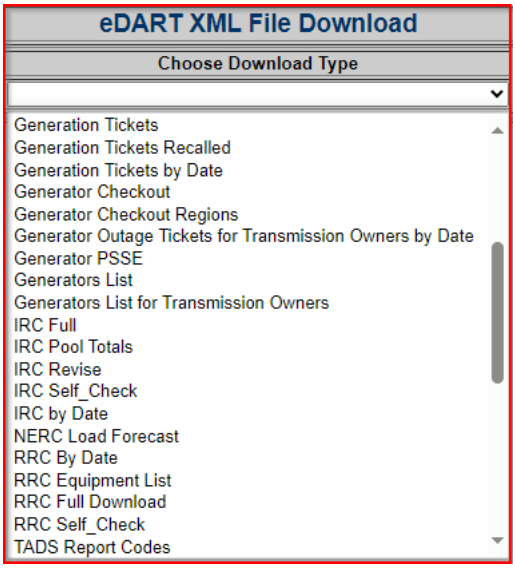
eDART XML File Download

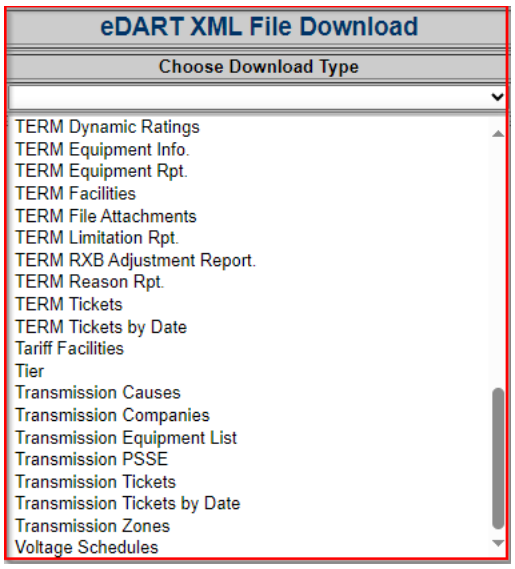
XML Download allows users to download various tickets, ratings, facilities list, reports and other information in XML format.

After logging into eDART, select the **Download** button from the left menu. Next, select a **Download Type** from the dropdown menu by clicking on the arrow on the right.

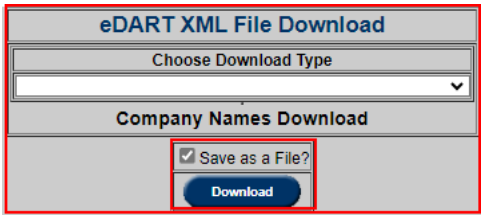
The list of available downloads depends on the company and user's access.



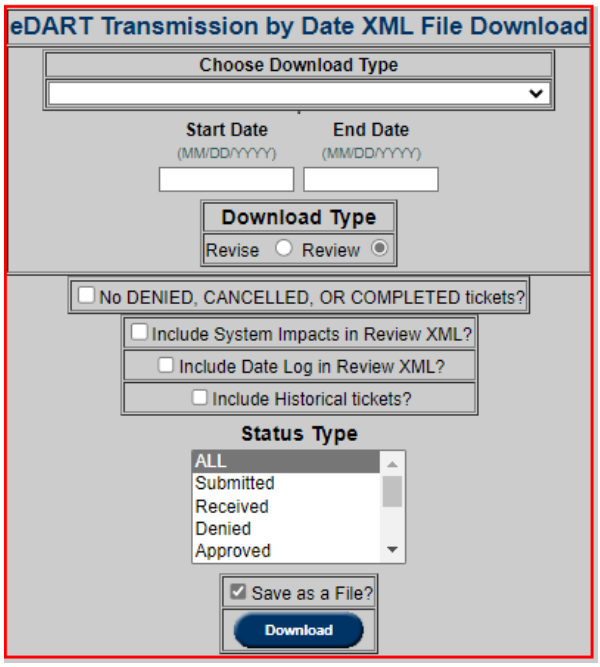




By selecting desired download type, one can download specific information as required. Once a category has been selected, to save the file, click the Download button. To view the results, uncheck the box next to the field **Save as a File** and click on the Download button.



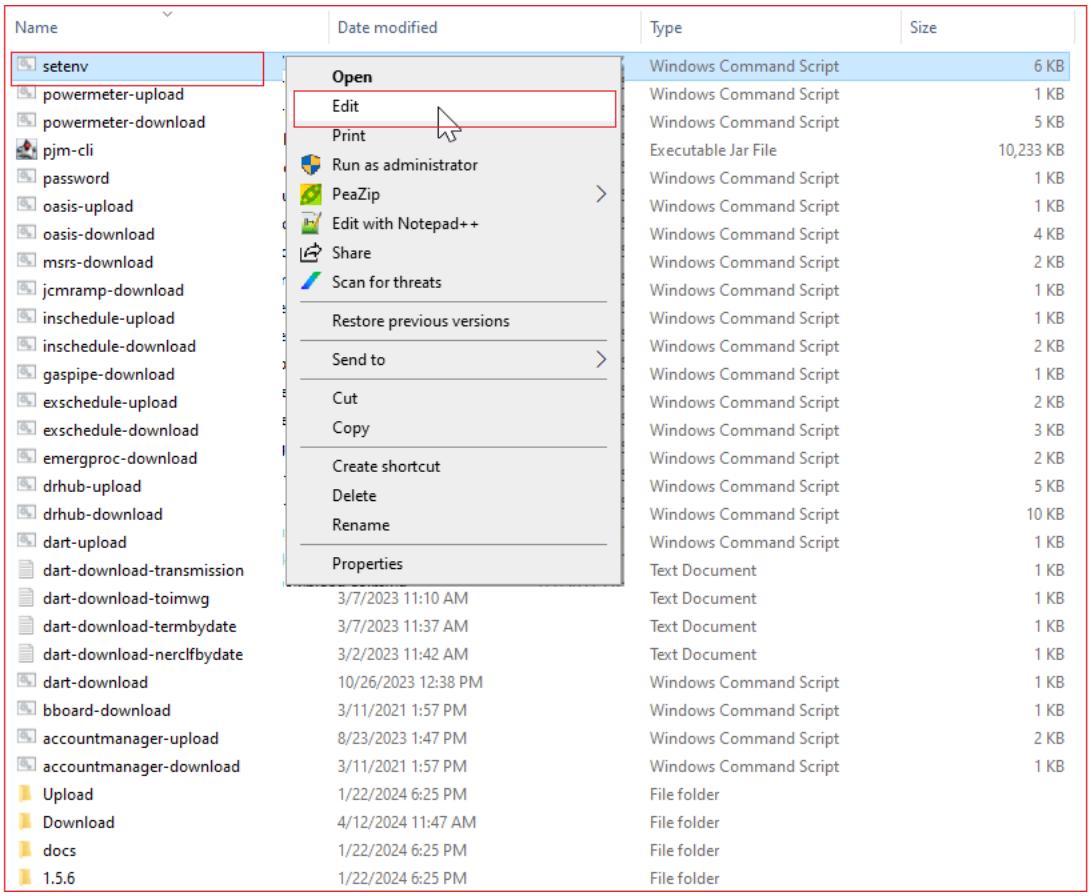
Users can download different download types with a variety of filters.
For example, eDART Transmission by Date XML File Download returns tickets within a specified date range. There are two radio buttons: Revise and Review. “Revise” provides less detail on the ticket since it is made for a quick re-upload. “Review” has more details.

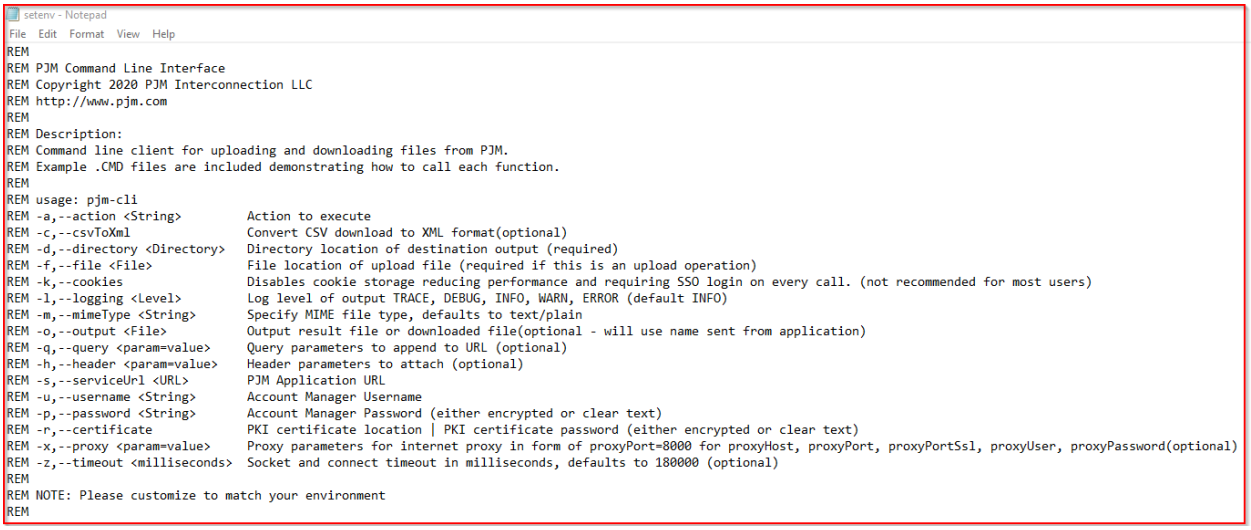


Browserless Functionality

Dart Browserless uses the PJM-CLI to interface with the eDART application. The command line interface (CLI) is a Java based interface for transferring formatted files to and from PJM participant facing applications. Because the interface is "browser-less", it can be used by an end user or a custom automation program written by the participant. For more information, please reference:

- **PJM Command Line Interface User Guide** https://pjm.com/~/media/etools/dr-hub/cli-user-guide.ashx
- **Command Line Interface - Java 8+** can be found at PJM - System Requirements or downloaded directly via https://www.pjm.com/-/media/etools/pjm-command-line-interface-java-8.ashx


Name
Date modified
Type
Size
setenv
Windows Command Script
6 KB
powermeter-upload
Windows Command Script
1 KB
powermeter-download
Windows Command Script
5 KB
pjm-cli
Executable Jar File
10,233 KB
password
Windows Command Script
1 KB
oasis-upload
Windows Command Script
1 KB
oasis-download
Windows Command Script
4 KB
msrs-download
Windows Command Script
2 KB
jcmramp-download
Windows Command Script
1 KB
inschedule-upload
Windows Command Script
1 KB
inschedule-download
Windows Command Script
2 KB
gaspipe-download
Windows Command Script
1 KB
exschedule-upload
Windows Command Script
2 KB
exschedule-download
Windows Command Script
3 KB
emergproc-download
Windows Command Script
2 KB
drhub-upload
Windows Command Script
5 KB
drhub-download
Windows Command Script
10 KB
dart-upload
Windows Command Script
1 KB
dart-download-transmission
Text Document
1 KB
dart-download-toimwg
3/7/2023 11:10 AM
Text Document
1 KB
dart-download-termbydate
3/7/2023 11:37 AM
Text Document
1 KB
dart-download-nerclfbydate
3/2/2023 11:42 AM
Text Document
1 KB
dart-download
10/26/2023 12:38 PM
Windows Command Script
1 KB
bboard-download
3/11/2021 1:57 PM
Windows Command Script
1 KB
accountmanager-upload
8/23/2023 1:47 PM
Windows Command Script
2 KB
accountmanager-download
3/11/2021 1:57 PM
Windows Command Script
1 KB
Upload
1/22/2024 6:25 PM
File folder
Download
4/12/2024 11:47 AM
File folder
docs
1/22/2024 6:25 PM
File folder
1.5.6
1/22/2024 6:25 PM
File folder
Open
Edit
Print
Run as administrator
PeaZip
Edit with Notepad++
Share
Scan for threats
Restore previous versions
Send to
Cut
Copy
Create shortcut
Delete
Rename
Properties


setenv - Notepad
File Edit Format View Help
REM
REM PJM Command Line Interface
REM Copyright 2020 PJM Interconnection LLC
REM http://www.pjm.com
REM
REM Description:
REM Command line client for uploading and downloading files from PJM.
REM Example .CMD files are included demonstrating how to call each function.
REM
REM usage: pjm-cli
REM -a,--action <String> Action to execute
REM -c,--csvToXml Convert CSV download to XML format(optional)
REM -d,--directory <Directory> Directory location of destination output (required)
REM -f,--file <File> File location of upload file (required if this is an upload operation)
REM -k,--cookies Disables cookie storage reducing performance and requiring SSO login on every call. (not recommended for most users)
REM -l,--logging <Level> Log level of output TRACE, DEBUG, INFO, WARN, ERROR (default INFO)
REM -m,--mimeType <String> Specify MIME file type, defaults to text/plain
REM -o,--output <File> Output result file or downloaded file(optional - will use name sent from application)
REM -q,--query <param=value> Query parameters to append to URL (optional)
REM -h,--header <param=value> Header parameters to attach (optional)
REM -s,--serviceUrl <URL> PJM Application URL
REM -u,--username <String> Account Manager Username
REM -p,--password <String> Account Manager Password (either encrypted or clear text)
REM -r,--certificate PKI certificate location | PKI certificate password (either encrypted or clear text)
REM -x,--proxy <param=value> Proxy parameters for internet proxy in form of proxyPort=8000 for proxyHost, proxyPort, proxyPortSsl, proxyUser, proxyPassword(optional)
REM -z,--timeout <milliseconds> Socket and connect timeout in milliseconds, defaults to 180000 (optional)
REM
REM NOTE: Please customize to match your environment
REM

```
REM (Optional) If you are a SUMA user and have multiple accounts set the specific to use. Primary account will be used by default.
REM set ACCOUNT=-h Suma-Account=ABCD

REM JAVA should contain a pointer to a Java 8+ JRE \bin\java.exe executable
set JAVA=C:\XXXXXX\java.exe

REM MEMARGS Java Virutal Machine memory arguments
set MEMARGS=-Xms64m -Xmx256m

REM CLASSPATH location of the pjm-cli.jar (default to current directory)
set CLASSPATH=pjm-cli.jar

REM USER your PJM username
set USER=XXXXXXX

REM PSWD your PJM password (can be plaintext or encrypted ENC(...) if encrypted using password.cmd)
set PSWD=XXXXXX

REM Certificate information if PKI certs are required (cert location | password)
REM set CERTIFICATE=-r "cert/XXXXXX"

REM DOWNLOADS Output directory for file downloads or results of file uploads
set DOWNLOADS=./download/

REM If you use a Proxy uncomment one of these lines depending on whether you use a username or password
set PROXY=
REM set PROXY=-x proxyHost=myHost -x proxyPort=80 -x proxyPortSsl=80
REM set PROXY=-x proxyHost=myHost -x proxyPort=80 -x proxyPortSsl=80 -x proxyUser=myProxyUser -x proxyPassword=myProxyPass

REM You can configure the socket timeout (in milliseconds) here to be longer if you are getting timeouts on large files. Default to 3 minutes.
set TIMEOUT=-z 180000

REM CLIENT_PUBLIC is the command line created and used for public URLS
set CLIENT_PUBLIC=%JAVA% %MEMARGS% -jar %CLASSPATH% -d %DOWNLOADS% %PROXY% %TIMEOUT%

REM CLIENT is the command line created and used by all other .cmd files in this directory
set CLIENT=%CLIENT_PUBLIC% -u %USER% -p %PSWD% %CERTIFICATE% %ACCOUNT%
```

Mandatory Parameters

Argument	Description	Required/Optional
-a,--action	Specifies the action to perform. Will be a partial URL that is appended to the service URL. This parameter is specific to the endpoint. Refer to specific endpoints for actual values. (-a parameter): – **Upload**: -a rest/secure/upload – **Download:** -a rest/secure/download – **Hydro upload:** -a /rest/secure/hydro	**Required**
F-d, --directory	Specifies the directory location where results files are downloaded. Our examples generally use './' which indicates the current directory, but any path will work.	**Required**
-f, -file	File location of upload file (required if this is an upload)	**Required for uploads**
--HTTP Type	Specifies the purpose of the request POST is used for all endpoints, uploads and downloads	**Required**
-o,--output	Specifies an override filename for the output result file or downloaded file. The default filename is passed from the application, for example "company-names_2024-04-30-153057.xml".	Optional
-p, --password	Specifies the password credential to pass to the system. The–p parameter is followed by your password. Note: If your password is encrypted with the PJM CLI, the entire encrypted string, including the ENC(), must be included.	**Required**
-q, -query	Query parameters that are unique to each download, if the download has input parameters at all	Optional
-s,--serviceUrl	Specifies the services URL to access, either the Training or Production system. **Train** -s https://edartssotrain.pjm.com/edart/ **Production** -s https://edartsso.pjm.com/edart/	**Required**
-sso	Indicates if PJM CLI should authenticate with the PJM Single Sign-On (SSO) system. Dart is configured to work with the PJM SSO. true for SSO	**Not Required**
-u,--username	Specifies the username credential to pass to the system. The –u parameter is followed by your username.	**Required**

PKI Certificate Requirement

eDART SSO accounts that are used for eDART Browserless/CLI require PKI Certificates (if the account does not already have one).

- This requirement is currently in place for other PJM Tools.

- PKI is not tool specific therefore certificates already set up for use with other PJM Tools can be applied for Dart Browserless usage.
- The same PKI certificate can be used in both Production and Training 7-7

For more information, please see the following in the PJM Security home page:

- PKI Certificates and PKI/Two Factor Browserless/API FAQs (PDF)
- PKI Authentication Guide (PDF)
- Exporting Public Keys Guide (PDF)

Actions Required:

- Obtain a valid PKI certificate from an approved Certificate Authority
- Make sure 2-Way SSL Connections, Client Certificates, & Connection Renegotiation are enabled at Firewall & Security devices for outgoing PJM SSO traffic
- Rewrite Browserless/API authentication code OR use PJM provided CLI:

  PJM CLI setenv.cmd CERTIFICATE property may need to be updated (if not already in use)
  CERTIFICATE=-r "C:\filelocation\cert.pfx|ENC(encrypted password)"
  e.g. CERTIFICATE=-r "C:\Personal\jre\lib\cacerts.pfx|ENC(9s+rtpL/7pkPHy)"

Browserless Upload Example

To review all available upload types and examples, please refer to

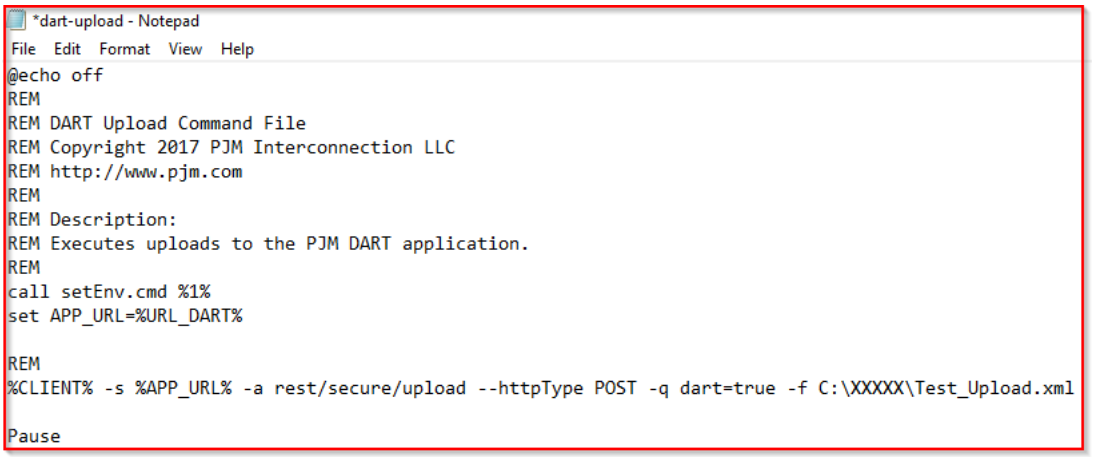
- Dart Browserless User Guide https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx
- eDART XML Documents Page https://pjm.com/pub/etools/edart/xmldocs/xmldoc.html

Example: Generation Ticket Upload

Functional Overview: This endpoint allows the user to create, revise and cancel generation outage tickets. The same upload endpoint will be used for all types of generation equipment, the required and revisable elements will vary depending on the equipment type.
When creating a generation ticket, the PJM Ticket ID will not be part of the file. When revising or canceling the ticket, it will be. NewCompanyTicketId is used to revise the User's company ticket Id currently associated with the ticket. This field is only available when revising an existing generation ticket.
When creating a generation ticket, the top container is named "newgentic" and will also include the ticket_type where the element values are 1-MW, 2-Volt. Reg., 3-MVAR, 4-Governor, 5-MVAR Test, 6-PSS

PJM CLI Example

java -jar pjm-cli.jar
-d ./output/
-a rest/secure/upload
--httpType POST
-q dart=true
-u %USER%
-p %PSWD%
-s %SERVICEURL%
-f {filename.xml}
-o {filename2.xml}



Example Input – Create MW Ticket

```
<?xml version="1.0" encoding="UTF-8"?>
<edart xsi:noNamespaceSchemaLocation="genticcreate.xsd" xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance">
  <newgentic>
    <!-- MW Type -->
    <company_ticket_id>unique comp ticket id, LE 50 char</company_ticket_id>
    <unitnumber>9999</unitnumber>
    <ticket_type>1</ticket_type>
    <!-- Designates ticket is of MW type -->
    <interval_definition>
      <interval_start>
        <date>yyyy-mm-dd</date>
        <time>hh:mm:ss</time>
      </interval_start>
      <interval_end>
        <date>yyyy-mm-dd</date>
        <time>hh:mm:ss</time>
      </interval_end>
    </interval_definition>
    <unknown_end>false</unknown_end>
    <description>Description less than 4000 characters</description>
    <!-- cause, reduction, outage type are used for MW Ticket -->
    <cause>xx</cause>
    <reduction>xx</reduction>
    <outage_type>forecasted planned</outage_type>
    <!--valid values: forecasted planned, maintenance, unplanned-->
    <ramp_down_time>
      <interval_definition>
        <interval_start>
          <date>yyyy-mm-dd</date>
          <time>hh:mm:ss</time>
        </interval_start>
      </interval_definition>
    </ramp_down_time>
    <switch>
      <interval_definition>
        <interval_start>
          <date>yyyy-mm-dd</date>
          <time>hh:mm:ss</time>
        </interval_start>
        <interval_end>
          <date>yyyy-mm-dd</date>
          <time>hh:mm:ss</time>
        </interval_end>
      </interval_definition>
    </switch>
    <info_flag>false</info_flag>
    <est_early_return_time>yyyy-mm-ddThh:mm:ss</est_early_return_time>
    <!--valid for outage_type=forecasted planned-->
  </newgentic>
</edart>
```

Example Response

```
<?xml version="1.0" encoding="UTF-8"?>
<edartreply>
  <ticket_info>
    <pjm_ticket_id>797850</pjm_ticket_id>
    <company_ticket_id>SMOKE [redacted]</company_ticket_id>
    <message>Generator ticket upload</message>
    <message>success</message>
    <executionTimestamp>202[redacted]-12-14 10:20:29</executionTimestamp>
  </ticket_info>
</edartreply>
```

Browserless Download Example

To review all available download types and examples, please refer to

- Dart Browserless User Guide https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx
- eDART XML Documents Page https://pjm.com/pub/etools/edart/xmldocs/xmldoc.html

Example: Generation Ticket Download

Functional Overview: This download serves to provide members a method to receive information on a specified generation ticket, or a group of generation tickets based on the provided parameters.

Additional Parameters

Name	CLI Argument Type	Value/Result	Required
id	Query	**Values:** A single id or multiple ids in a comma separated list without spaces **Result**: Returns the specific ticket(s) requested	No, If ID or companyTicketId is entered, no other parameters will be evaluated
showhistory	Query	**Values:** true, false **Results:** If true, the history logs for the ticket are included. The default value is false.	No

PJM CLI Example

```
java -jar pjm-cli.jar
-d ./download/
-a  rest/secure/download
--httpType POST
-q dart=true
-q downloadtype=generation
-u %USER%
-p %PSWD%
-s %SERVICEURL%
-q id=123456
```

Example Output

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<edart xsi:schemaLocation="http://www.pjm.com/external/schemas/genticreview/v1 genticreview.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <genticreview>
        <pjm_ticket_id>1234567</pjm_ticket_id>
        <company_ticket_id>Test 12345</company_ticket_id>
        <unitnumber>12345</unitnumber>
        <ticket_type>1</ticket_type>
        <ticket_type_description>MW</ticket_type_description>
        <interval_definition>
            <interval_start>
                <date>2025-04-15</date>
                <time>08:00:00</time>
            </interval_start>
            <interval_end>
                <date>2025-04-18</date>
                <time>22:00:00</time>
            </interval_end>
        </interval_definition>
        <cause>13</cause>
        <reduction>5</reduction>
        <outage_type>Forecasted Planned</outage_type>
        <status>Approved</status>
        <timestamp>2024-04-12 16:04:20</timestamp>
        <infoFlag>false</infoFlag>
        <est_early_return_time>2025-04-18T22:00:00</est_early_return_time>
    </genticreview>
</edart>
```

Network Model

General

The PJM Energy Management System (EMS) Model is kept current through regularly scheduled updates based upon information recorded in eDART's Network Model Application. As described in Manual 03A **Energy Management System Model Updates and Quality Assurance**, PJM routinely performs a "Summer" and a "Winter" EMS Model Build. The "Summer" build occurs just prior to the summer peak load period (late May) and should include any new projects which impact the model through the following December. The "Winter" build occurs just prior to the winter peak load period (mid December) and should include any new projects which impact the model through the end of May of the following year.

In addition to the "Summer" and "Winter" builds, "Spring" and "Fall" builds are scheduled. These builds provide an opportunity for Transmission Owners (TOs) to review how PJM modeled their planned changes and also permits PJM staff time to adjust external models.

Select 'Model Build Schedule' from the list of PDF to view the build schedule from PJM at: http://www.pjm.com/committees-and-groups/subcommittees/dms.aspx

The eDART Network Model application, a 'front-end' tool, is used to gather information about upcoming electric grid modifications. These modifications may include construction of new substations and lines, or modifications to existing substations in the model. Projects (also known as Network Model Change Requests) submitted to Network Model do not directly modify or update the EMS model.

Projects in Network Model are broadly categorized as either Transmission or Generation projects. Transmission Owners (TOs) are required to submit model modifications to PJM to provide data and one-line diagrams needed to represent planned system transmission changes. PJM's Interconnection Coordination and Model Management representatives work together to identify, document and model planned generation projects.

Data submitted through Network Model requires processing by PJM staff. PJM staff review the projects that have been submitted and approve projects if appropriate. In some cases, PJM may require more details, while in other cases PJM will simplify the project. PJM staff will prepare a project package and code the information necessary, including one-lines to model both the present and the new configuration for all projects that are expected to impact the on-line models.

After new equipment is modeled in the production EMS database, TOs and/or Generation Operators (GOs) are responsible for working with PJM staff to set up telemetry links for supporting digital and analog data. In addition, two to four weeks prior to going into service, TOs and/or GOs are required to provide thermal ratings for new lines, transformers, series devices, phase shifters, etc., using eDART's TERM application. Users can implement these ratings at any time after new equipment is modeled and in production even if the equipment is not yet in-service.

See Manual 03A, EMS Model and Quality Assurance for more details about PJM models.
http://wired.pjm.com/~/media/documents/manuals/m03a.ashx

Business Rules

- In order to view one line diagrams, users must understand and accept the following:
    - Information is confidential and/or proprietary.
    - Disclosure of information may create legal liability.
    - In exchange for use of website, users must protect confidentiality of information provided.
    - Information should only be accessed by employees who need the information.
    - Take action to prevent improper use.
    - Failure to protect confidentiality of information may result in terminated access.

    - Agree to hold PJM harmless in a claim arising from a personal breach of the agreement of use.
- TOs are required to sign and renew monthly a Non-Disclosure Agreement (NDA) before they are granted access to substation one-lines for other cooperating TOs. If a TO does not sign and fill out the NDA, they will not be granted access to view other transmission zone one-lines.

PJM EMS Model Change Request Process Overview

Some users prefer to create a single, comprehensive project, under one ID, to capture all substation and line changes associated with a particular construction project. Other users prefer to break down larger projects, submitting multiple Projects or Change Requests representing for the individual substations affected by the construction.

After deciding how they plan to submit the project information, users must provide the data to depict the required system modifications. The application allows the user to view existing data from the PJM model data, as well, as substation one-lines taken at the time of the last build. The user is required to enter data such as circuit parameters and equipment names and has the option to attach circuit or substation diagrams and other types of files such as spreadsheets.

Users can also review and revise existing project information, view project status and communicate project information to others via email.

Note: Some other pertinent data such as voltage limits and contingency representations must be coordinated directly with PJM staff and cannot be processed in Network Model.

Project or Ticket Life-Cycle (eDART Network Model Ticket Status)

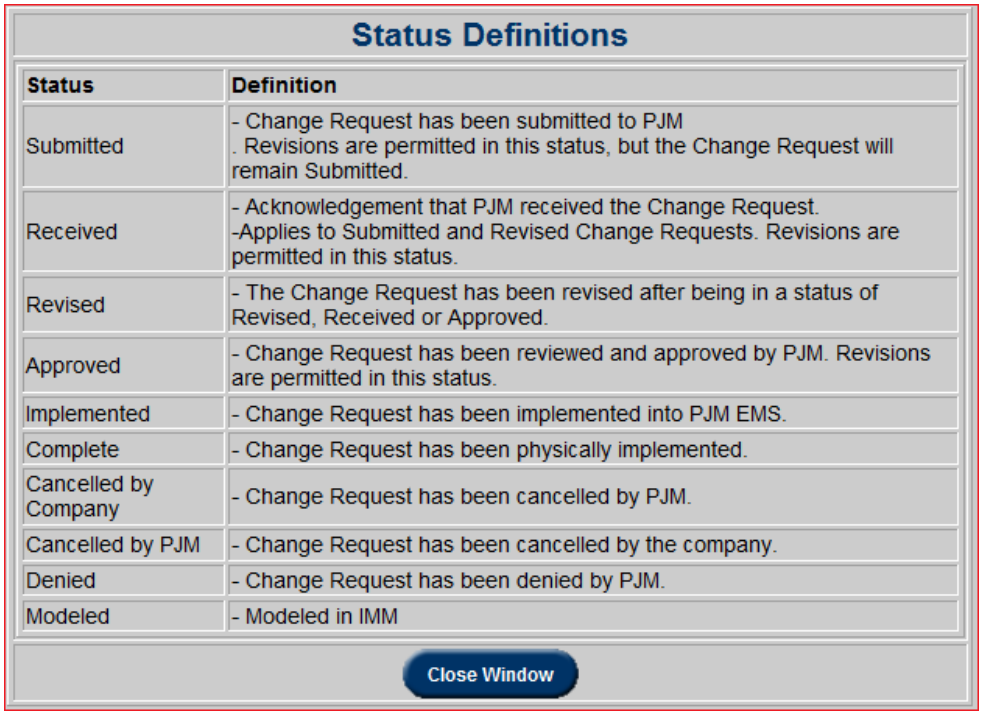
The status of any new project created by a TO is automatically designated as **Submitted**. If the TO or PJM staff member modifies any of the project information, the status is changed to **Revised**.

Once the decision has been made that a change request should be modeled at PJM, a project package is created and the project status is changed to **Approved**. The project package contains all the information necessary to code the project and develop substation one-line diagrams. The package is circulated internally at PJM. If an **Approved** project is opened by a user and any data is modified, the project status is changed to **Revised**. Once approved, a PJM engineer will model the project package into the build in IMM. The status is then changed to **Modeled**.

A new model, including all the required seasonal build changes, is placed into production only after coding, preparing one-lines and performing extensive, off-line testing. Any new projects which have been incorporated in the build are then changed to a status of **Implemented**. Once the telemetry has been linked for the project, the project is considered **Complete**.

PJM reserves the right to deny or cancel projects which do not significantly impact the PJM EMS model.

The window below describes the **Status Definitions** associated with Network Model projects.



Status Definitions

Status	Definition
Submitted	- Change Request has been submitted to PJM . Revisions are permitted in this status, but the Change Request will remain Submitted.
Received	- Acknowledgement that PJM received the Change Request. -Applies to Submitted and Revised Change Requests. Revisions are permitted in this status.
Revised	- The Change Request has been revised after being in a status of Revised, Received or Approved.
Approved	- Change Request has been reviewed and approved by PJM. Revisions are permitted in this status.
Implemented	- Change Request has been implemented into PJM EMS.
Complete	- Change Request has been physically implemented.
Cancelled by Company	- Change Request has been cancelled by PJM.
Cancelled by PJM	- Change Request has been cancelled by the company.
Denied	- Change Request has been denied by PJM.
Modeled	- Modeled in IMM

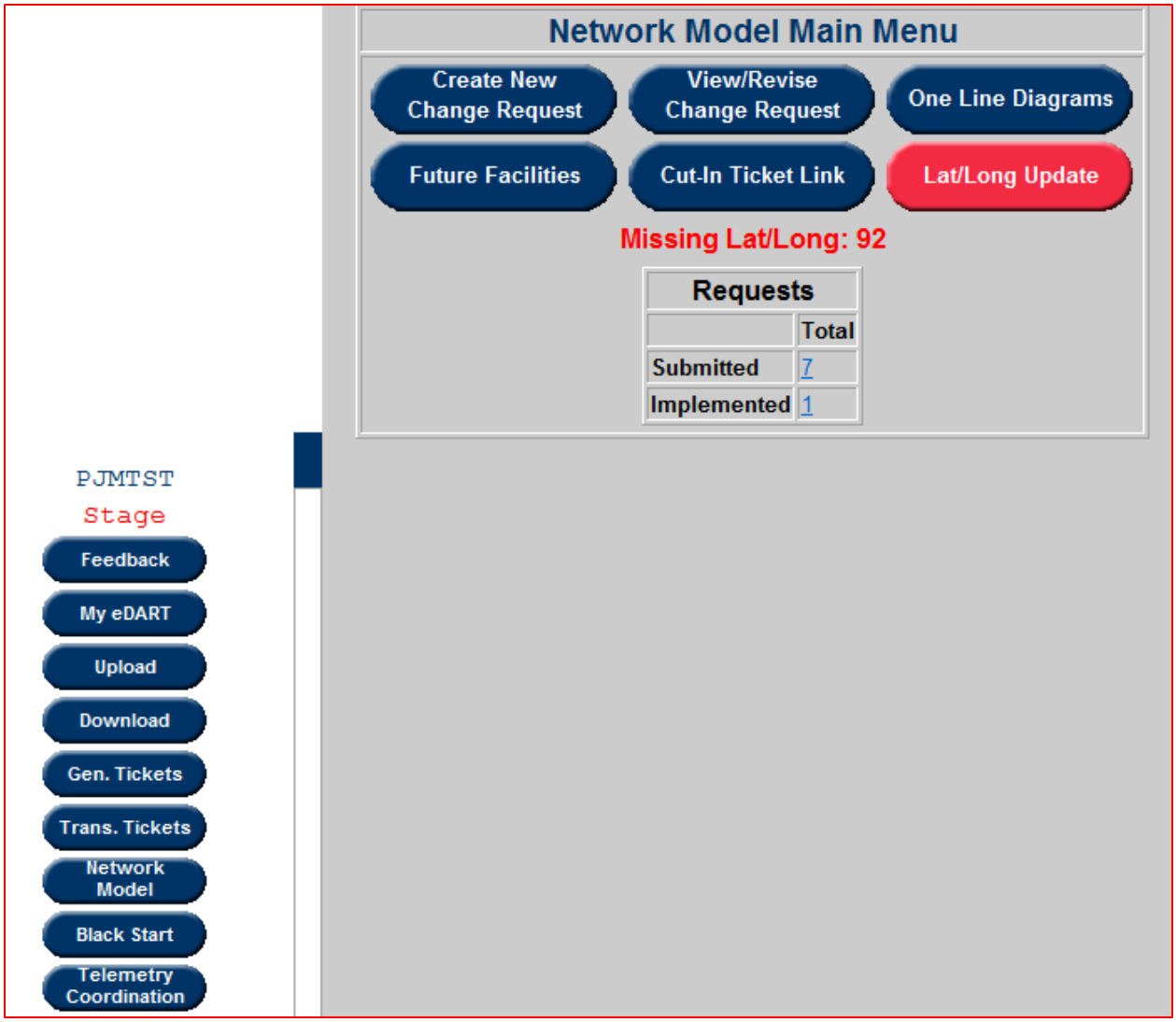
Close Window

Network Model Main Menu

Select the Network Model function from the list of eDART applications to view the Network Model Main Menu. From this menu, users select one of six options as shown. These options include creating a new Change Request (or project), Viewing or Revising an existing Change Request, Selecting and Reviewing Substation One Line Diagrams, viewing a list of their Future Facilities, a cut-in linkage between transmission outage and network model request tickets, and the ability to update longitude and latitude coordinates for equipment.

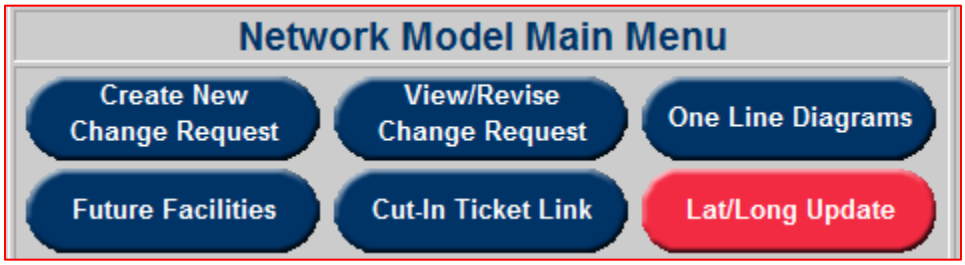
Network Model limits user access to Change Request and One-line information. Users have the option to share one-line information with other TOs. If a TO elects to share this information, they must sign a Non-Disclosure Agreement and work with PJM staff to permit appropriate access.

Below the **Network Model Main Menu** buttons consists a summary of the number of change requests made. Each total is group by the status of the requests. These statuses include ‘Submitted’, ‘Revised’, ‘Approved’, and ‘Implemented.’ To view the tickets for a particular status, click the numbers under the ‘Total’ column.

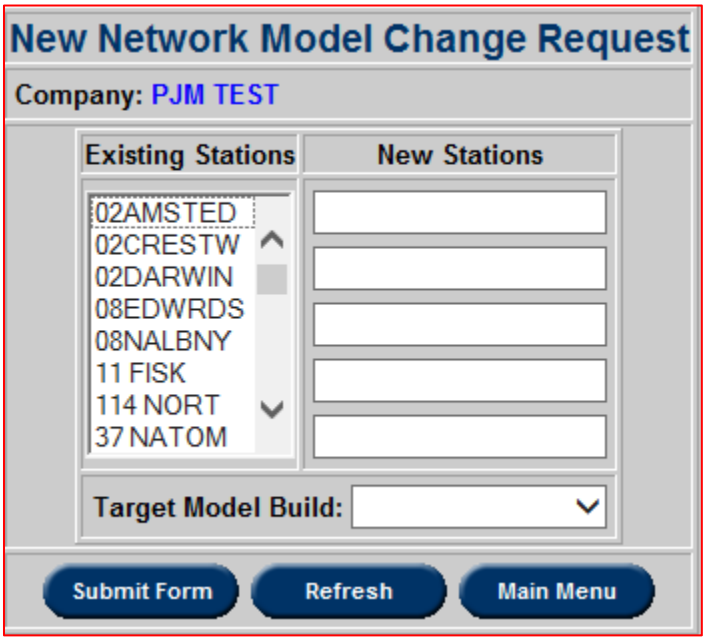


Creating New Change Requests

To submit a request for a Network Model change, click the **Create New Change Request** button from the **Network Model Main Menu**.

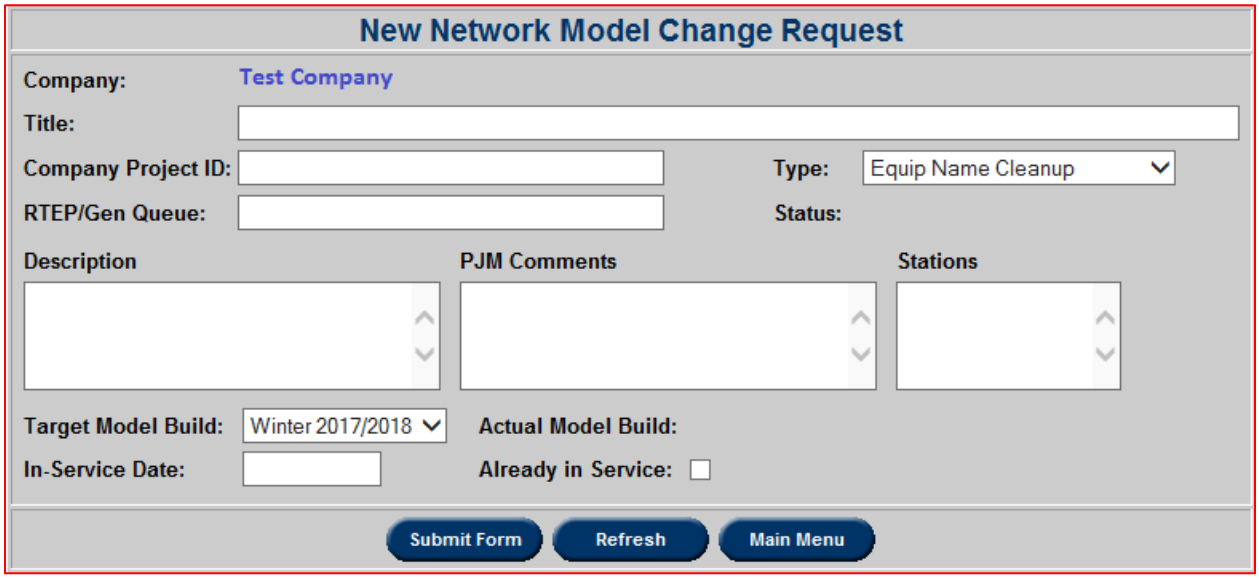


The **Create New Change Request** button will open the first of two **New Network Model Change Request** windows. Depending upon the project or Change Request scope, the user must identify the substation or substations which will be impacted by the planned change. In the first window, users may identify existing substations to be modified by selecting from a list menu. Users can also specify a new substation name or substations names in the fields in the right side of the window. To select more than one station, users must hold the "CTRL" key and then click as many other station names as necessary. All highlighted station names will be included.



To reset the window, click the **Refresh** button. To return to the **Network Model Main Menu**, click the **Main Menu** button. After entering all necessary station information, click the **Submit Form** button.

Clicking **Submit Form** from the first window will open a second window or form, also called **New Network Model Change Request.** This form has fields for additional project description. This action also automatically assigns a unique Project ID and a Status of Submitted.



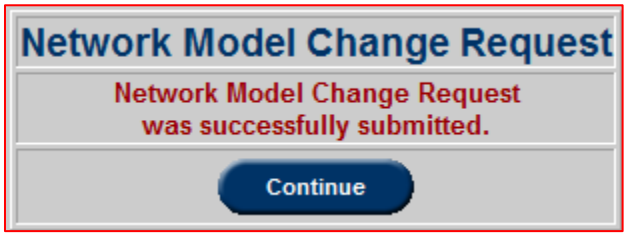
Users should provide a change request **Title, Type**, **Description**, and **Target Model Build** along with an **In-Service Date** or checking the **Already In Service** box. (Note that depending upon the circumstances, PJM staff may opt to implement the model relying upon assumed or characteristic parameters from similar projects.)

When entering a Change Request **Title**, users are encouraged to provide meaningful information, starting with a 2-5 character pneumonic for the TO, and clearly indicating the nature of the project. If space permits, also note adjacent substations that may be impacted by the project. This will assist other users when viewing Change Request reports available through the Network Model application.

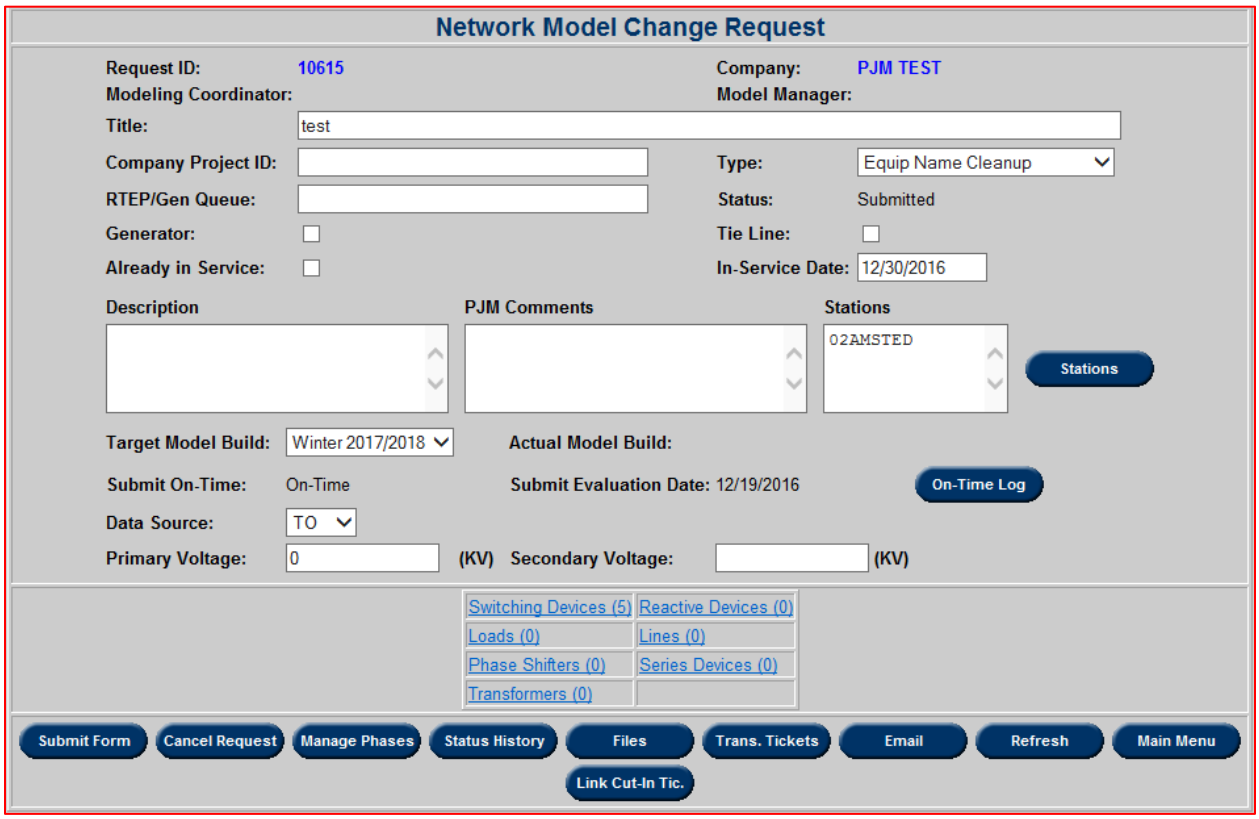
The user must select a **Type**. The three type options are "Project (New Equipment)," "Update (Existing Equipment)," or "Equip Name Cleanup." Users must also select a **Target Model Build** time period from the dropdown. Lastly, users must enter an **In-Service Date** before proceeding or check the **Already in Service** box.

The form also permits the user to cross-reference the project with a **Company Project ID** and also an **RTEP/Gen Queue** identifier. **Company Project IDs** are assigned by the user's organization, and this information is not used by PJM. TOs are encouraged to provide cross-references to the PJM **RTEP/Gen Queue** if appropriate, or work with PJM staff to provide this information.

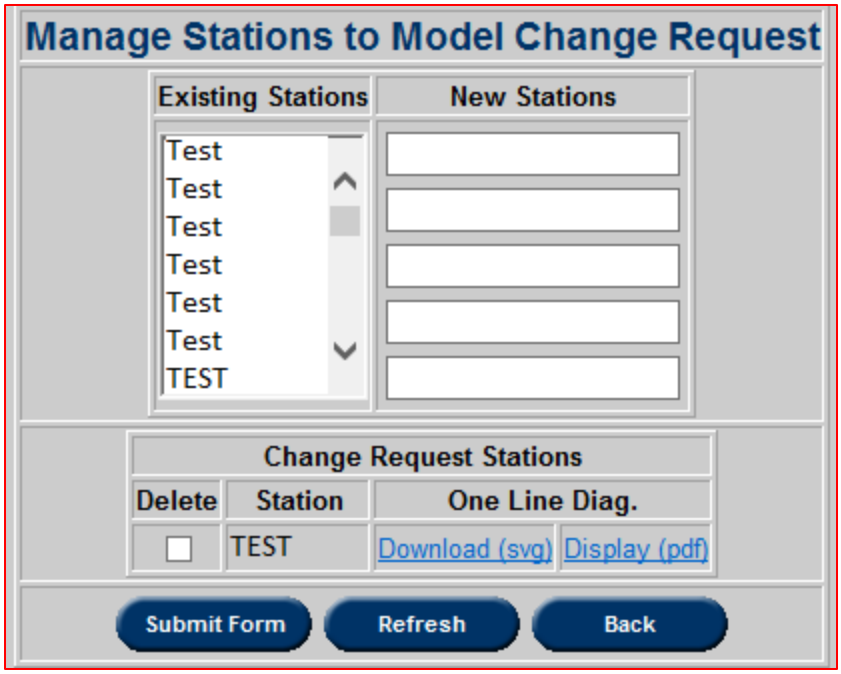
Users can click the **Refresh** button to reset the window or the **Main Menu** button to return to the **Network Model Main Menu**. Clicking the **Submit Form** button will yield a statement concluding the Network Model Change Request was successfully submitted.



Click the **Continue** button, to view the complete **Network Model Change Request** form:



Clicking the **Stations** button takes the user to **Manage Stations to Model Change Request** screen. From this screen, users can select existing stations that will require modification. To select more than one station, click a station name and hold the "CTRL" key. While holding "CTRL," click as many other station names as necessary. All highlighted station names will be included. Additionally, users can type in new station names in the fields in the right side of the window.



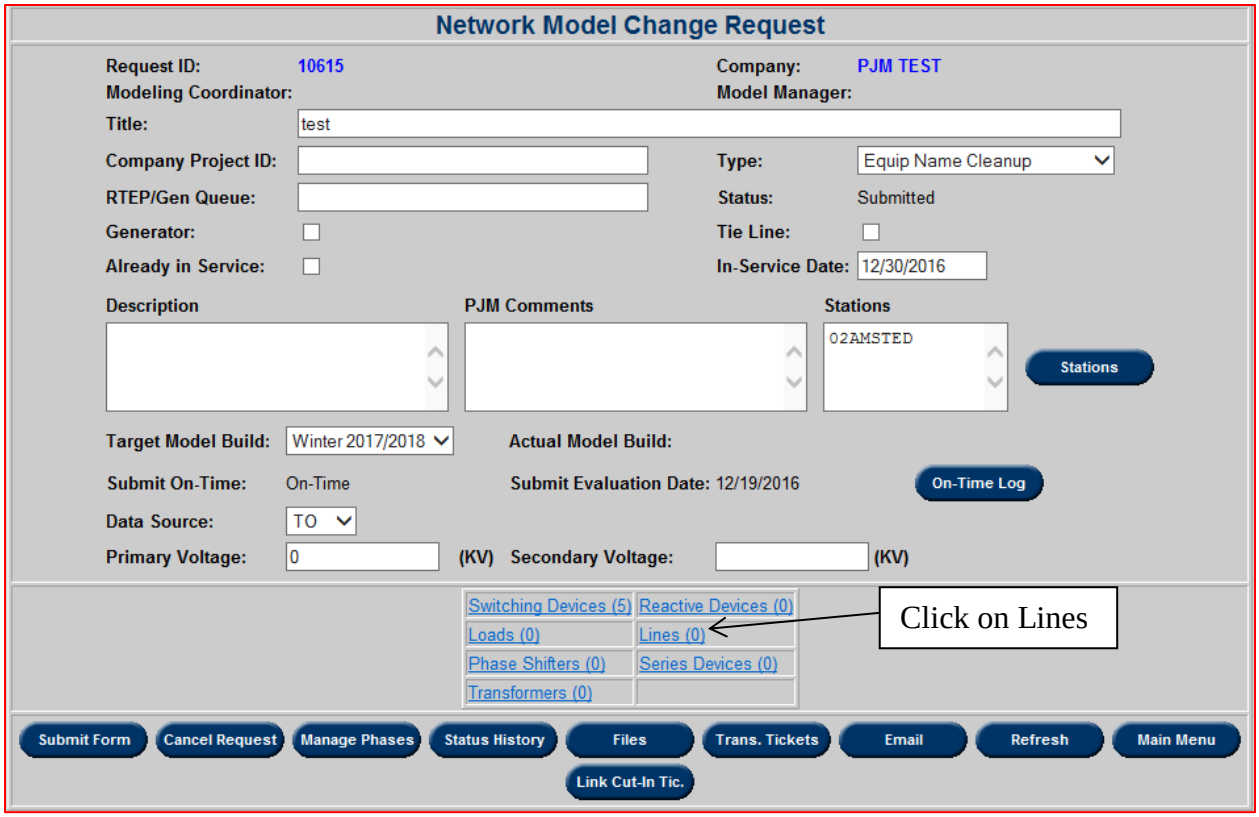
Users can also delete stations by using the "Change Request Stations" section of the **Manage Stations to Model Change Request** window. To delete stations, click the corresponding checkbox for any stations to be deleted, and click the **Submit Form** button.

Users can also download or display any available one-line diagrams for any selected stations from the **Manage Stations to Model Change Request** window.

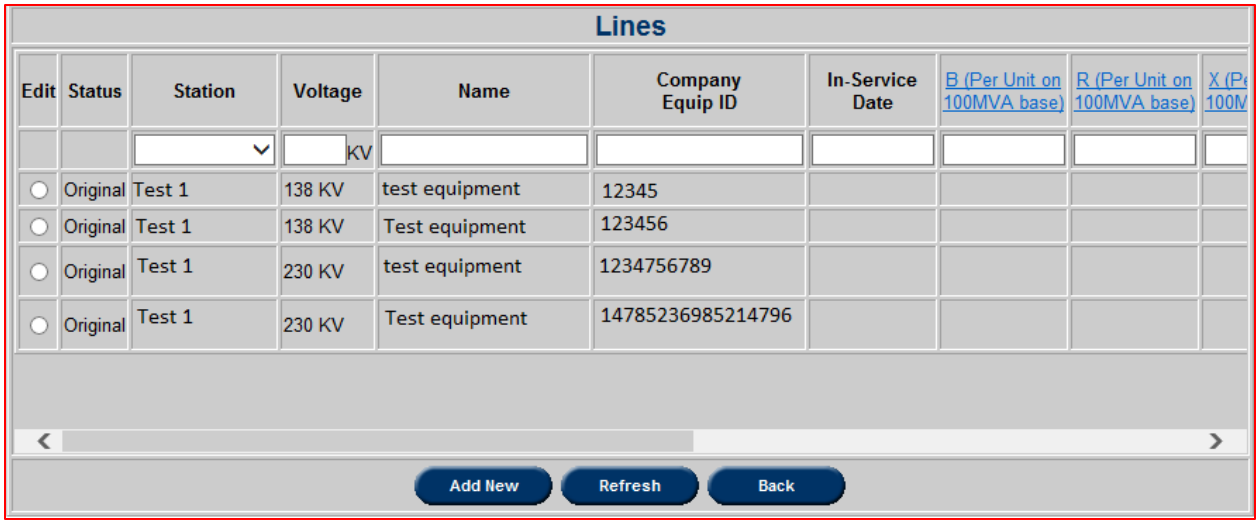
To reset the **Manage Stations to Model Change Request** window, click the **Refresh** button. To return to the **Network Model Change Request** window, click the **Back** button.

From the **Network Model Change Request** form, the user can also click any one of the nine (8) different equipment types:

1. Switching Devices;
2. Reactive Devices;
3. Generators;
4. Loads;
5. Lines;
6. Phase Shifters;
7. Series Devices;
8. Transformers.



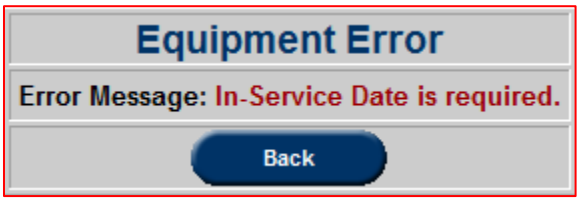
Clicking an equipment type will take users to another form where users can **edit** attributes for equipment already in the PJM EMS model (flagged with a status of Original) or add new pieces of equipment. See "Network Model Change Request" for an example depicting Lines information. To modify the attributes of a specific piece of equipment, users click the Edit button adjacent to the equipment to be modified and click **Add New.** The voltage, B3 Name, etc. will populate the first row and can then be adjusted as required. If the first row is left blank, the user can populate that row with attributes of a new piece of equipment after clicking **Add New.** After modifying the data or entering data for new equipment, users must click **Submit Form**. The new equipment will move downward in the form and the first row will be ready again for more modifications or additions. Note that the user can also retire equipment.



After an **Edit** radio button is selected from an equipment type window (e.g., **Lines),** Fig NM 10), users can click the **Restore Original** button to eliminate any changes in progress.

For convenience, users can also click the **Back** button from an equipment type window to return to the **Network Model Change Request** window.

Required fields differ based on the type of equipment. If a required field has not been filled out and the user clicks **Submit Form**, eDART will produce an error message. If there are more than one required fields unfilled, eDART will prioritize fields in order (see examples below).

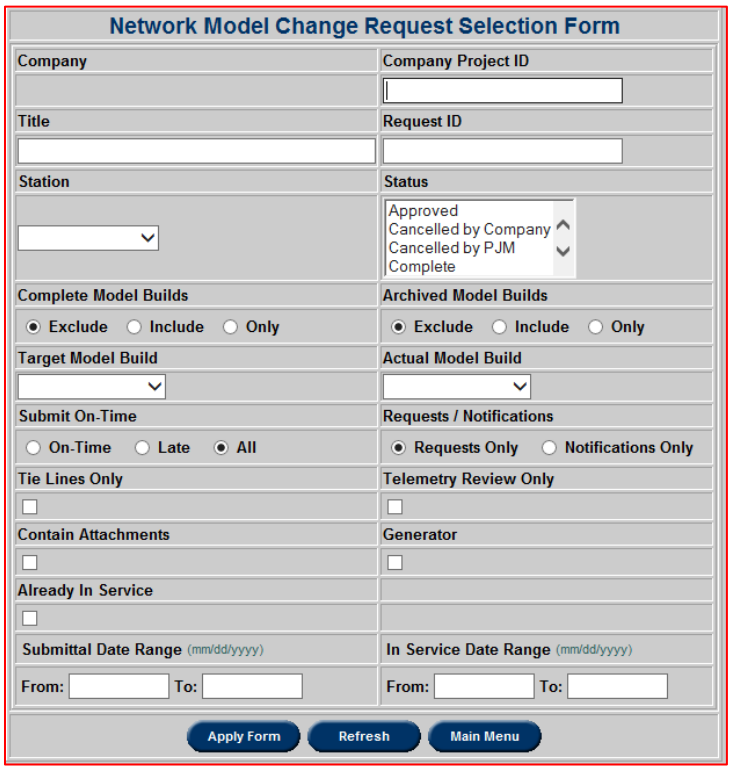


View/Revise Change Request

Click the **View/Revise Change Request** button from the **Network Model Main Menu** to verify that change requests were successfully submitted.

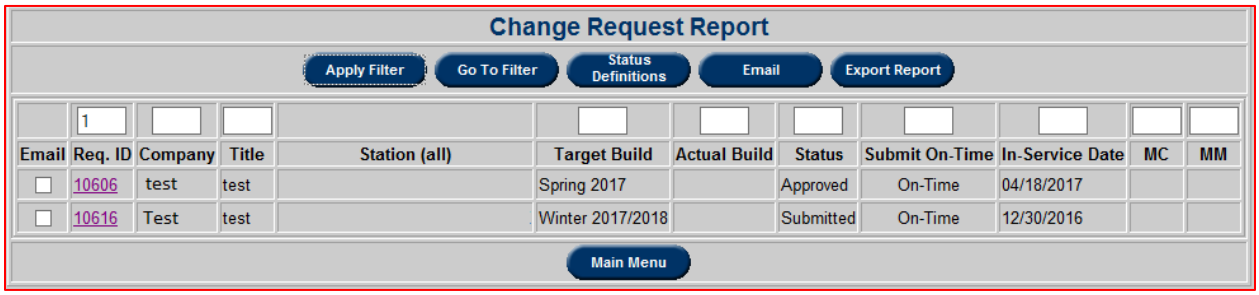
The **View/Revise Change Request** button will open the **Network Model Change Request Selection Form**. This form works like a filter. The form will only return change requests that match the entered criteria. The form also allows users to select whether they want to view **Tie Lines Only** or **Telemetry Reviews Only**, and if they want their report to **Contain Attachments**, **Generators**, or equipment that are **Already In Service**. Click the corresponding checkboxes to select those options. To select more than one status, click a status and hold the "CTRL" key. While holding "CTRL," click as many other statuses as necessary. All highlighted statuses will be included.

Click the **Refresh** button to reset the window. Click the **Main Menu** button to return to the **Network Model Main Menu**. Click the **Apply Form** to open a **Change Request Report**.



By default, tickets listed in the **Change Request Report** are sorted based on the **Req. ID** field, but users can also define a multi-column, sort order. The data is sorted in the order specified in the text box over the column name. For example, to sort by "Title" and then "Company", enter

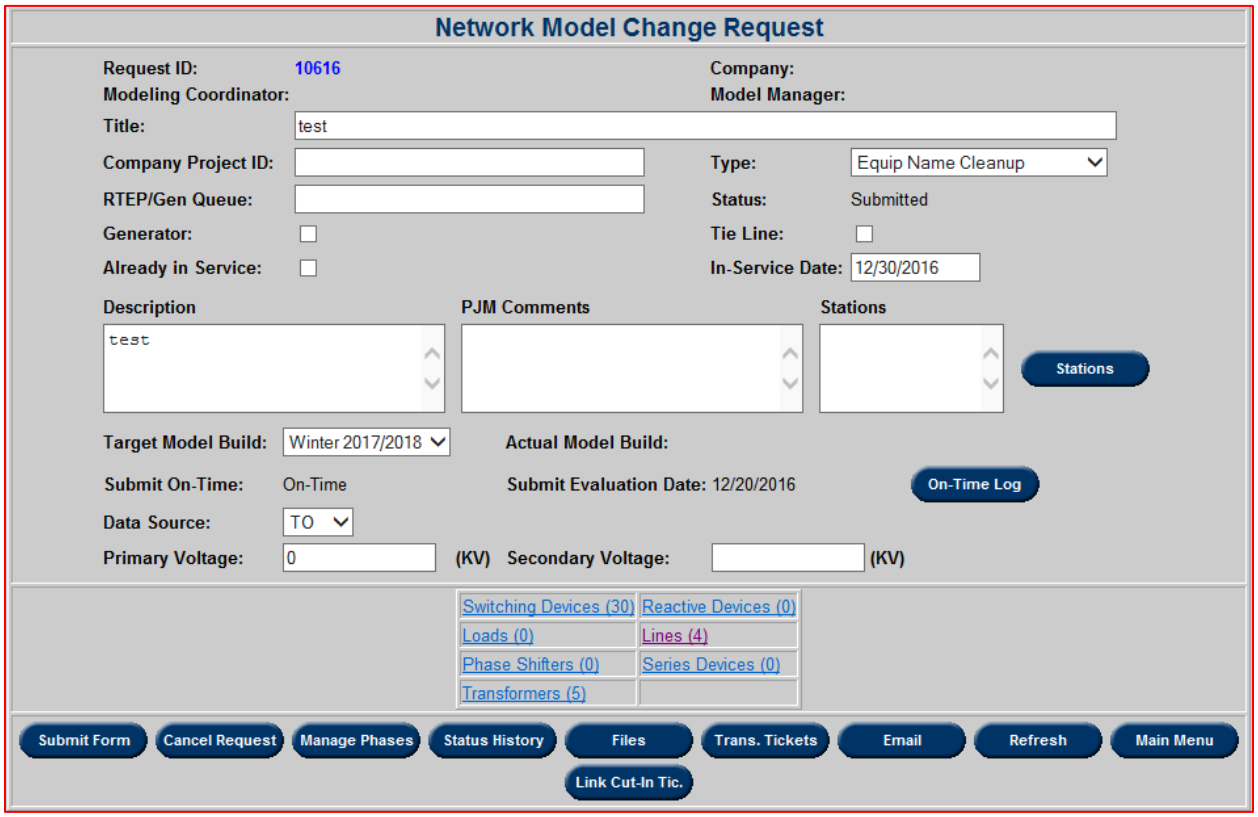
the digit “1” in the box over **Title,** “2” over **Company** and click **Apply Filter**. Numbers over columns that are not to be sorted must be deleted.



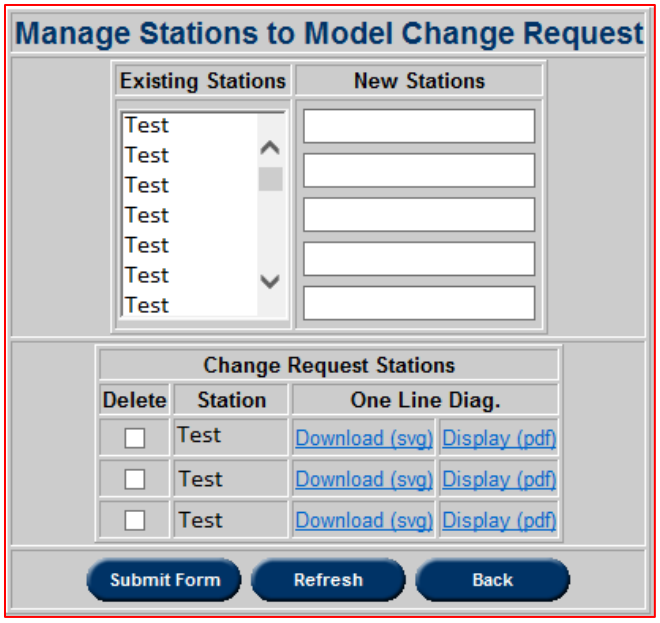
To return to the **Network Model Change Request Selection Form**, click the **Go To Filter** button. Click on the **Main Menu** button to return to the **Network Model Main Menu**. The **Email** functionality is also available for use on this page.

To view or change any data or files associated with a specific **Network Model Change Request**, select the Request ID (**Req. ID**)

From the **Network Model Change Request** form, users can modify data for that project. They can change the Title or Type, modify the description, plus view and change information about specific equipment types and also add or delete reference files attached to that project. Users can also cancel requests by clicking the **Cancel Request** button or reset the data for the **Network Model Change Request** by clicking the **Refresh** button.



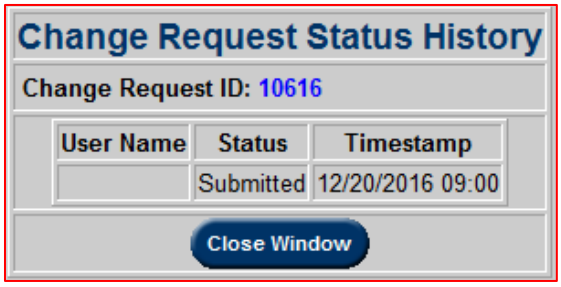
Users can add or remove stations from a change request by clicking the **Stations** button which takes users to the **Manage Stations to Model Change Request** form.
In the **Manage Stations to Model Change Request** screen, users can add stations by selecting existing stations from the multi-select menu. To select more than one station, click a station name and hold the “CTRL” key. Afterward, click as many other station names as necessary. All highlighted station names will be included. Additionally, users can type new station names in the fields in the right side of the window.



By clicking the corresponding checkbox in the "Change Request Stations" section of the **Manage Stations to Model Change Request** window and clicking **Submit Form**, users can delete a station or stations. Users can also download or display any available one line diagrams for any selected stations from the **Manage Stations to Model Change Request** window.

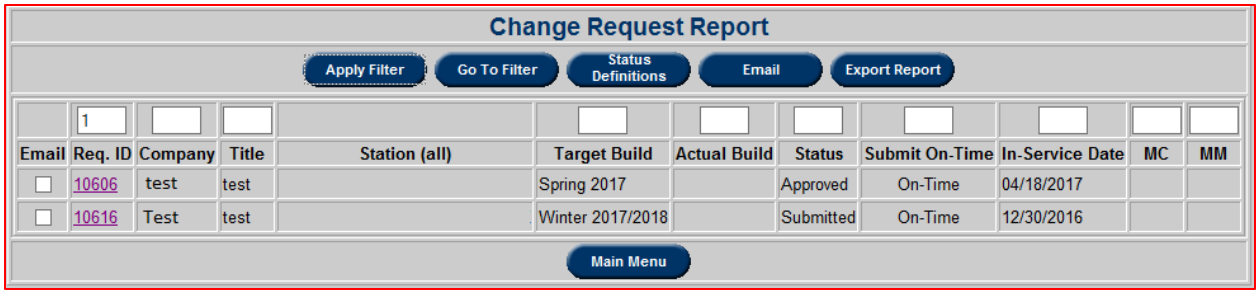
To reset the **Manage Stations to Model Change Request** window, click the **Refresh** button. To return to the **Network Model Change Request** window, click the **Back** button.

From the buttons at the bottom of the **Network Model Change Request** form, users can select the **Status History** button and view a change request's history.



In addition, from the **Network Model Change Request** form, users can select a type of equipment to add or edit equipment entries in a **Network Model Change Request**.

Clicking a type of equipment will take the user to a window specific to that equipment type. Below is an example of how to work through a **Lines** window. For example, clicking the **Lines** link above the list of line equipment will produce an editable list equipment (in a **Lines** window) as shown in the example below:

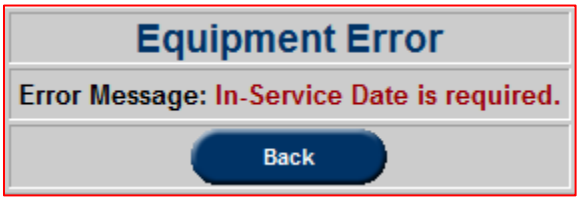


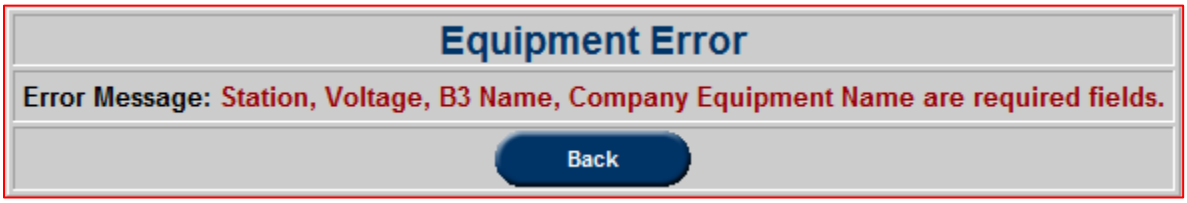
Either enter information in the first row and click the **Add New** button to add a piece of equipment, or click an **Edit** radio button to edit an existing piece of equipment. After completing an edit, click **Submit Form** button.

From an equipment type window, users can also click the **Restore Original** button to eliminate any changes in progress. This option only appears if users have clicked an **Edit** radio button.

Users can also click the **Back** button to return to the **Network Model Change Request** window.

Required fields differ based on the type of equipment. If a required field has not been filled out and the user clicks **Submit Form**, eDART will produce an error message telling the user which required field must be filled. If there are more than one required fields unfilled, eDART will prioritize certain fields first.

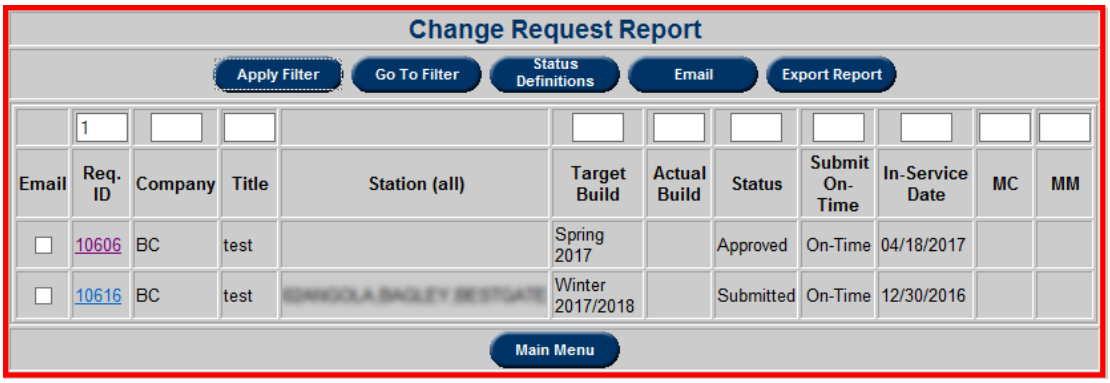




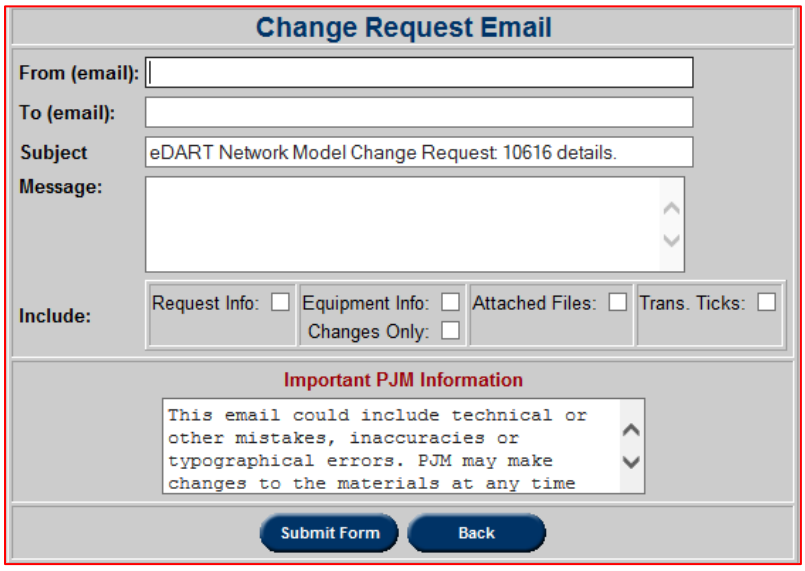
Email

Users have the ability to send change request information by email from various menus on the **Network Model** application.

The first location where this functionality can be found is on the **Change Request Report** page. To email change request details, click the **Email** button or check the **Email** box as appropriate and fill out the form with all of the information to be emailed. Some fields may change based on the section where the email was initiated.

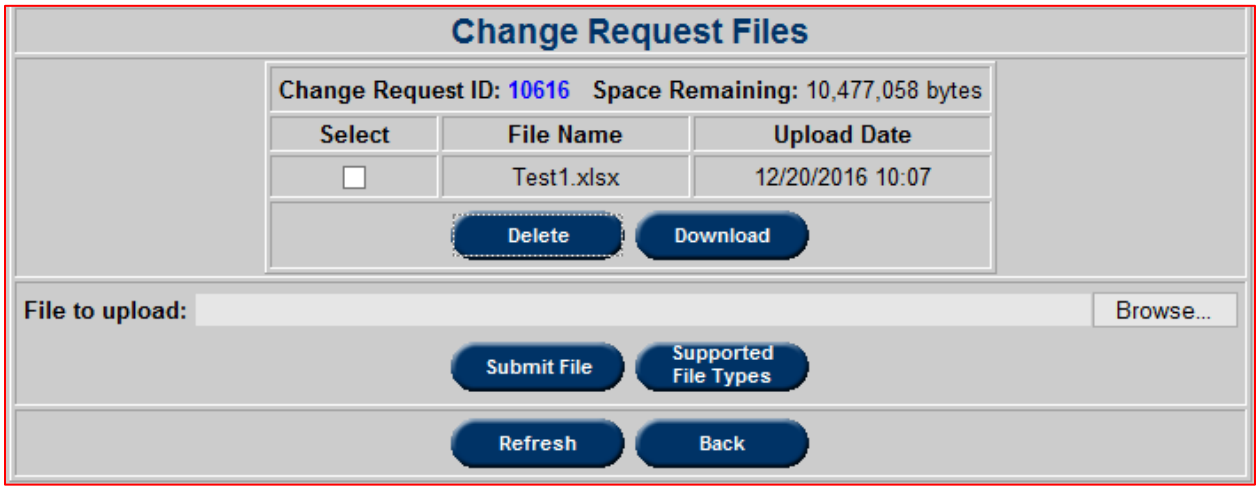


Users can also access the email function from the **Network Model Change Request** page. This allows users to send emails regarding specific network change requests.

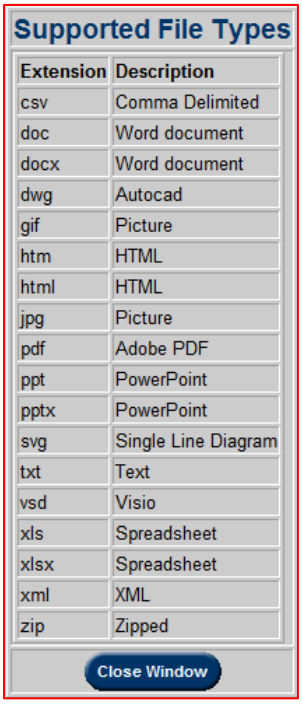


File Upload

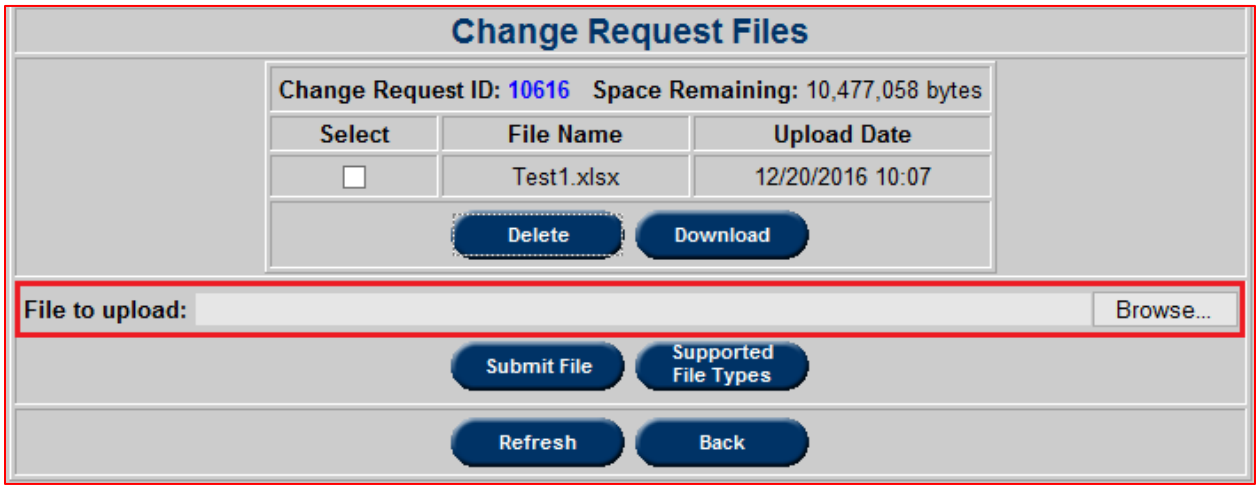
Users have the ability to upload supporting documentation using the **Files** button located at the bottom of the **Network Model Change Request** form



Within the **Change Request Files** window, users can reset the window with the **Refresh** button, use the **Back** button to return to the **Network Model Change Request** window or click **Supported File Types** to view the file types supported by the application.



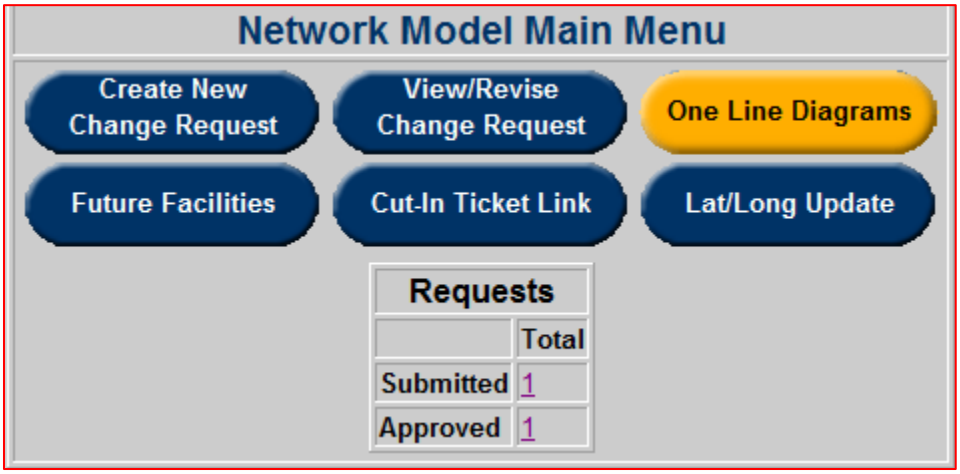
To upload a file, click **Browse** and select a file.



Users can download attached files by selecting the desired files and clicking on the **Download** button. Deleting attached files can also be done by first selecting the desired file and clicking **Delete**.

Current One Line Diagrams

To view one-line diagrams, click the **Current One Line Diagrams** button from the **Network Model Main Menu**.

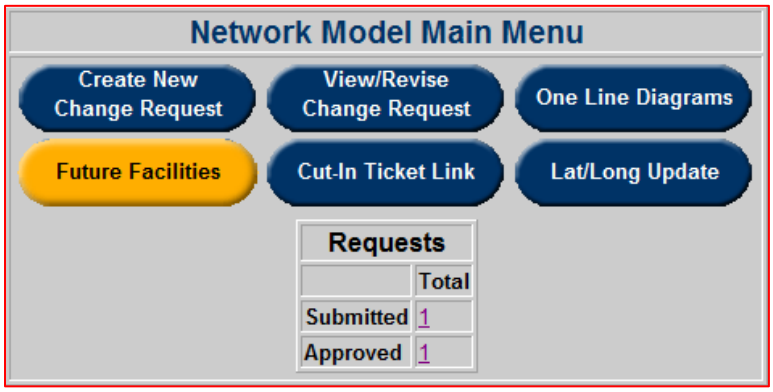


This will bring the user to the **eDART Line Diagrams XML File Download** window. Use the "Line Diagrams to Download" section to select which diagrams to view. To save a copy of the diagrams, click the **Save as a File** checkbox before clicking **Download**. If **Save as a File** is not selected, diagrams will appear in the browser.

Users can also use this window to navigate to other eDART downloads. Selecting another download type will bring the user to a new window.

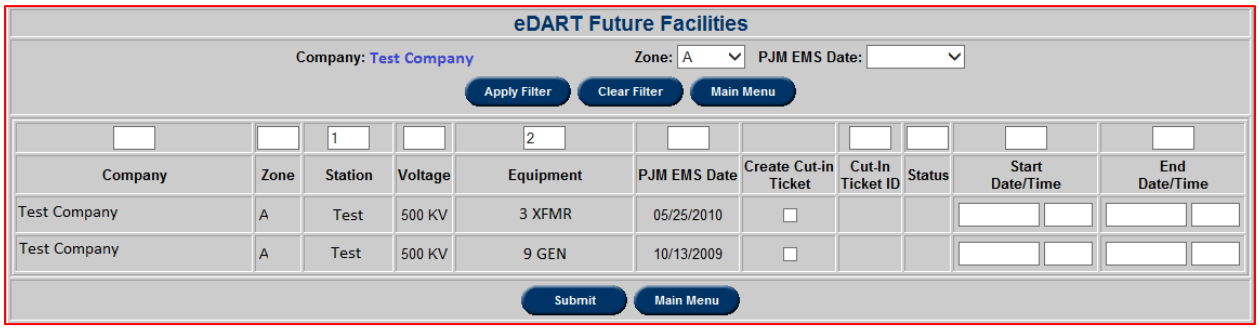
Future Facilities

The eDART Future Facilities report lists all the TO's facilities flagged as future along with the date they are expected to be modeled in PJM's EMS.



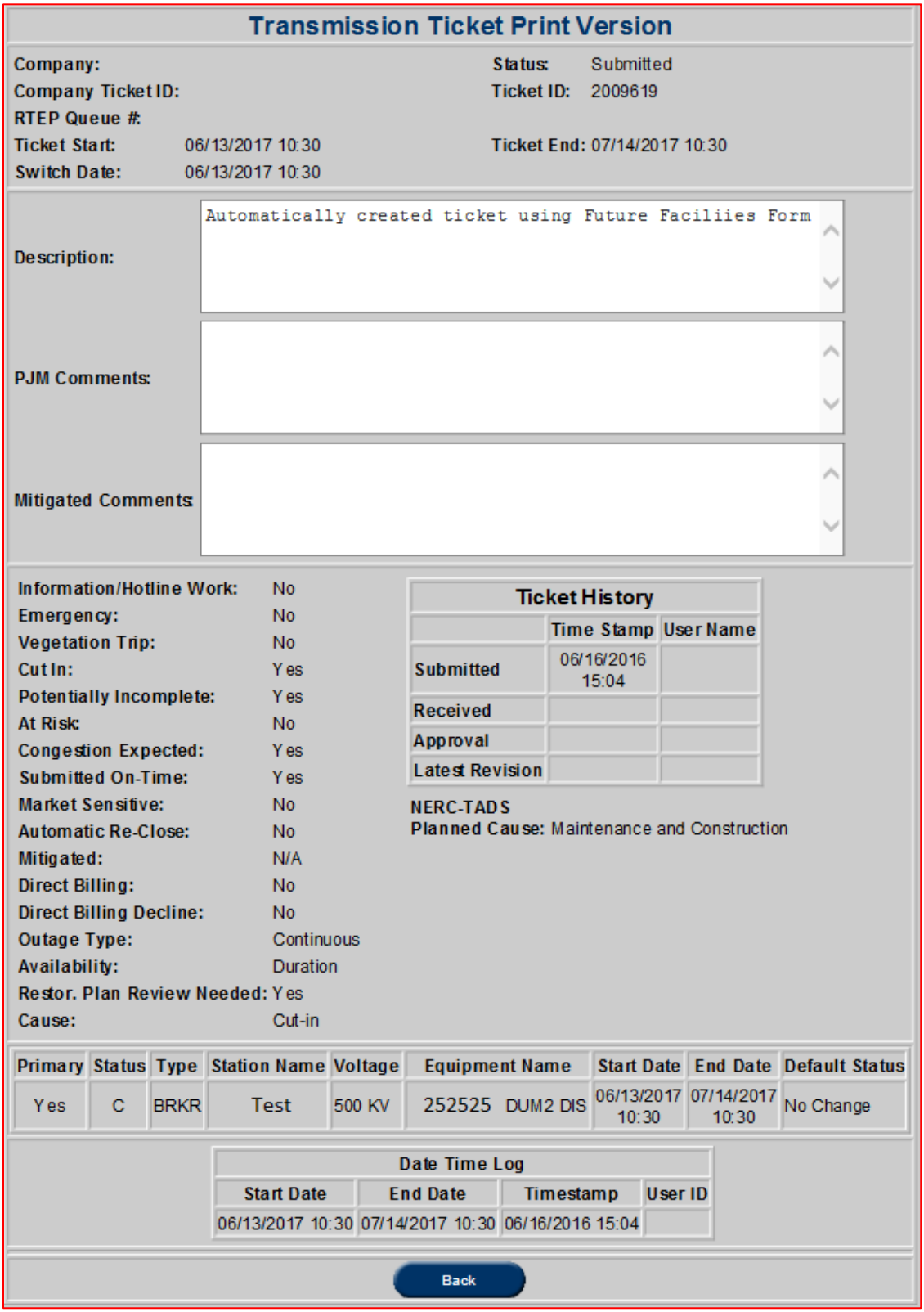
The **eDART Future Facilities** report can be sorted. By default, tickets are sorted based on the **Station** and **Equipment** field. It is also possible to sort on multiple columns based on a user defined sort order. The columns will be sorted in the numerical order as specified in the text box under the column name. For example, to sort by "Voltage" first and then "Company", enter the digit "1" in the box under **Company** and "2" under **Voltage** and then click on the **Apply Filter** button at the top. The results will be displayed in the desired sort order as shown below. It is necessary to delete numbers that are over any columns that are not to be sorted.

Users can also filter the **eDART Future Facilities** report by zone and/or PMJ EMS date by selecting options from the **Zone** and **PMJ EMS Date** dropdown menus.



Users can view existing **eDART Future Facilities** cut-in tickets by clicking "View" within the **Cut-In Ticket ID** field. Additionally, users can add cut-in tickets to a future facility by clicking a **Create Cut-In Ticket** checkbox and adding a **Start Date/Time** and **End Date/Time** to the corresponding ticket.

Tickets created with the **eDART Future Facilities** report window will resemble the following:



Transmission Ticket Print Version

Company: | **Status:** Submitted
Company Ticket ID: | **Ticket ID:** 2009619
RTEP Queue #:
Ticket Start: 06/13/2017 10:30 | **Ticket End:** 07/14/2017 10:30
Switch Date: 06/13/2017 10:30

Description: Automatically created ticket using Future Faciliies Form

PJM Comments:

Mitigated Comments:

Information/Hotline Work:	No
Emergency:	No
Vegetation Trip:	No
Cut In:	Yes
Potentially Incomplete:	Yes
At Risk:	No
Congestion Expected:	Yes
Submitted On-Time:	Yes
Market Sensitive:	No
Automatic Re-Close:	No
Mitigated:	N/A
Direct Billing:	No
Direct Billing Decline:	No
Outage Type:	Continuous
Availability:	Duration
Restor. Plan Review Needed:	Yes
Cause:	Cut-in

Ticket History

	Time Stamp	User Name
Submitted	06/16/2016 15:04	
Received		
Approval		
Latest Revision		

NERC-TADS
Planned Cause: Maintenance and Construction

Primary	Status	Type	Station Name	Voltage	Equipment Name	Start Date	End Date	Default Status
Yes	C	BRKR	Test	500 KV	252525 DUM2 DIS	06/13/2017 10:30	07/14/2017 10:30	No Change

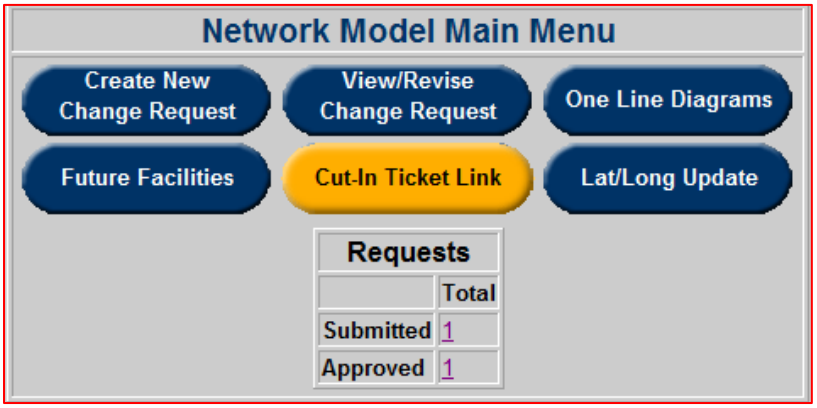
Date Time Log

Start Date	End Date	Timestamp	User ID
06/13/2017 10:30	07/14/2017 10:30	06/16/2016 15:04	

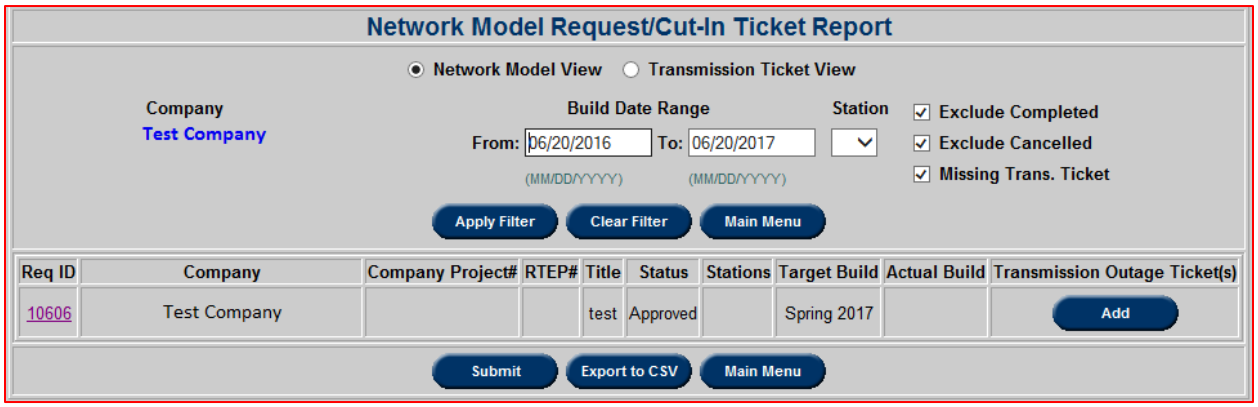
Back

Cut-In Ticket Link

Cut-In ticket reports can be accessed through the **Network Model Main Menu** by clicking the **Cut-In Ticket Link** button.

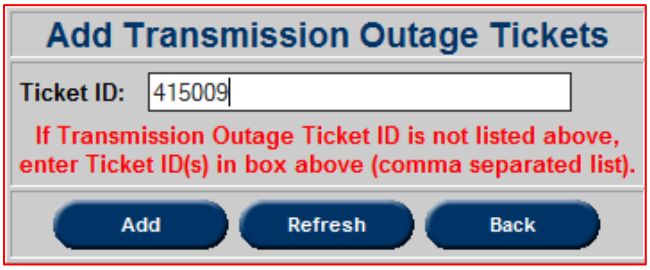


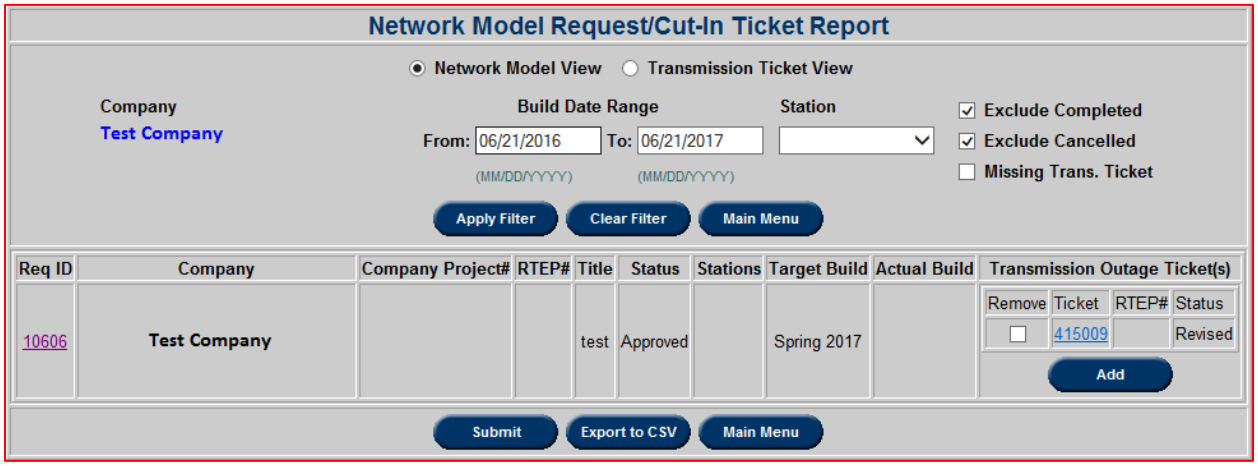
This will direct the user to the **Network Model Request/Cut-In Ticket Report** page with **Network Model View** by default. The page includes a number of fields that can be selected or entered. Beginning with the **Build Date Range**, the user can select or enter the desired time frame for network model requests between scheduled build dates. However, the range is set to plus-minus 6 months if the user wishes not to adjust the dates. Once the dates are selected, the option to select a specific station is available under the **Station** dropdown menu. Checkboxes can be marked to exclude or include network model tickets that are completed, cancelled, or missing transmission ticket. Clicking the **Apply Filter** button will bring up the results based on the user's selection. If the user desires to start the search over, the **Clear Filter** button can be selected. **Main Menu** will direct the user back to the **Network Model Main Menu.**



Within the results, the user can view, edit, or export the tickets. By clicking on the **Req ID** field will allow the client to view and edit a network model ticket. If there are no transmission outage

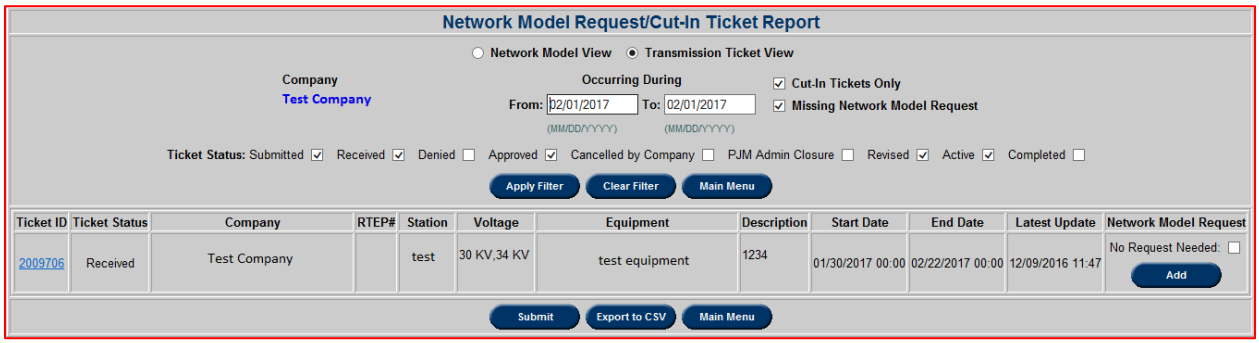
tickets linked to the network model request, it can be added by clicking on the **Add** button and entering in the corresponding transmission outage ticket number. Once added, the **Network Model Request/Cut-In Ticket Report** will display the new linkage.





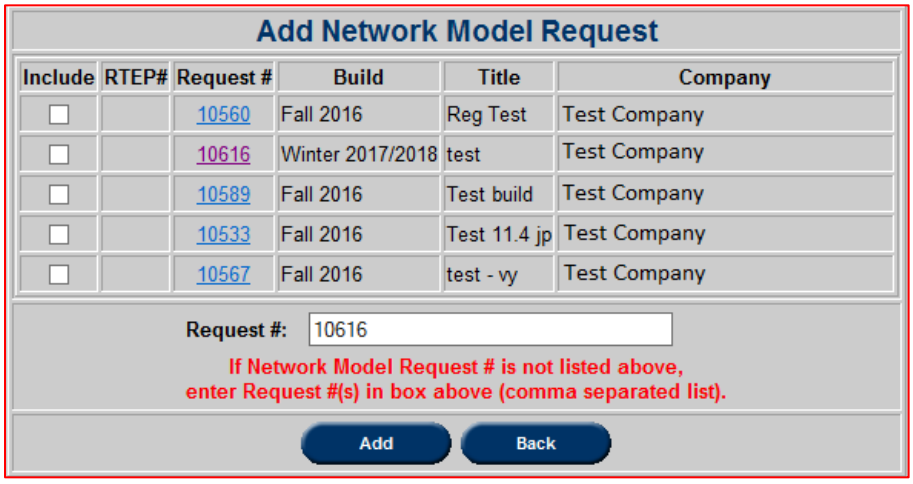
Clicking **Submit** on the **Network Model Request/Cut-In Ticket Report** page will save the changes. To receive a summary of the results, the **Export to CSV** button can be clicked.

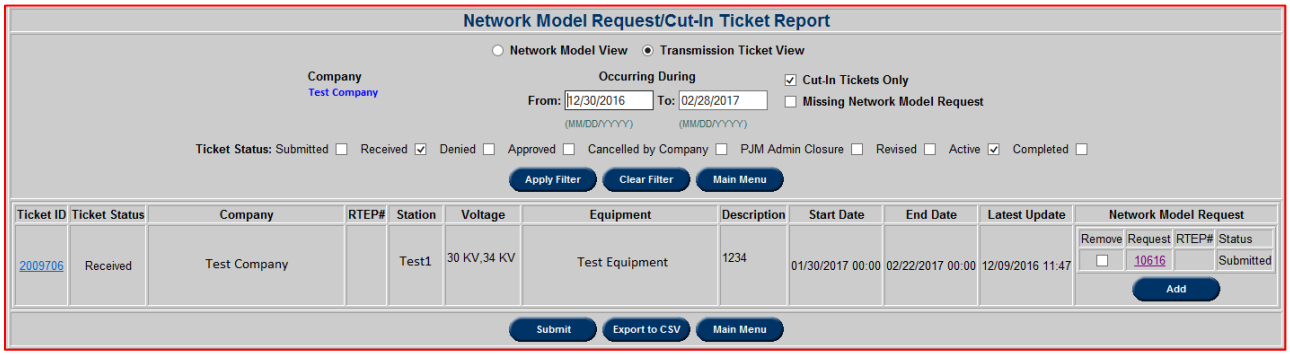
Clicking on the **Transmission Ticket View** radio button on the **Network Model Request/Cut-In Ticket Report** page will bring the user to a new screen that displays the available filters to search for transmission tickets. The page includes a number of fields that can be selected or entered. Beginning with **Occurring During**, the user can select or enter the desired time frame for when transmission outages happened or scheduled to happen. If the user does not wish to change the date, the range is automatically set to plus 6 weeks. The **Ticket Status** can be filtered by checking and unchecking the desired statuses. Checkboxes next to the date inputs can be marked to exclude or include tickets with cut-in tickets only or tickets with missing network model requests. Clicking the **Apply Filter** button will bring up the results based on the user's selection. If the user desires to start the search over, the **Clear Filter** button can be selected. **Main Menu** will direct the user back to the **Network Model Main Menu.**



Within the results, the user can view or export the tickets. By clicking on the **Ticket ID** field will allow the client to view a transmission ticket. If there are no network model request tickets linked to the transmission outage ticket, it can be added by clicking on the **Add** button and entering in the corresponding network model request ticket number. The users also have the

option of checking the **No Request Needed** checkbox if no link is required. Once added, the **Network Model Request/Cut-In Ticket Report** will display the new linkage.

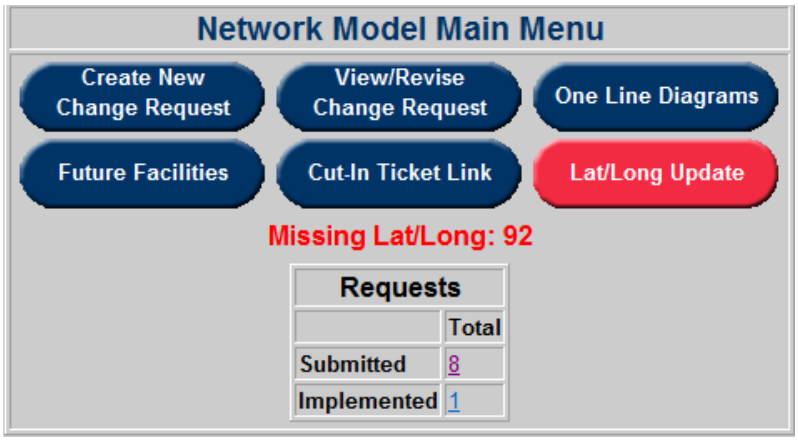




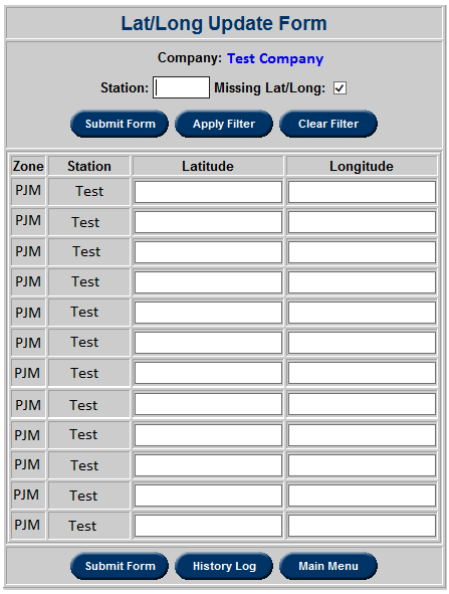
Clicking **Submit** on the **Network Model Request/Cut-In Ticket Report** page will save the changes. To receive a summary of the results, the **Export to CSV** button can be clicked.

Lat/Long Update

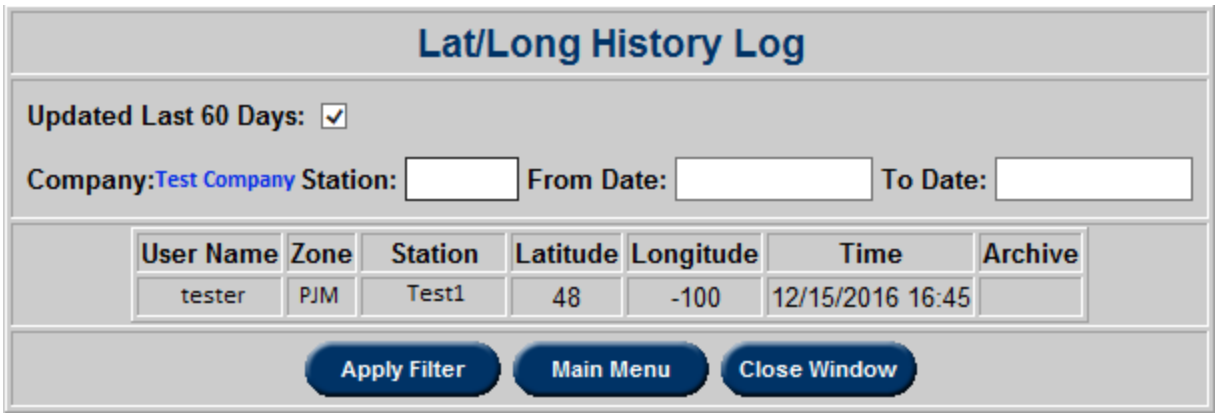
Transmission Owners (TOs) have the ability to enter station coordinates through eDART's **Network Model Main Menu** using the **Lat/Long Update button**. If there are missing station coordinates, the button will be displayed in red and indicate how many are missing.



Through the link, the user would be able to add, edit, and view coordinates. By default, the **Missing Lat/Long** checkbox will be selected and a list of stations with missing coordinates will appear. From there, the latitude and longitude points can be entered and submitted. The user can also view all stations by deselecting the **Missing Lat/Long** checkbox and clicking **Apply Filter**. The **Station** field can be filled in to search for a specific station location. If the user desires to reset the search, the **Clear Filter** button can be selected and the default search will appear. **Main Menu** will direct the user back to the **Network Model Main Menu.**



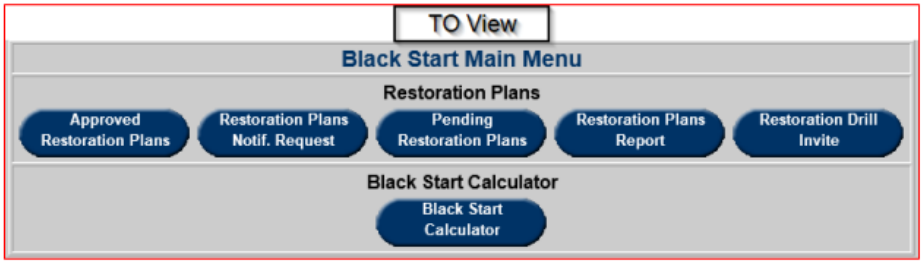
History Log will bring the user to a new page which consists of a history log of changes. By default, changes made in the last 60 days will appear. If the user wishes to view all changes, the **Updated Last 60 Days** checkbox can be unselected. Searches can be filtered further by entering or selecting information in the **Station**, **From Date**, and **To Date** fields. Clicking Apply Filter will display the new results.



Black Start

Black Start application is a comprehensive database of all Transmission Owner restoration plans and review process in eDART.

Per NERC Standard EOP (Emergency Operations Planning) 005-1, a cranking path is "a portion of the electric system that can be isolated and then energized to deliver electric power from a generation source to enable the startup of one or more other generating units." (https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf)



Business Rules

NERC Standards EOP-005-3 and EOP-006-3 outline the business rules relating to the System Restoration Plans and the plan review process. Some of the standards are mentioned below.

EOP-005-3 (https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-005-3.pdf)

R3. Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator annually on a mutually-agreed, predetermined schedule. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R4. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval, when the revision would change its ability to implement its restoration plan, as follows: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
4.1. Within 90 calendar days after identifying any unplanned permanent BES modifications.
4.2. Prior to implementing a planned permanent BES modification subject to its Reliability Coordinator approval requirements per EOP-006.

EOP-006-2 (https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-006-3.pdf)

R5. Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R5.1. The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within 30 calendar days following the receipt of the restoration plan from the Transmission Operator.

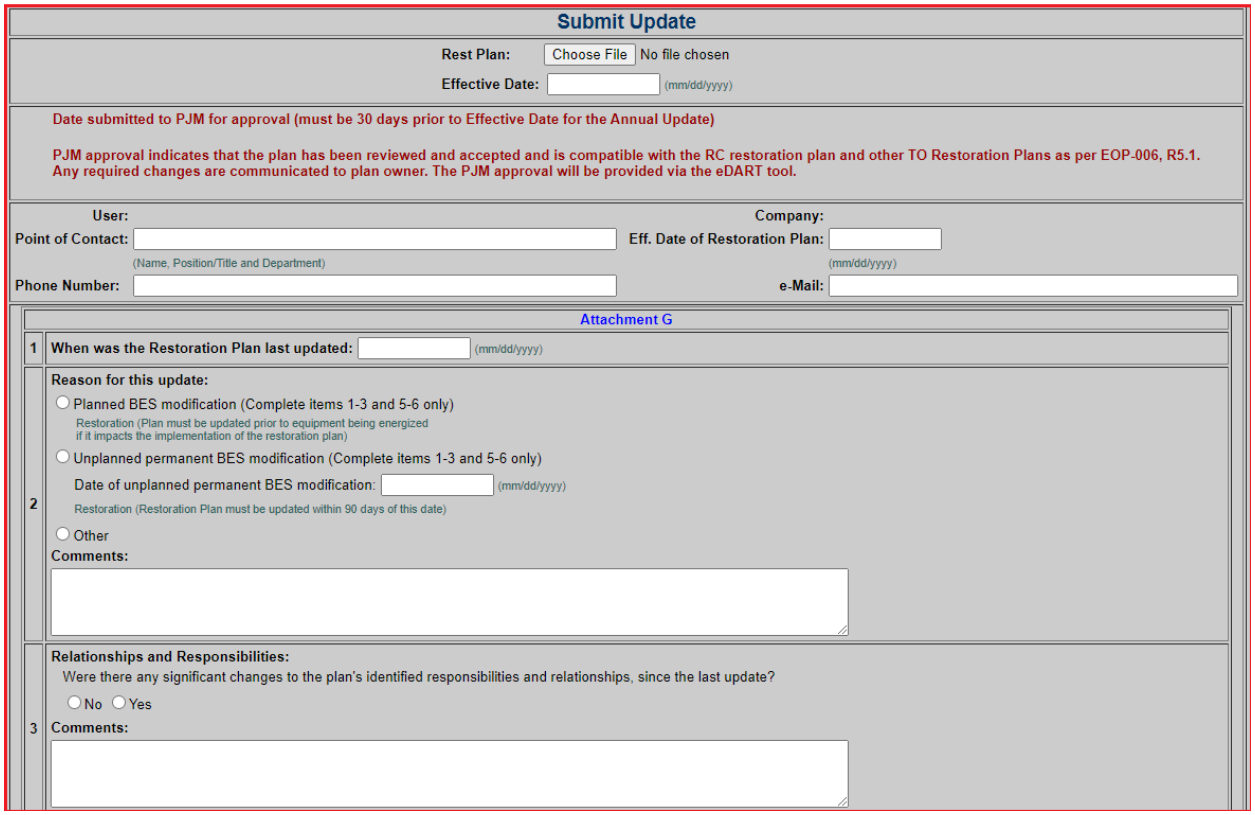
Please contact RestorationPlanUpdate@pjm.com for any related restoration plan question.

Approved Restoration Plans

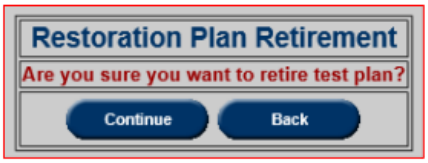
The **Approved Restoration Plans** report allows users to see their company's currently approved Restoration Plans in production. Users also have the option to toggle from **My Company** to **Other** to view reports outside the scope of their company. Retired plans are excluded from report.

- **Plan Name:** Hyperlink to download latest Restoration Plan and Attachment G.
- **Restoration Plan Updated:** The date of when the Restoration Plan was last updated.

- **History:** Hyperlink to History Log of restoration plan status changes.
- **Restoration Plan/Attachment G: Form** hyperlink opens **Submit Update** page for submission of updates to restoration plan and Attachment G.



- **Retire:** User can retire current restoration plan by uploading Attachment G with retirement reason on the **Restoration Plan Retirement Reason** page.

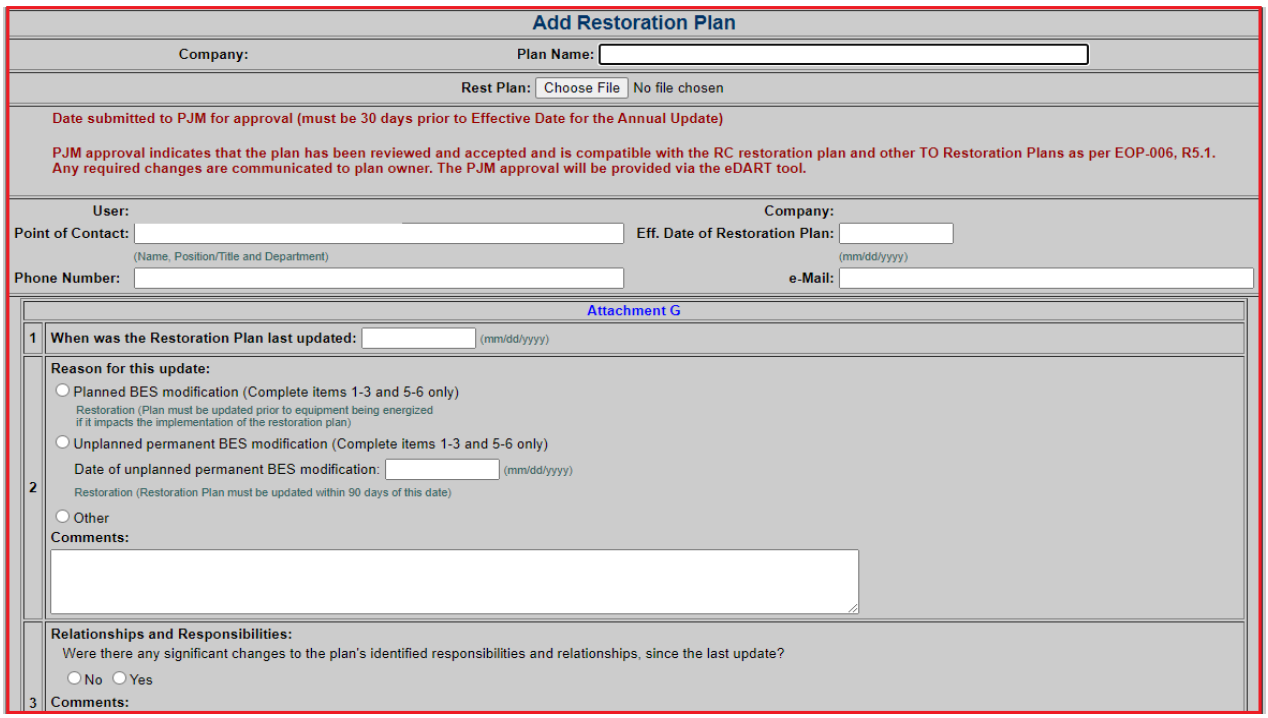


- **Annual Deadline:** Displays the agreed upon plan annual review dates where applicable.

Attachment G Form: Option to download a blank Attachment G form.

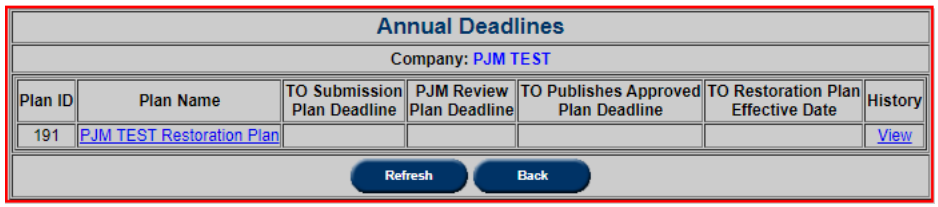
Add New Plan:

Opens Add Restoration Plan page for TO to enter new plan name and upload restoration plan file and Attachment G. Note: please consult with PJM before adding a new plan at RestorationPlanUpdate@pjm.com.



Annual Deadline

The Annual Deadlines report displays the agreed upon plan annual review dates where applicable.



Annual Deadlines

Company: PJM TEST

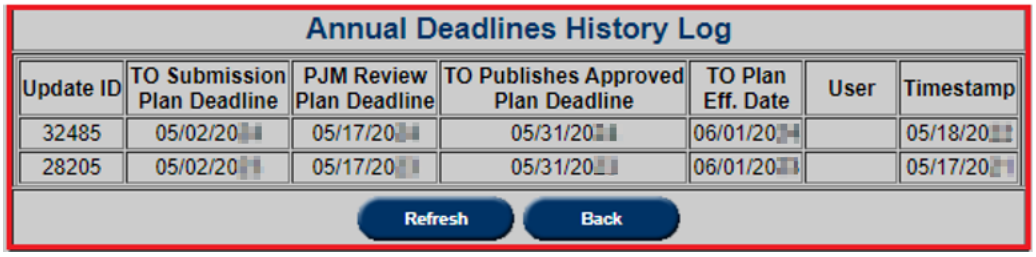
Plan ID	Plan Name	TO Submission Plan Deadline	PJM Review Plan Deadline	TO Publishes Approved Plan Deadline	TO Restoration Plan Effective Date	History
191	PJM TEST Restoration Plan					View

Refresh Back

Date updates are made by PJM based on calculation of date provided for the TO Restoration Plan Effective Date (T) by members.

- TO Submission Plan Deadline (T-30).
- PJM Review Deadline (T-15).
- TO Publishes Approved Plan Deadline (T-1).
- TO Restoration Plan Effective Date (T)

Annual Deadline History Log: Log of deadline changes made per restoration plan.



Annual Deadlines History Log

Update ID	TO Submission Plan Deadline	PJM Review Plan Deadline	TO Publishes Approved Plan Deadline	TO Plan Eff. Date	User	Timestamp
32485	05/02/20	05/17/20	05/31/20	06/01/20		05/18/20
28205	05/02/20	05/17/20	05/31/20	06/01/20		05/17/20

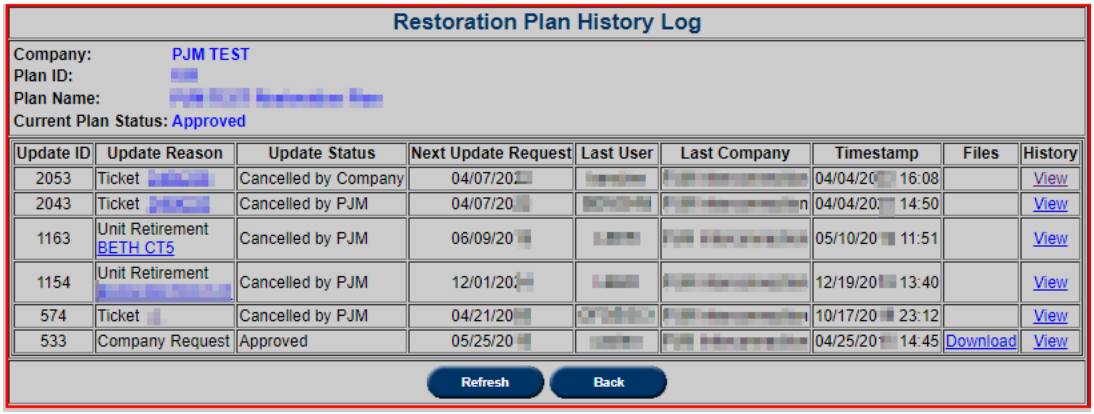
Refresh Back

History

There are two types of History Logs available in this application:

- **Restoration Plan History Log:** displays log instances a plan went through during the update process with the final plans and Attachment G. Accessible from the Approved Restoration Plans report and Restoration Plans Report.

- **Restoration Plan Update History Log:** displays log of changes made to each update per log instance of restoration plan. Accessible from Pending Restoration Plans report and Restoration Plan History Log.

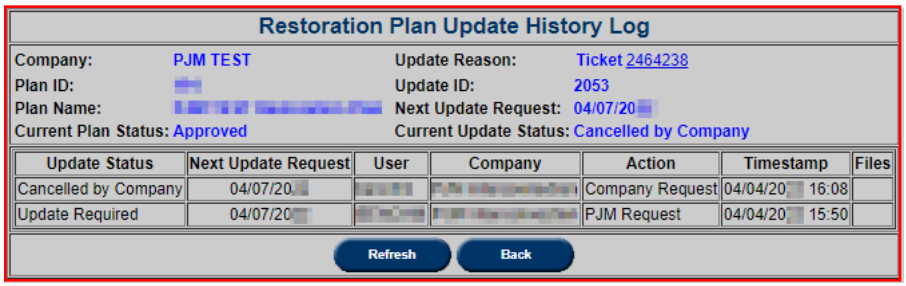


Restoration Plan History Log

Company: PJM TEST
Plan ID:
Plan Name:
Current Plan Status: Approved

Update ID	Update Reason	Update Status	Next Update Request	Last User	Last Company	Timestamp	Files	History
2053	Ticket	Cancelled by Company	04/07/20			04/04/20 16:08		View
2043	Ticket	Cancelled by PJM	04/07/20			04/04/20 14:50		View
1163	Unit Retirement BETH CT5	Cancelled by PJM	06/09/20			05/10/20 11:51		View
1154	Unit Retirement	Cancelled by PJM	12/01/20			12/19/20 13:40		View
574	Ticket	Cancelled by PJM	04/21/20			10/17/20 23:12		View
533	Company Request	Approved	05/25/20			04/25/20 14:45	Download	View

Refresh Back



Restoration Plan Update History Log

Company: PJM TEST
Plan ID:
Plan Name:
Current Plan Status: Approved
Update Reason: Ticket 2464238
Update ID: 2053
Next Update Request: 04/07/20
Current Update Status: Cancelled by Company

Update Status	Next Update Request	User	Company	Action	Timestamp	Files
Cancelled by Company	04/07/20			Company Request	04/04/20 16:08	
Update Required	04/07/20			PJM Request	04/04/20 15:50	

Refresh Back

Email Notifications

Email notifications are sent to company restoration plan contacts from RestorationPlanReviewers@pjm.com . If emails should be sent to additional recipients, please inform eDART Help (edarthelp@pjm.com).

Daily emails:

- EOP-005 Restoration Plan Update Request
- Approved System Restoration Plan

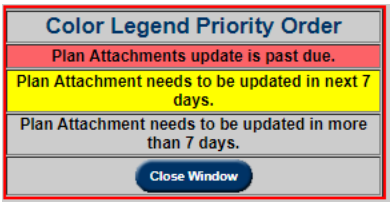
Additional mails:

- Restoration Plan No Update Pending Approval
- Restoration Plan Approved
- Restoration Plan Update Required
- EOP-005 Restoration Plan Update Required
- Restoration Plan Update Request canceled by PJM

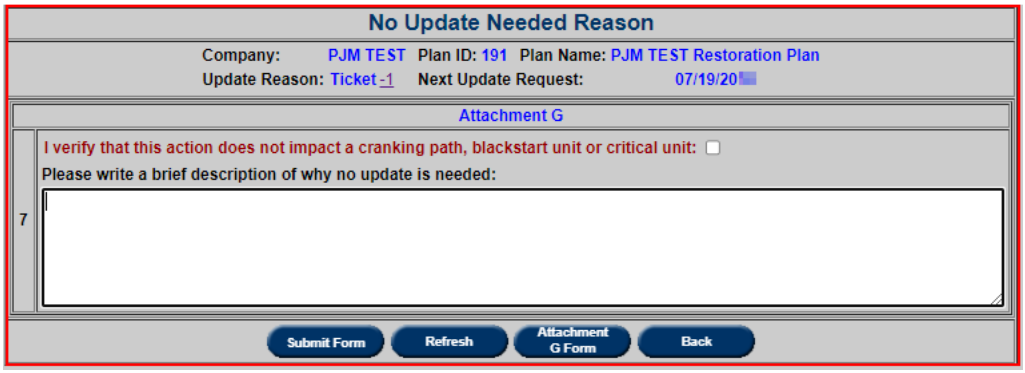
Restoration Plan Update Request Status Change

Pending Restoration Plans

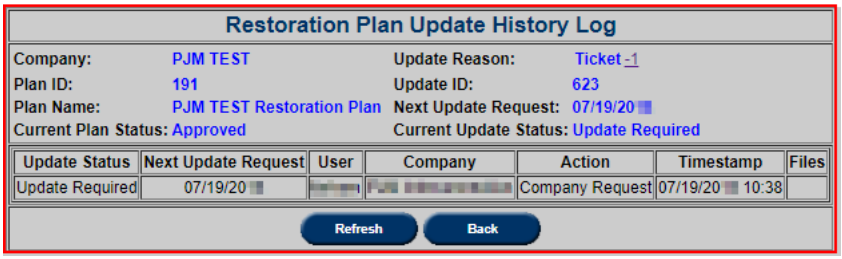
The **Pending Restoration Plans** report displays the latest versions of the restoration plans that are being reviewed. It is used for the coordination of the plan review process.



- **Plan Name:** Only displayed as a hyperlink if files have been uploaded for update request.
- **Update Status:** Status of the current review for the plan. Options are:
  - **Update Required**: An update is required from the TO.
  - **Pending Approval**: Submitted update is currently being reviewed by PJM and will either require another update from the TO or be approved. If additional information is required, status is reverted to **Update Required**.
  - **Approved**: Update to the plan was approved.
  - **No Update Pending Approval**: No Update Needed Attachment G has been submitted and is currently being reviewed by PJM.
  - **Cancelled by Company**: Update request cancelled by the TO. Only valid for update requests initiated by TO.
  - **Cancelled by PJM**: Update request cancelled by PJM.
- **Plan Status:** Official status of the plan outside of the update process. Options are: Pending Approval, Approved, Pending Retirement and Retired.
- **Restoration Plan Updated:** Time of last plan update.
- **No Update Needed:** User can indicate that update is not needed by submitting Attachment G with the reason on the **No Update Needed Reason** page.



- **Next Update Request:** Deadline by which the plan has to be updated for the given update reason.
- **Update Reason:**
  - **Company Request**: Plan update submitted from **Approved Restoration Plans** form.
  - **Annual**: Part of an annual review.
    - **Ticket**: Result of a change from a transmission ticket; **Restoration Plan Review Needed** (Go to Restoration Plan Review section in this document for more information) set to 'Yes'. Click on the Ticket ID to open the print version of the ticket.
  - **PJM Request**: Manual override or PJM request.
- **History:** Hyperlink to History Log of restoration plan update status changes.



- **Restoration Plan/Attachment G:**
  - **Form**: Opens **Submit Update** page for submission of updates to restoration plan and Attachment G.
  - **Form+Ticket:** Opens **Submit Update** page for submission of updates to restoration plan and Attachment G and **Transmission Ticket Print Version**.

Submit Update

Rest Plan: Choose File No file chosen

Effective Date: (mm/dd/yyyy)

Date submitted to PJM for approval (must be 30 days prior to Effective Date for the Annual Update)

PJM approval indicates that the plan has been reviewed and accepted and is compatible with the RC restoration plan and other TO Restoration Plans as per EOP-006, R5.1. Any required changes are communicated to plan owner. The PJM approval will be provided via the eDART tool.

User: **Company:**

Point of Contact: (Name, Position/Title and Department) **Eff. Date of Restoration Plan:** (mm/dd/yyyy)

Phone Number: **e-Mail:**

Attachment G

1 **When was the Restoration Plan last updated:** (mm/dd/yyyy)

2 **Reason for this update:**

- Planned BES modification (Complete items 1-3 and 5-6 only)
  Restoration (Plan must be updated prior to equipment being energized if it impacts the implementation of the restoration plan)
- Unplanned permanent BES modification (Complete items 1-3 and 5-6 only)
  Date of unplanned permanent BES modification: (mm/dd/yyyy)
  Restoration (Restoration Plan must be updated within 90 days of this date)
- Other

Comments:

3 **Relationships and Responsibilities:**

Were there any significant changes to the plan's identified responsibilities and relationships, since the last update?

No Yes

Comments:

Transmission Ticket Print Version

Company: PJM TEST **Status:** Active
Company Ticket ID: **Ticket ID:** [redacted]
RTEP Queue #:
Ticket Start: 04/05/20[redacted] 00:00 **Ticket End:** 04/15/20[redacted] 00:00
Switch Date: 04/12/20[redacted] 00:00

Description: Test

PJM Comments: Please include additional information in the work descri_ption.

Mitigated Comments:

Information/Hotline Work: No
Emergency: No
Vegetation Trip: No
Cut-In: Yes
Potentially Incomplete: Yes
At Risk: No
Congestion Expected: No
Submitted On-Time: No
Market Sensitive: No
Automatic Re-Close: No
Mitigated (Conflict): 0 / 0
Mitigated (System Impact): 0 / 0
Direct Billing: No
Direct Billing Decline: No
Outage Type: Continuous
Availability: 1 hr.
Restor. Plan Review: 643 - Pending Approval
Cause: (Lookup) Cut-In

Ticket History

	Time Stamp	User Name
Submitted	04/04/20[redacted] 13:57	[redacted]
Received	04/04/20[redacted] 13:59	[redacted]
Approval	04/04/20[redacted] 14:13	[redacted]
Latest Revision	04/04/202[redacted] 14:05	[redacted]

NERC-TADS: Not Entered

Cut-In Task Status
Title: Unreviewed
Status: Unreviewed

Outaged Equipment

Primary	Status	Type	Station Name	Voltage	Equipment Name	Start Date	End Date	Default Status
Yes	Open	BRKR	[redacted]	138 KV	[redacted]	04/05/20[redacted] 00:00	04/12/20[redacted] 00:00	No Change

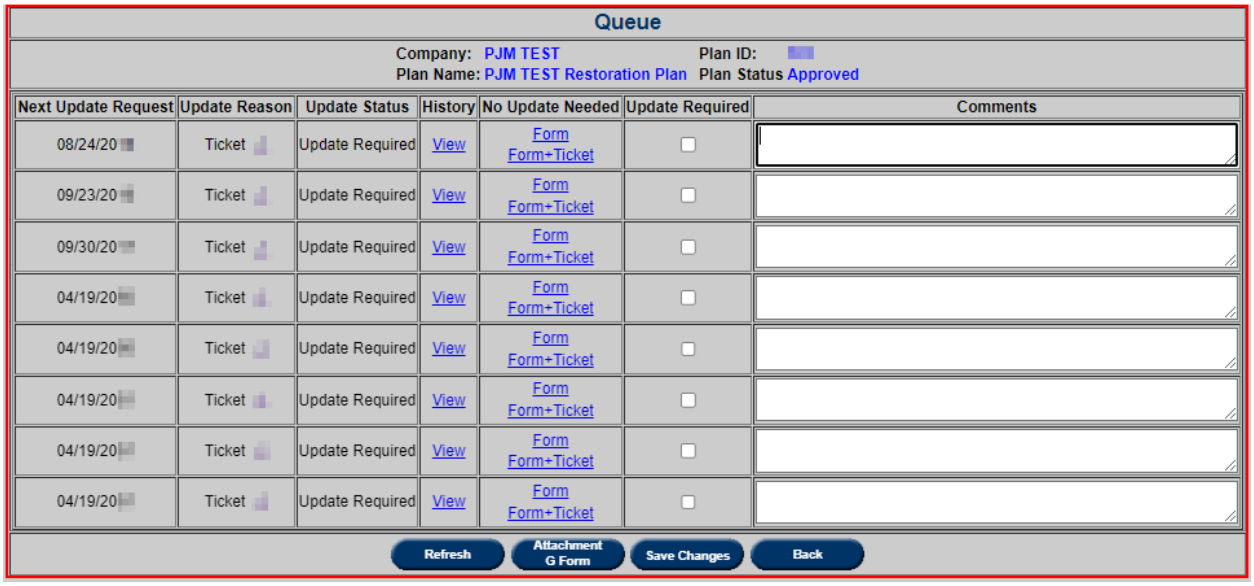
Actual Outage Log

Start Date	Start Hour	End Date	End Hour
04/04/20[redacted]	14:14		

Date Time Log

Start Date	End Date	Timestamp	User ID
04/05/20[redacted] 00:00	04/15/20[redacted] 00:00	04/04/20[redacted] 14:13	[redacted]

Queue: displays the number of upcoming plan reviews. The updates can only be made one at a time. Also, if the information supplied for the current update applies to other updates in the queue, the TO can upload the plan and Attachment G via the **No Update Needed** form to say so.



- **Color Legend:** The color legend refers to when Plan Updates are due.

Restoration Plans Report

The **Restoration Plans Report** displays the changes made to the Restoration Plans.

Users can filter by the plan update status. By default, **Updated last 60 Days** and **Approved** are checked.

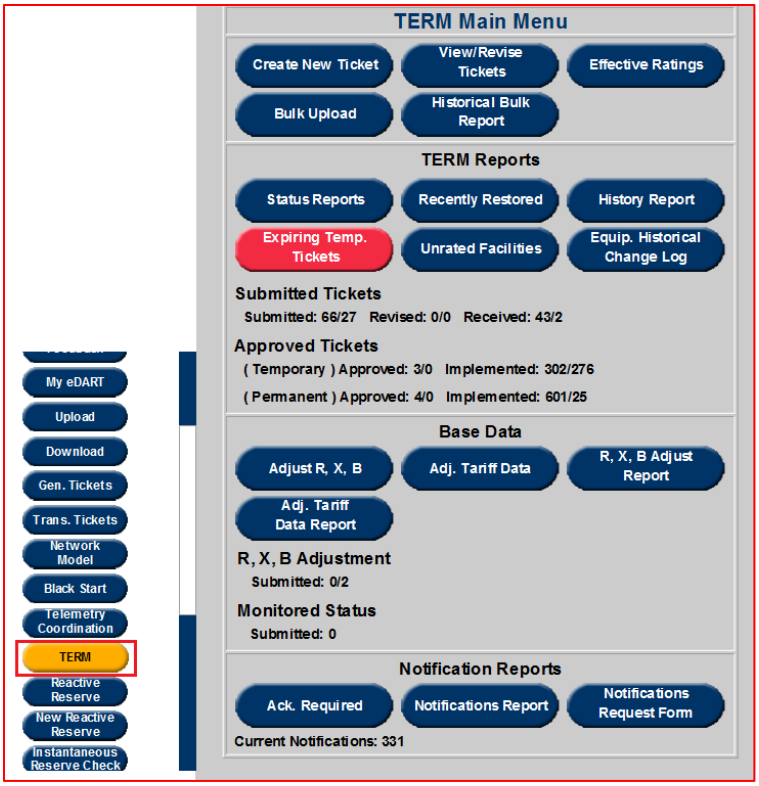
TERM

In addition to being a ratings database, Transmission Equipment Rating Monitor (TERM):

- Prepares files for transferring ratings to the PJM EMS;
- Provides feedback to users concerning the status of ratings tickets;
- Provides information concerning effective, or current, facility ratings for each TO;
- Maintains an audit trail of rating changes; Supports bulk rating uploads;
- Provides various reports to users concerning select equipment attributes (e.g., impedances).

Each rating change submitted to PJM via TERM is assigned a unique number. After submitting a rating change ticket, PJM's Real Time Data Management Department (RTDM) staff members:

- Analyze the rating changes;
- Coordinate tie-line changes with all stakeholders;
- Transfer ratings data to the PJM EMS;
- Notify PJM operations and markets personnel of ratings changes;
- Update the TERM ticket with relevant information.



Business Rules

Key guidelines for the Ratings Process:

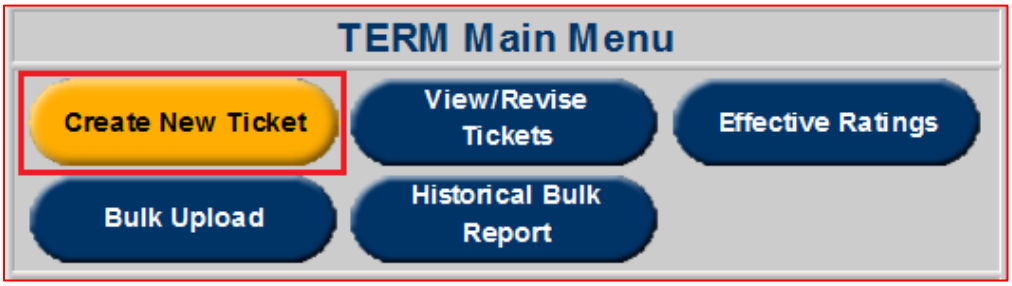
1. TOs rate facilities consistent with their internal, documented methodologies.
2. TOs provide Normal, Long Term Emergency (LTE), Short Term Emergency (STE) & Load Dump (LD) ratings.
3. TOs provide ratings for each of eight (8) temperature sets (32/41/50/59/68/77/86/95 °F).
4. TOs may differentiate Day and Night ratings for these temperature sets.
5. TO Emergency ratings apply to both Long-Term (LTE) & Short-Term Emergency (STE) ratings.
6. STEs can be higher than LTEs ***only if*** SOS-T approves a special operations guideline, order, procedure or bulletin (documented in M3). For example, facilities approved as part of PJM's post-contingency overload program will have STEs > LTEs or part of a common trench or common cooling system.
7. Load Dump ratings are defined as limits which can be safely operated for up to 15 minutes before automatic schemes will trigger.
8. Normal Ratings should be greater than Long Term/Load Dump ratings
9. Long term or Short term emergency ratings are greater than the load dump rating
10. Ratings are generally expected to increase as temperature decreases.

11. If temperature-dependent ratings are not available, PJM will assign Summer ratings to the Summer temperature sets; and, Winter ratings to the Winter temperature sets.
12. All tickets must have a limitation.
13. If a rating change is longer than six (6) months then it should be marked as a permanent ticket.
14. If a rating change is shorter than six (6) months then it should be marked as a temporary ticket.
15. As a general rule, PJM requires ratings for all radial, non BES (Bulk Electric System) facilities.
16. The estimated start date cannot be more than seven (7) days in the past.

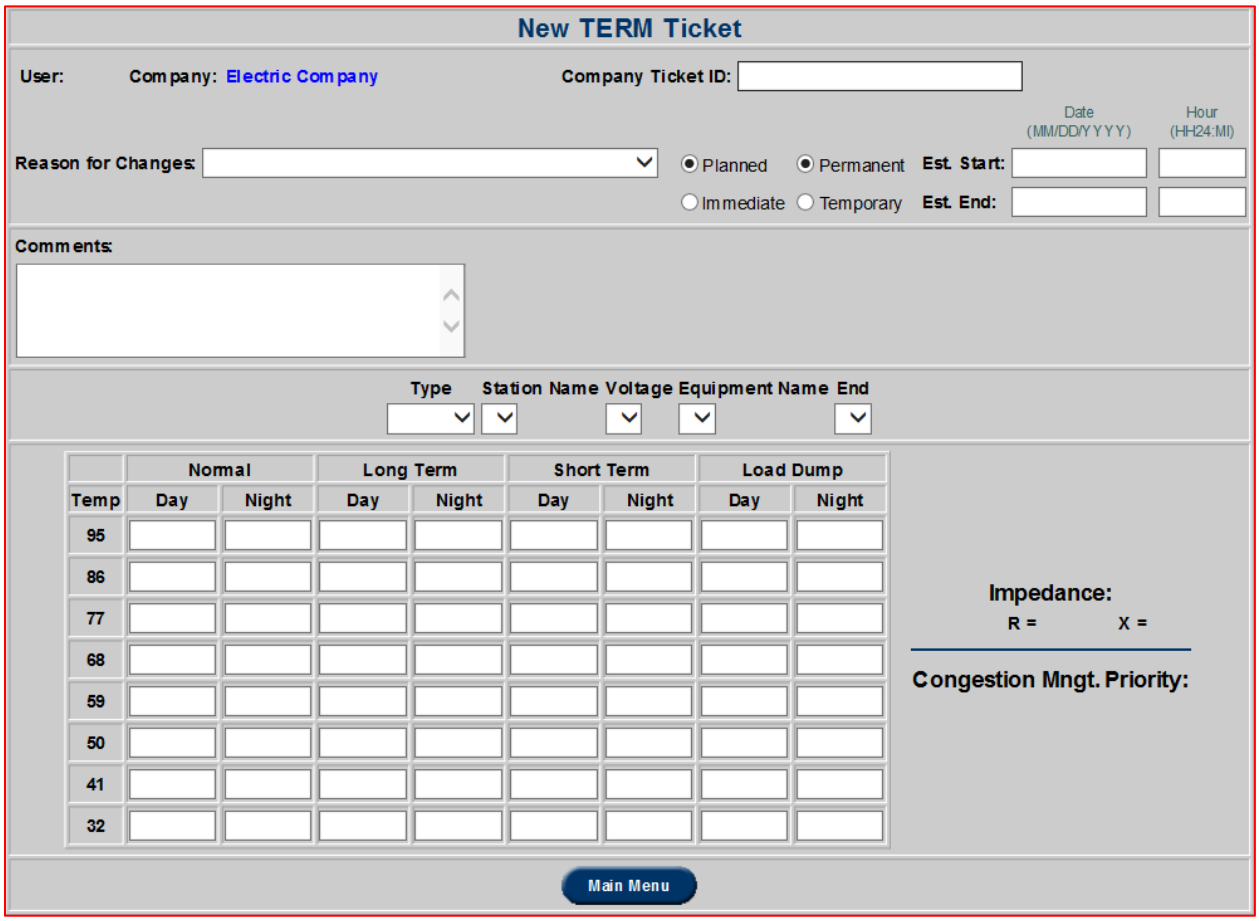
When logged into eDART, click on the **TERM** button on the left menu to open the **TERM Main Menu**.

Create New Ticket

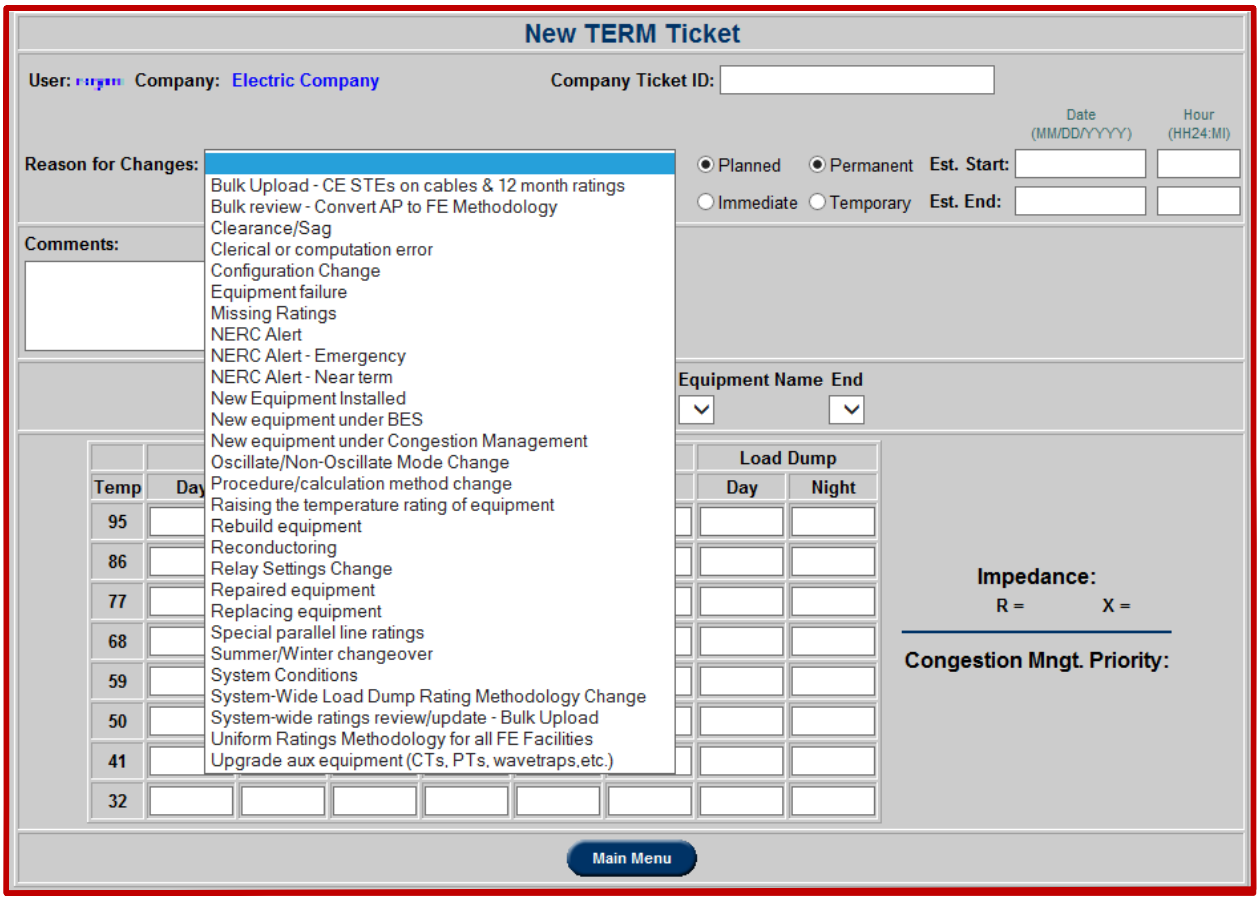
This function allows TOs to enter ratings in the New TERM Ticket form. Each ticket is automatically given a unique Ticket ID.



In order to create a TERM Ticket, select the **Create New Ticket** button to open the **New TERM Ticket** form as shown below:



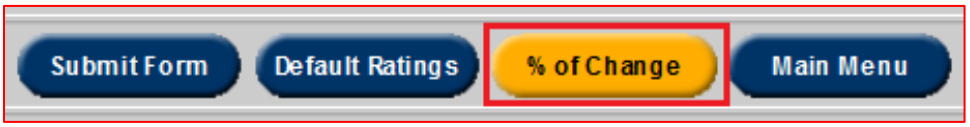
Ticket Fields

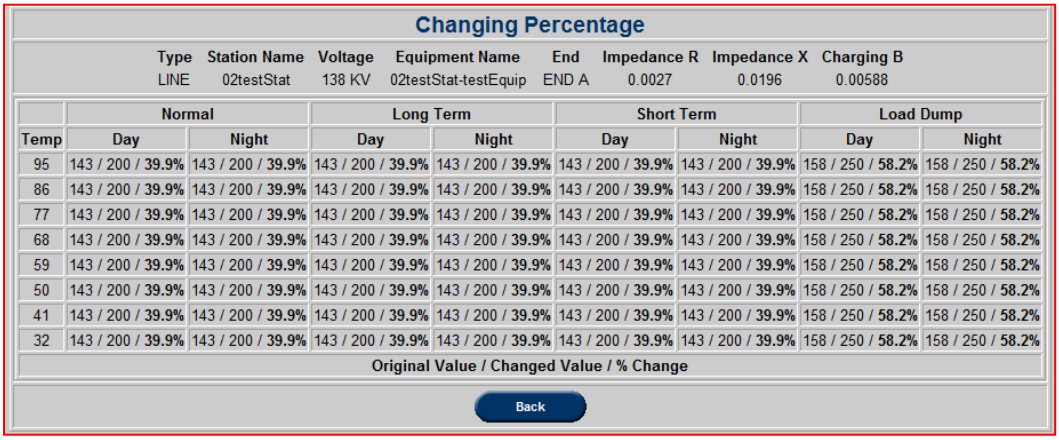


- **Company Ticket ID:** Optional field for the company internal ticket number. This field needs to be unique.
- **Reason for Changes**: This is the reason the ticket was created. The list of reasons can be changed upon request. The list can also be downloaded.
- Enter the **Est. Start**, and if applicable, the **Est. End Date**, along with whether the change is **Planned/Immediate** or **Permanent/Temporary.** If a ticket is temporary, users must enter an **End Date**.
- **Planned/Immediate**: Planned is for rating changes that are scheduled previously in a timely manner.
- **Permanent/Temporary:** Permanent/Temporary (generally less than six months), one must be selected. Permanent is set as default. If Permanent is selected Est. End Date and Time is not needed.
- **Type:** The type of equipment. Includes XFMRs, LINEs, BRKRs and SDs.
- **Station Name:** The name of the station where the equipment is located.
- **Voltage:** The voltage of the station.
- **Equipment Name:** The name of the equipment selected to create or change ratings.

- **End:** END A or END B for a LINE and HIGH/LOW for a XFMR.
- **Normal**: The rating under normal operating condition.
- **Long Term/Short Term:** The ratings when the facility is operating under contingency.
- **Load Dump:** 15 minute rating before load shedding is required.
- **Day:** Rating during the day.
- **Night:** Rating during the night.
- **Default Ratings:** This button is only available after equipment specifications have been entered. Press this button to update the ratings with the default ratings previously placed in eDART. Otherwise, input new ratings in the empty fields.
- **Impedance/Charging:** This area will automatically be displayed after ratings have been entered.
    - **R** and **X** values make up the electrical impedance (A physical characteristic of the equipment used in the field that describes their resistance to the flow of electricity. The higher the impedance, the harder it is to push current across the device. The **B** value is the charging value, which is used only for lines. When there is a flow through the line, the conductors conduct and the line charges. The B value is the rate at which it charges.
- **Adj. %:** To change all of the ratings by the same percentage at once, enter a percentage as a number (For example; for a 1% change, enter a 1.) and click the **Apply** button.

After entering ratings, the percent change will be available by clicking on the **% of Change** button right next to the **Main Menu** button. Users can click the **Main Menu** button to return to the **TERM Main Menu**.





Changing Percentage

Type	Station Name	Voltage	Equipment Name	End	Impedance R	Impedance X	Charging B
LINE	02testStat	138 KV	02testStat-testEquip	END A	0.0027	0.0196	0.00588

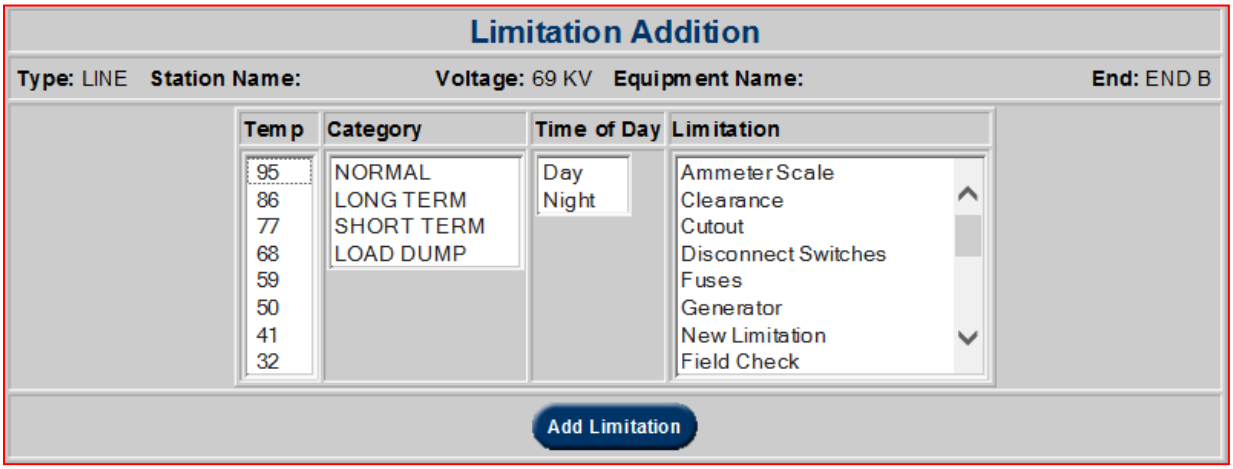
	Normal		Long Term		Short Term		Load Dump	
Temp	Day	Night	Day	Night	Day	Night	Day	Night
95	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%
86	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%
77	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%
68	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%
59	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%
50	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%
41	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%
32	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	143 / 200 / 39.9%	158 / 250 / 58.2%	158 / 250 / 58.2%

Original Value / Changed Value / % Change

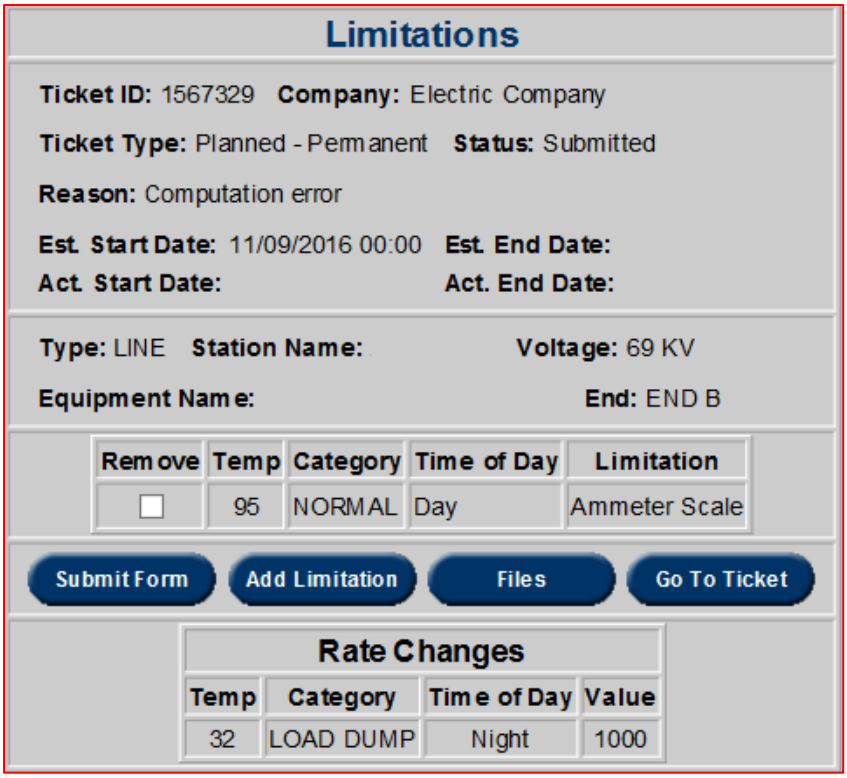
Back

When satisfied, click the **Back** button in the **Changing Percentage** window and click the **Submit Form** button in the **New TERM Ticket** window. This leads to the **Limitation Addition** window.

To add a limitation, choose from the criteria in the menus under **Limitation Addition**. Multiple items from each field may be selected by selecting an item, holding the "Ctrl" key, and then clicking on any other field(s). Next, click the **Add Limitation** button.

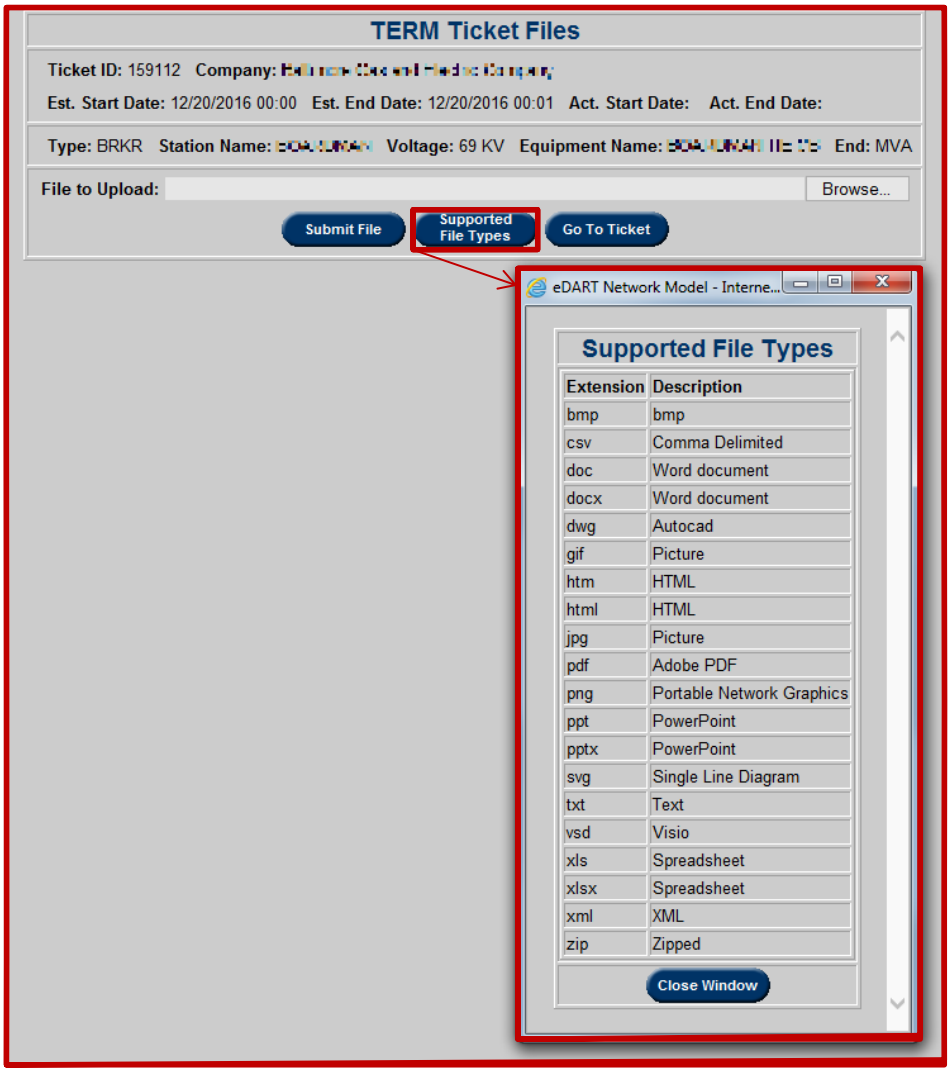


Note: *Adding a limitation is mandatory for approval.*

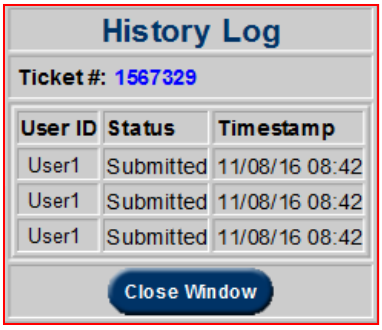


If one or more of the records seems incorrect, click the checkbox under **Remove** for each incorrect records and click the **Submit Form** button to remove the incorrect records. To re-enter records or add other limitations, click the **Add Limitation** button again. When finished, click the **Go to Ticket** button to return to the newly created ticket. At this point records can be edited. The **Rate Changes** table displays the current ratings.

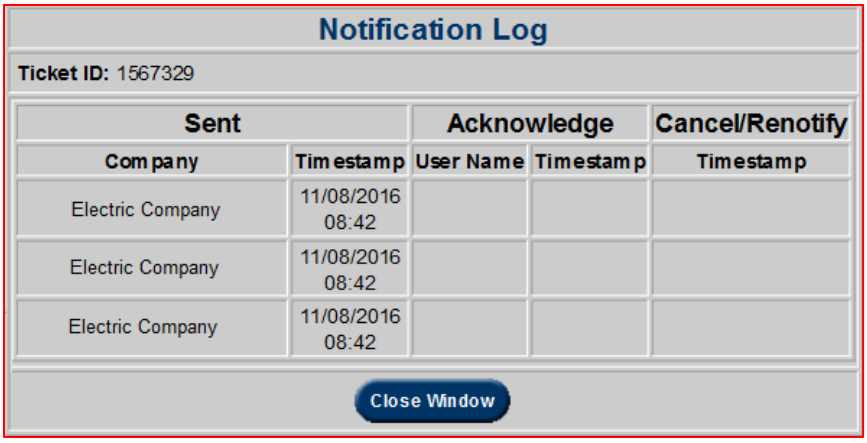
To add supporting documentation, click the **Files** button and browse for a file. After selecting a file, click the **Submit File** button. To view supported file types, select **Files** and the following screen will appear. The right screen shows the **Supported File Types**. This is done to coordinate between TOs or GOs that do not necessarily have access to the specific equipment. By uploading the ratings they can alert the interested parties about the changes made.



- **History Log**: Allows users to view the history of all the people who made any changes to the status of the ticket. This includes users who submitted, revised, approved and implemented the ticket.



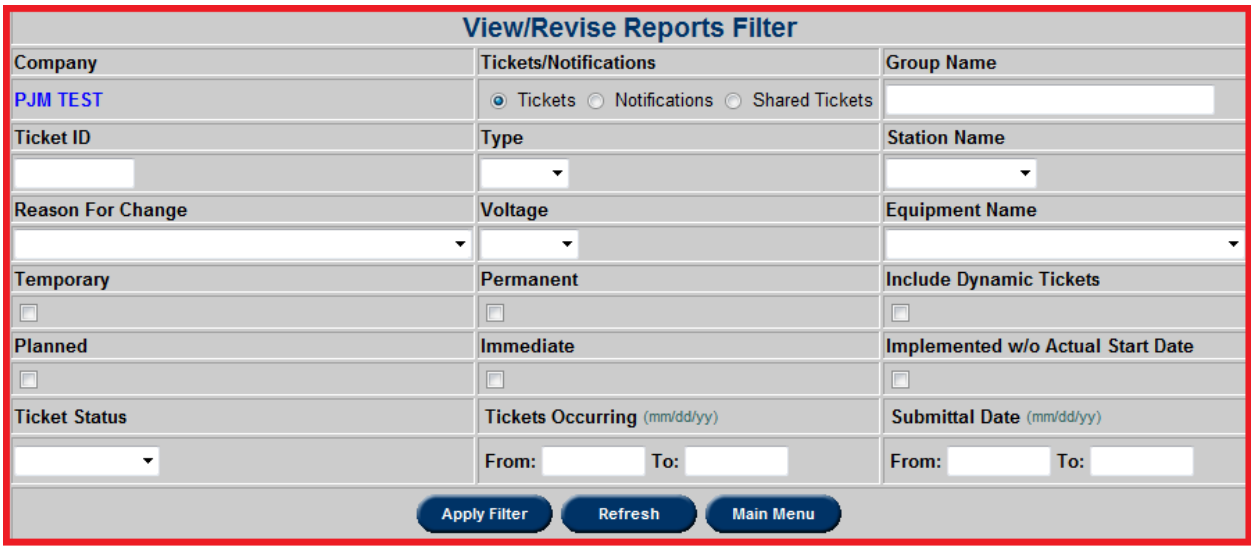
- **Notifications Log:** This pop up box displays the companies that have notification rights to the facility and shows whether or not the companies have acknowledged the ticket and rating changes. This helps when a TO does not have access to certain equipment but only gets notified if any changes are made. This feature is especially useful in a Tie-Line situation.



View / Revise Ticket

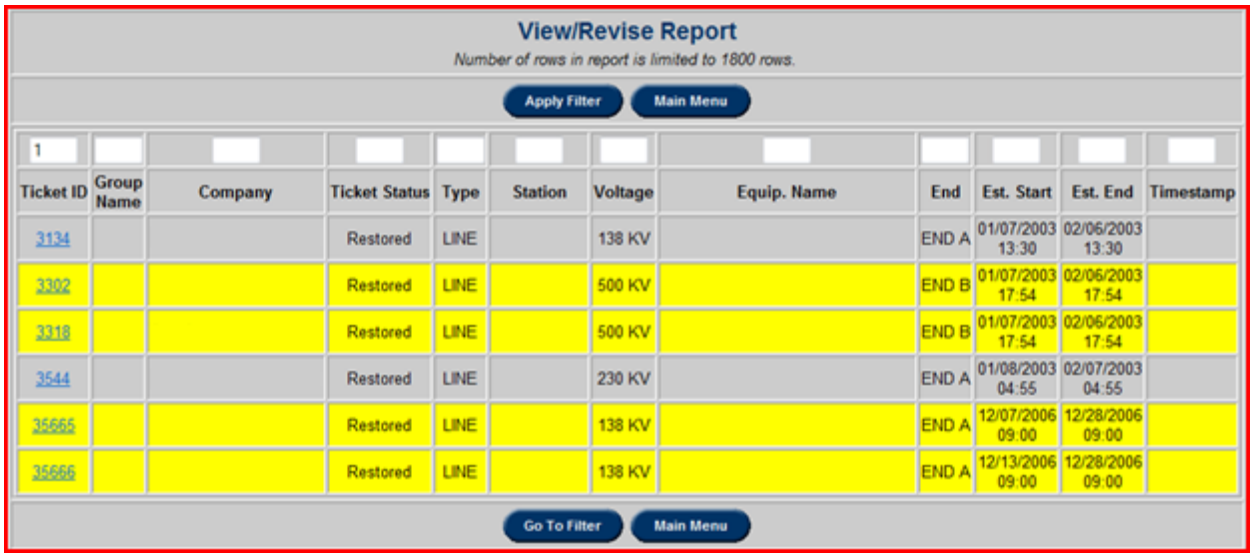
This function allows users to enter desired filtering criteria in order to view certain specified tickets. By default, tickets are sorted in ascending order of the Ticket ID.

In order to view or revise any of the existing tickets, select the **View/ Revise Ticket** button on the **TERM Main Menu** to open the **View/Revise Reports Filter**.



- **Group Name**: Is in direct relation to the Bulk Upload functionality.
- **Tickets**: This will filter only the tickets.
- **Notifications**: This will filter only the notifications.
- **Shared Tickets**: A ticket that can be seen by multiple companies.

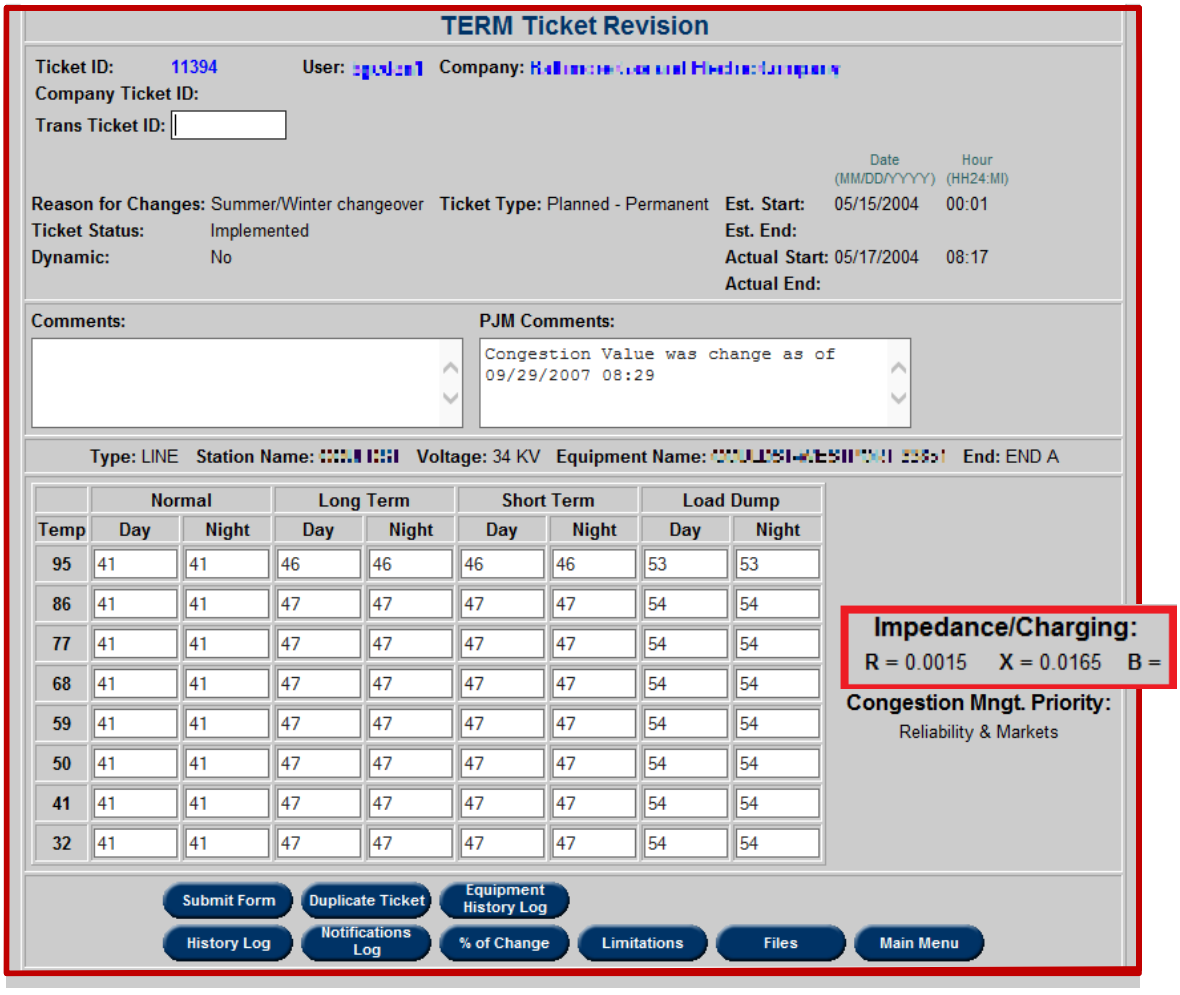
Search for tickets using the filter criteria or click on the **Apply Filter** button which displays all the tickets. The filters can be used in any combination; however the data displayed will need to meet all criteria selected. After clicking the **Apply Filter** button, the results page will be displayed as shown below:



By default, tickets are sorted based on the **Ticket ID**. It is also possible to sort on multiple columns based on a user defined sort order. The columns will be sorted in the numerical order as

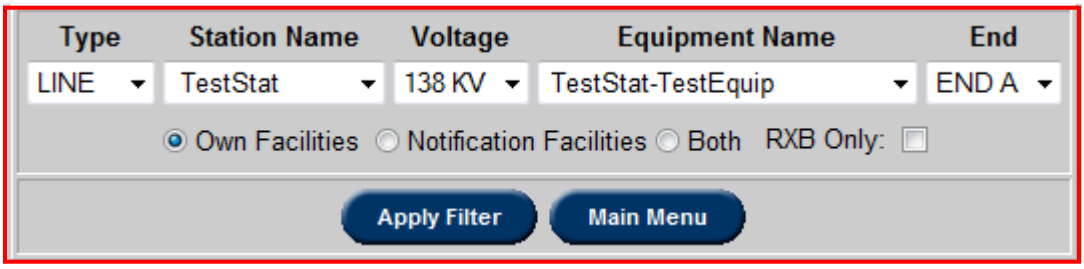
specified in the text box under the column name. For example, to sort by “Ticket Type” first and then “Company”, enter the digit “1” in the box under **Ticket Type** and “2” under **Company** and then click on the **Apply Filter** button at the top. The results will be displayed in the desired sort order as shown below. It is necessary to delete numbers that are over any columns that are not to be sorted. Click on the **Go To Filter** button to return to the **View/Revise Reports Filter**, or click on the **Main Menu** button to return to the **TERM Main Menu**.

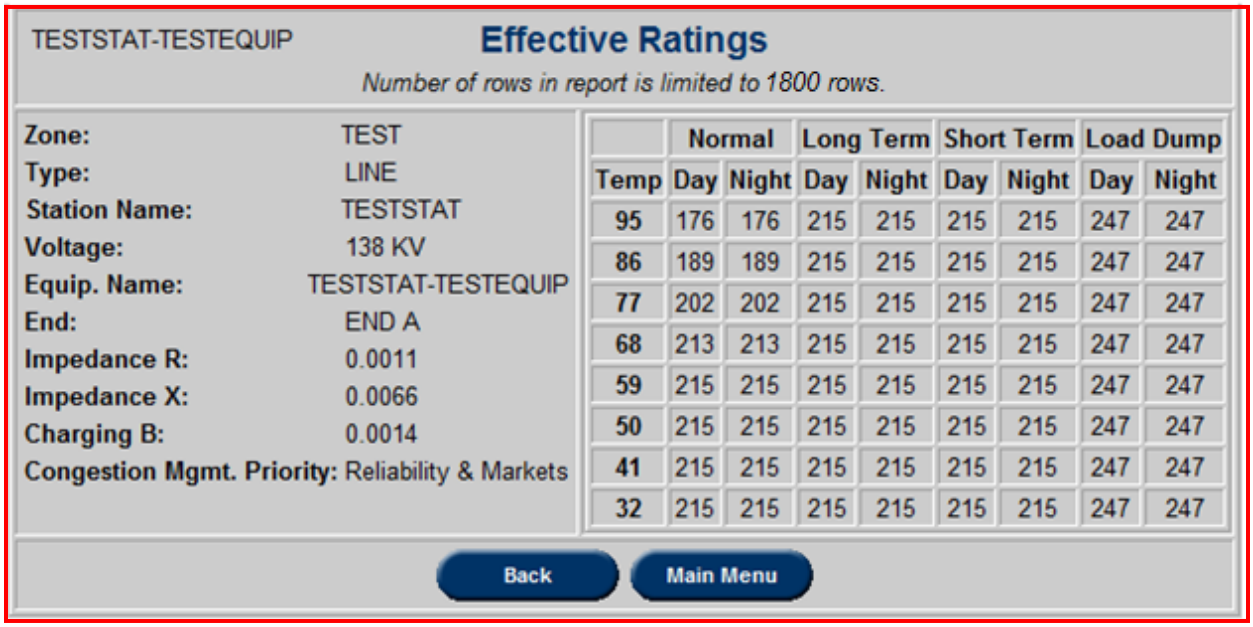
In order to open a specific ticket, click on the “**Ticket ID**” field for that ticket and this will open the **TERM Ticket Revision** form which can be used to update the ratings and comments or duplicate the ticket if changes to the date are needed as discussed above.



Effective Ratings

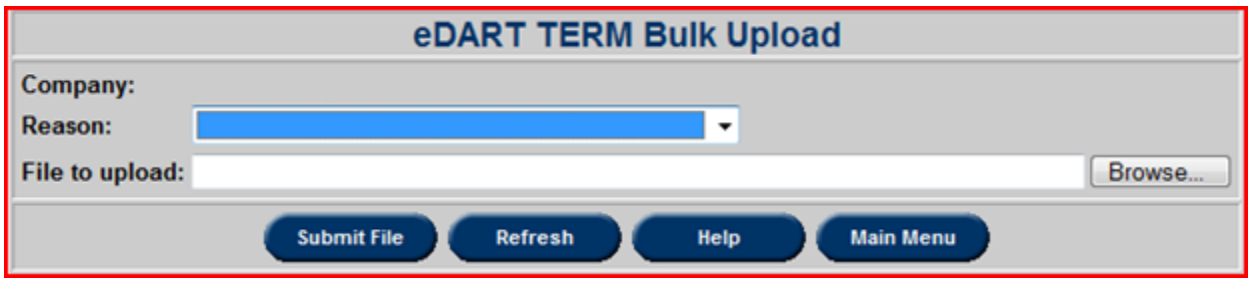
In order to view the effective ratings available for certain equipment, select the **Effective Ratings** button on the **TERM Main Menu.** Drop down menus will expand as each previous field is populated.





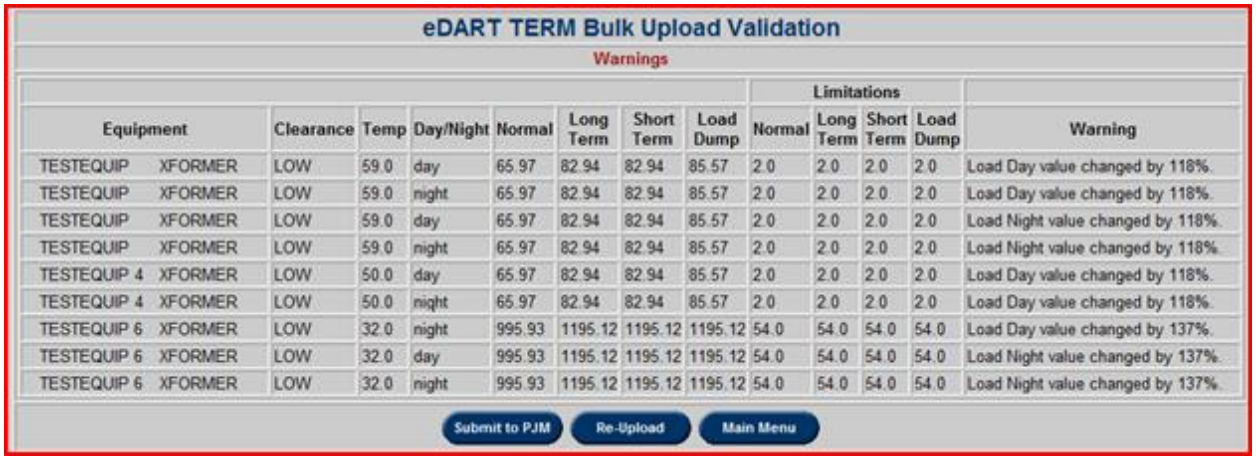
Bulk Upload

In order to upload a number of tickets in a bulk, select the **File Bulk Upload** button on the **Term Main Menu** to open the **eDART TERM Bulk Upload**.



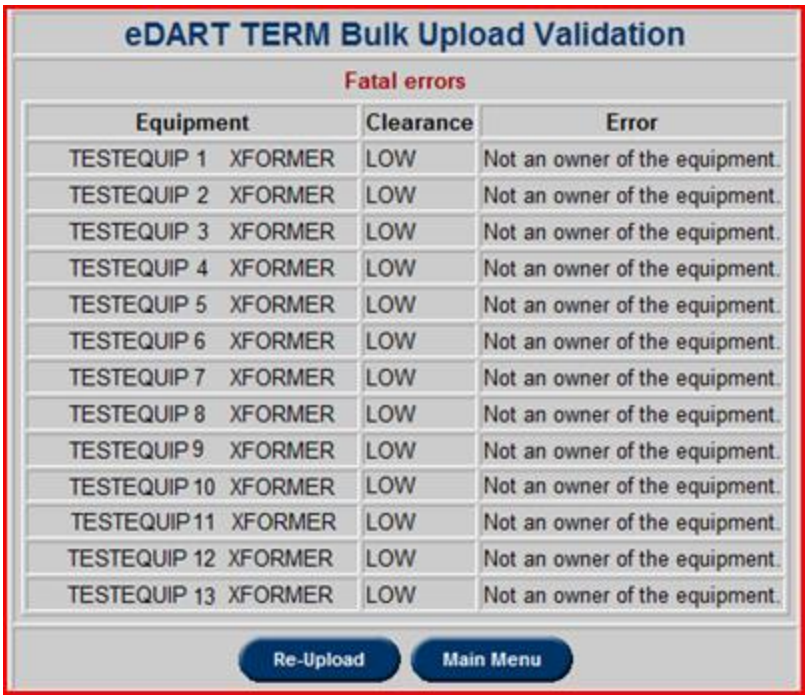
Select the reason and which file to upload (it must be an .xls file). This procedure can be done multiple times. Users can click **Help**, which will download an example Excel bulk upload file. Users can refer to the **XML File Download** (pp. 137) section, in regards to the **Limitation Report** file, to use in filling out the bulk upload file with limitation codes.

If everything was uploaded correctly the screen above will be shown, which will let the TOs know that the data has been submitted to PJM.



Equipment		Clearance	Temp	Day/Night	Normal	Long Term	Short Term	Load Dump	Limitations Normal	Limitations Long Term	Limitations Short Term	Limitations Load Dump	Warning
TESTEQUIP	XFORMER	LOW	59.0	day	65.97	82.94	82.94	85.57	2.0	2.0	2.0	2.0	Load Day value changed by 118%.
TESTEQUIP	XFORMER	LOW	59.0	night	65.97	82.94	82.94	85.57	2.0	2.0	2.0	2.0	Load Day value changed by 118%.
TESTEQUIP	XFORMER	LOW	59.0	day	65.97	82.94	82.94	85.57	2.0	2.0	2.0	2.0	Load Night value changed by 118%.
TESTEQUIP	XFORMER	LOW	59.0	night	65.97	82.94	82.94	85.57	2.0	2.0	2.0	2.0	Load Night value changed by 118%.
TESTEQUIP 4	XFORMER	LOW	50.0	day	65.97	82.94	82.94	85.57	2.0	2.0	2.0	2.0	Load Day value changed by 118%.
TESTEQUIP 4	XFORMER	LOW	50.0	night	65.97	82.94	82.94	85.57	2.0	2.0	2.0	2.0	Load Day value changed by 118%.
TESTEQUIP 6	XFORMER	LOW	32.0	night	995.93	1195.12	1195.12	1195.12	54.0	54.0	54.0	54.0	Load Day value changed by 137%.
TESTEQUIP 6	XFORMER	LOW	32.0	day	995.93	1195.12	1195.12	1195.12	54.0	54.0	54.0	54.0	Load Night value changed by 137%.
TESTEQUIP 6	XFORMER	LOW	32.0	night	995.93	1195.12	1195.12	1195.12	54.0	54.0	54.0	54.0	Load Night value changed by 137%.

Warnings may occur for different reasons but PJM will still receive the upload. The user can re-upload the ratings if necessary or if any mistakes were made.



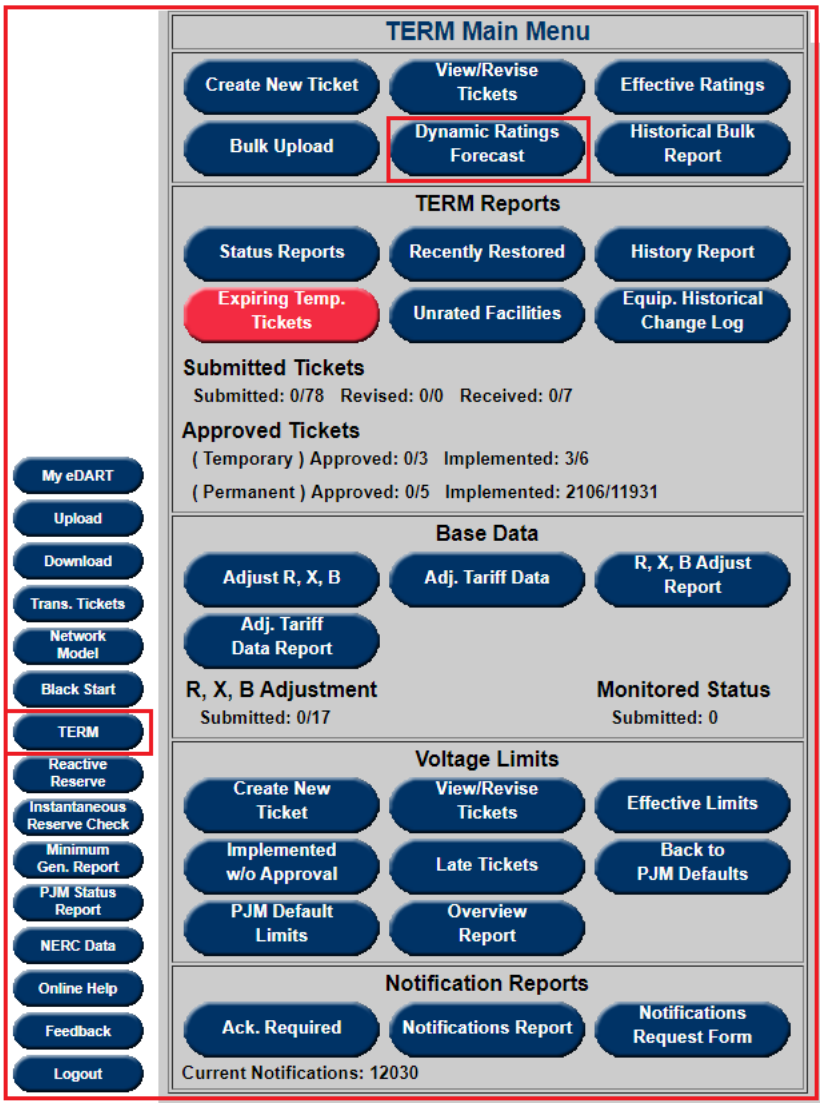
Errors during upload can occur. These errors can be caused by multiple reasons. An example of a fatal error is when a user tries to upload ratings changes for equipment that the user's company does not own. If such errors occur, the TOs must fix the errors to submit the rating to PJM.

Dynamic Ratings Forecast

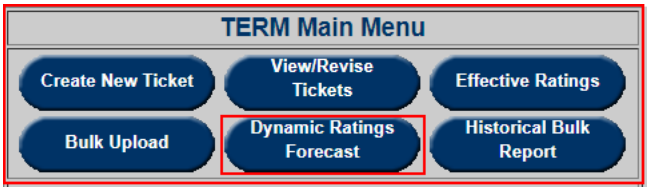
Dynamic Ratings Forecast provides ability for Transmission Owners (TOs) with equipment enabled for dynamic ratings to upload and download forecasted ratings (.csv format).

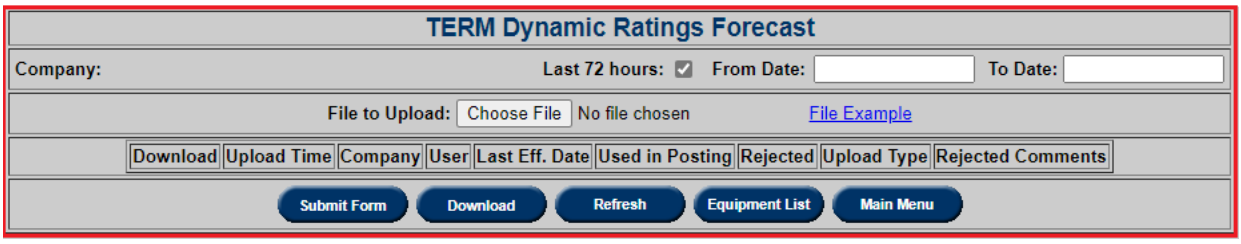
For more information on Dynamic Ratings at PJM, please see the Dynamic Line Ratings Overview presentation. (20210330-item-01-dynamic-line-ratings-overview.ashx (pjm.com))

The Dynamic Ratings Forecast button is only available to TOs with equipment flagged as dynamic in eDART. Contact the eDART team to have this set up if needed.



When logged into eDART, click on the **TERM** button on the left menu to open the **TERM Main Menu** and then Dynamic Ratings Forecast



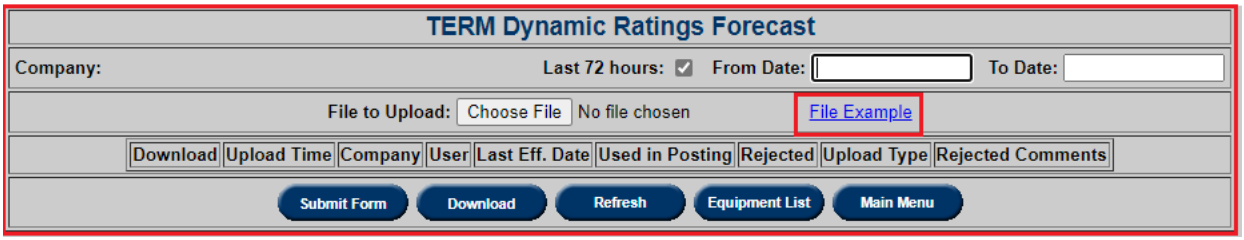


Upload Option

Users can upload CSV files with ratings for up to the next 48 hours. The file should include the following columns:

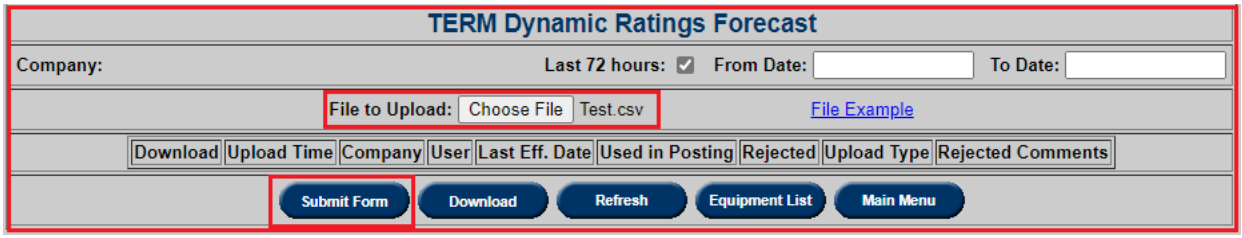
- HourEndGMT as mm/dd/yyyy hh
- Station
- Voltage
- Equipment
- End
- Normal
- LongTerm
- ShortTerm
- LoadDump

Click on File Example for a sample file that can be downloaded, edited and uploaded to eDART.

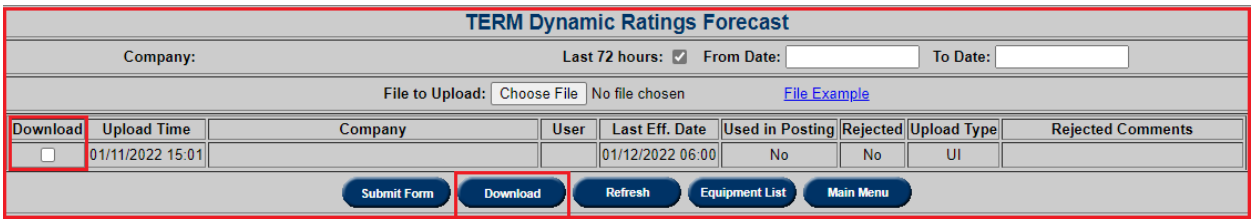


	A	B	C	D	E	F	G	H	I
1	HourEndGMT	Station	Voltage	Equipment	End	Normal	LongTerm	ShortTerm	LoadDump
2	05/27/2021 19	STATIONA	69 KV	EQUIPMENT X	END A	100	101	102	103
3									

To upload forecasted ratings, click on **Choose file**, select csv document and click on **Submit Form** button.



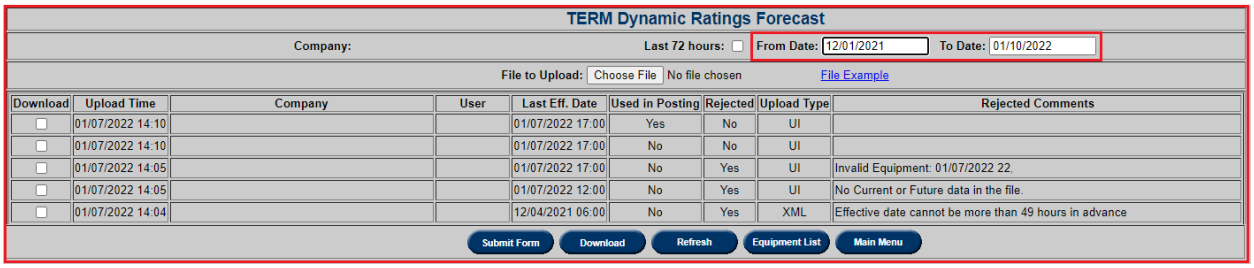
After files are uploaded, eDART will process them and the user can download them from the report by checking **Download** next to the desired file (per **Upload Time**) and then clicking the **Download** button.



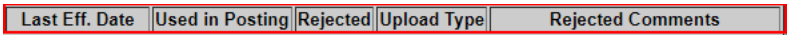
Download will generate a “dyn_upload_mm_dd_yyyy_hh_mm” zip file.

Date Filters

Last 72 hours: By default, files uploaded for the last 72 hours are displayed. Uncheck to use the From/To date filters.
From Date and To Date – Returns files within the date range between the From and To Date parameters. At least one date selection is required if 72 hours check box is not checked.

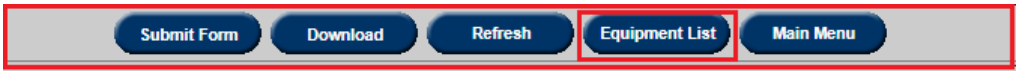


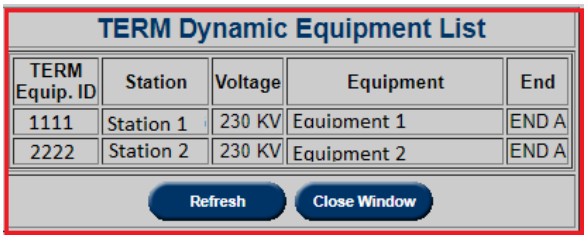
Uploaded file details



- **Last Eff. Date:** Latest date before the ratings are effective. This is the earliest hour based on the HourEndGMT values in the file.

- **Used in Posting**: Indicates if the data in the file has been posted on the Ratings Information page (https://www.pjm.com/markets-and-operations/etools/oasis/system-information/ratings-information.aspx)
- **Rejected:** If Yes, Rejected Comments will be added and data in the file will not be posted on the Ratings Information page.
- **Upload Type:** Indicates if file was upload via the UI or XML
- **Rejected Comments:** Provides reason(s) a file was rejected.
- **Equipment List** opens a report listing the equipment enabled for dynamic ratings. The TERM Equip. ID is needed for the XML upload of forecasted ratings.





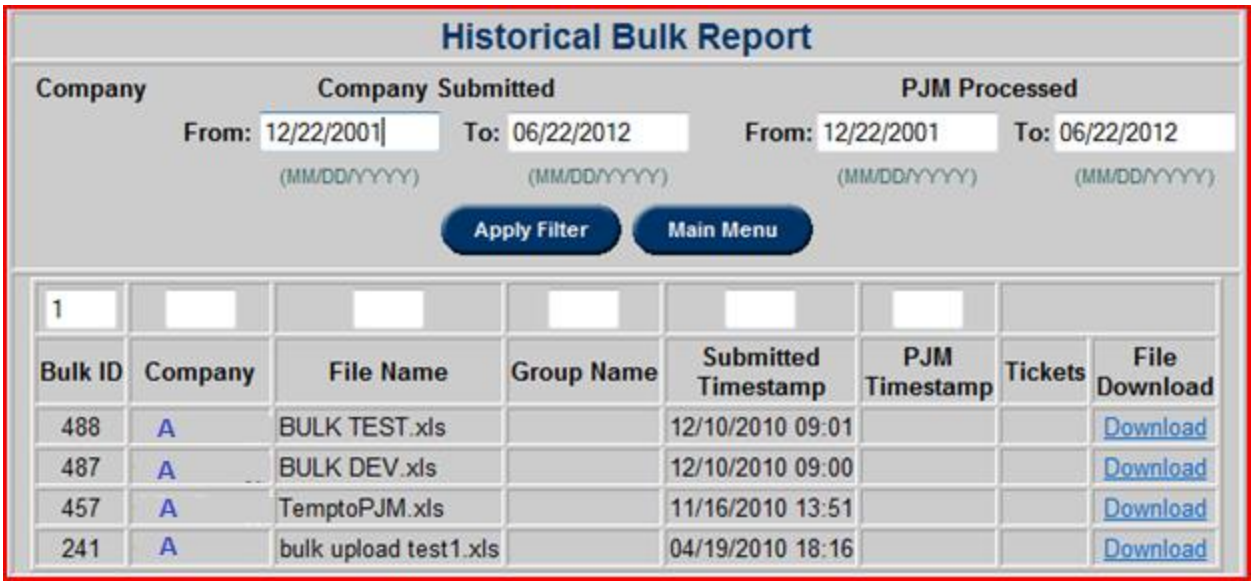
- **Main Menu -** Returns to Main Menu

Additional information: PJM - Ratings Information (https://www.pjm.com/markets-and-operations/etools/oasis/system-information/ratings-information.aspx)

Contact: PJM's Dynamic Ratings Team DynamicLineRatingsTm@pjm.com

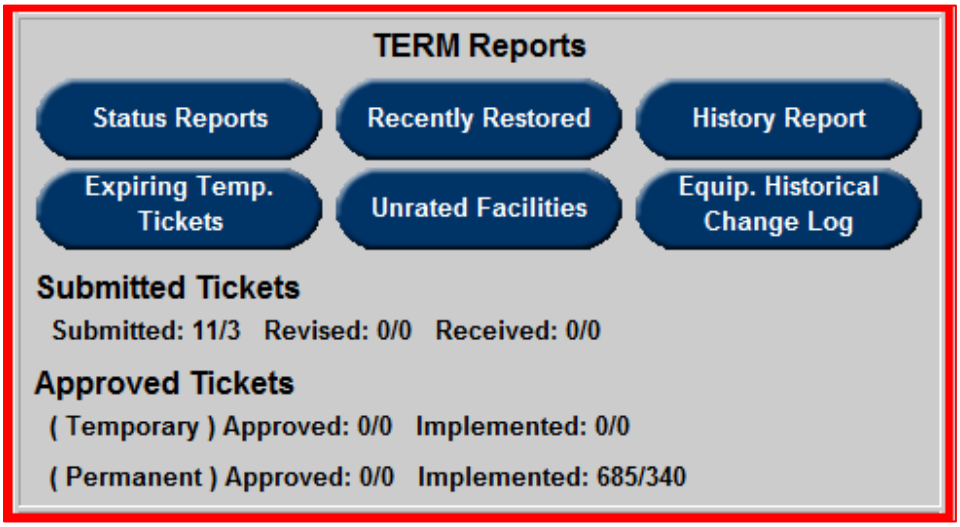
Historical Bulk Report

In order to access the history report bulk uploads done in the past, select the **Historical Bulk Report** button on the **Term Main Menu** to open the **Historical Bulk Report** page shown below:



TERM Reports

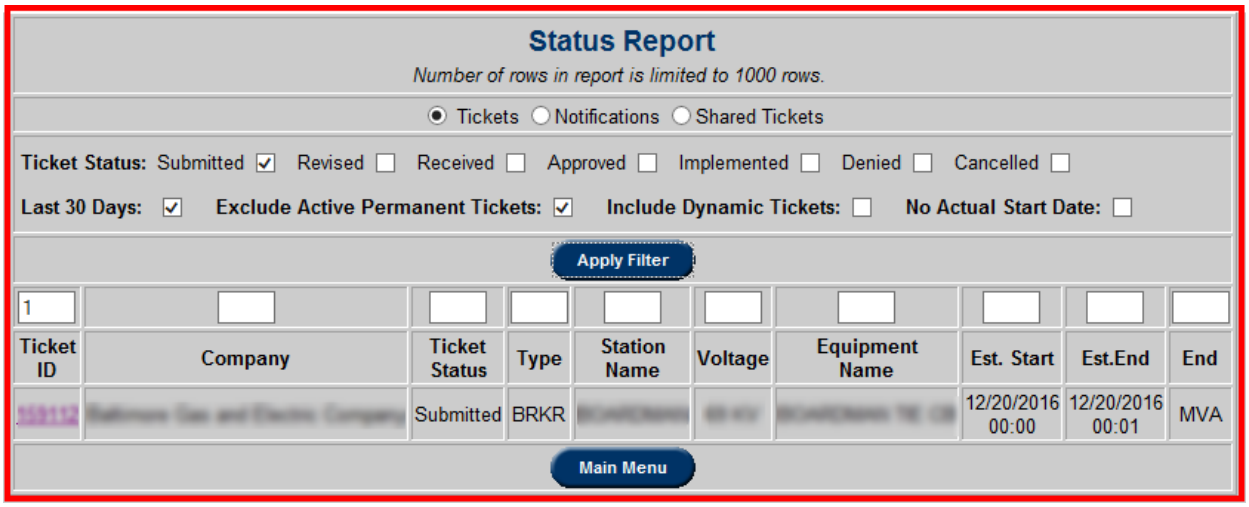
When logged into eDART, click on the **TERM** button on the left menu to open the **TERM Main Menu** and see the **TERM Reports** section as shown below:



Status Reports

In order to access status reports for certain equipment and/or companies, select the **Status Reports** button on the **TERM Reports** to open the **Status Report** page.

This function allows the user to view a detailed report of Tickets or Notifications. A user can use available filtering criteria to view report details for specific tickets or notifications. The Status Report can be sorted and filtered by **Ticket Status, Last 30 Days, Exclude or Include** special type of tickets and those that have **No Actual Start Date.**

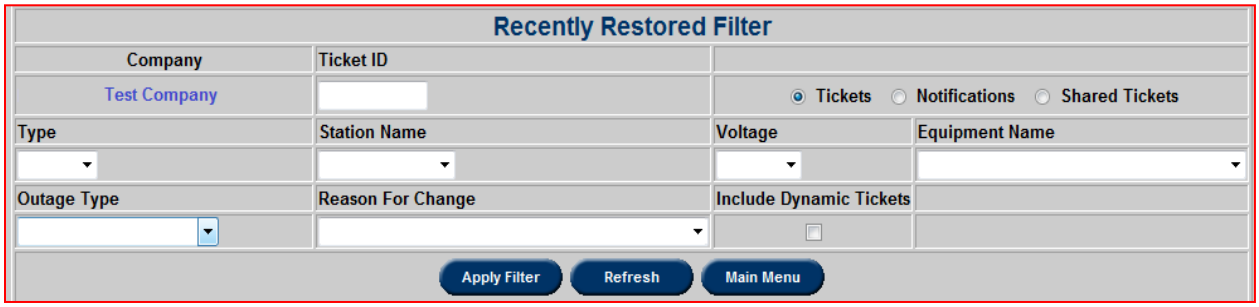


By default, tickets are sorted based on the **Ticket ID**. It is also possible to sort on multiple columns based on a user defined sort order. The columns will be sorted in the numerical order as specified in the text box under the column name. For example, to sort by "Ticket Type" first and then "Company", enter the digit "1" in the box under **Ticket Type** and "2" under **Company** and then click on the **Apply Filter** button at the top. The results will be displayed in the desired sort order as shown below. It is necessary to delete numbers that are over any columns that are not to be sorted. Click on the **Ticket ID** to open up the ticket. Click on the **Main Menu** button to return to the **TERM Main Menu**.

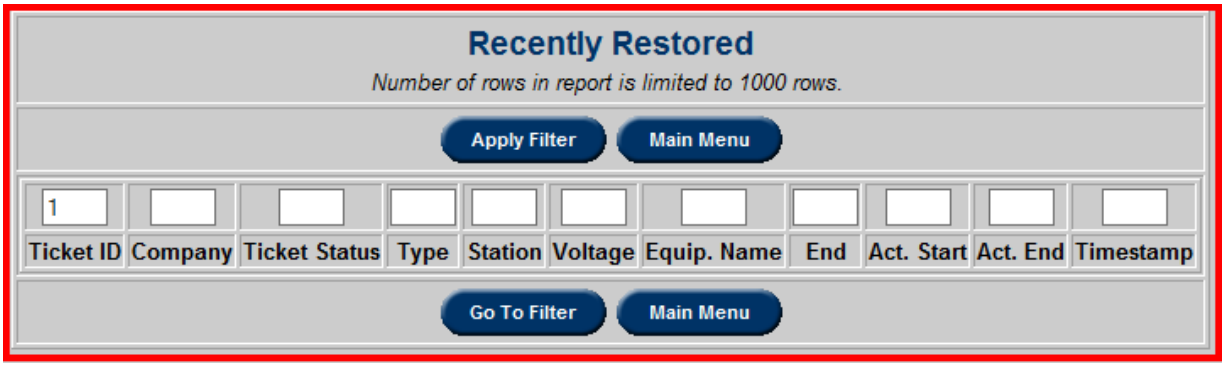
Recently Restored

In order to access recently restored tickets for certain equipment and/or companies, select the **Recently Restored** button on the **TERM Reports** to open the **Recently Restored Filter** shown below:

This function allows the user to view a detailed report of TERM tickets that were recently changed to Restore status.

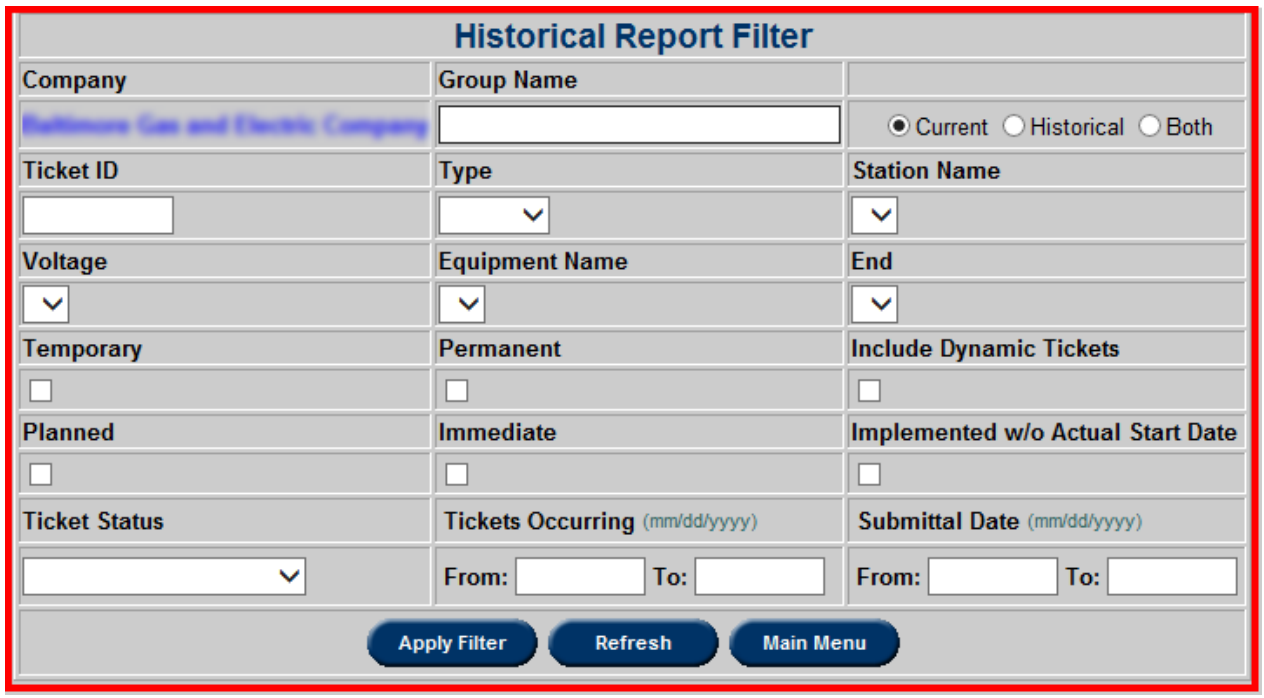


Using the **Recently Restored Filter**, users can filter for **Tickets**, **Notification**s, or **Shared Tickets**. Additionally, users can choose to **Include Dynamic Tickets**, select **Unit Types** and **Outage Types** to filter by and specify equipment at specific **Stations**, or with specific **Voltage** levels. Very narrow filters are available through **Ticket ID** and **Equipment Name** filters. Users can also sort by **Reasons for Change**.

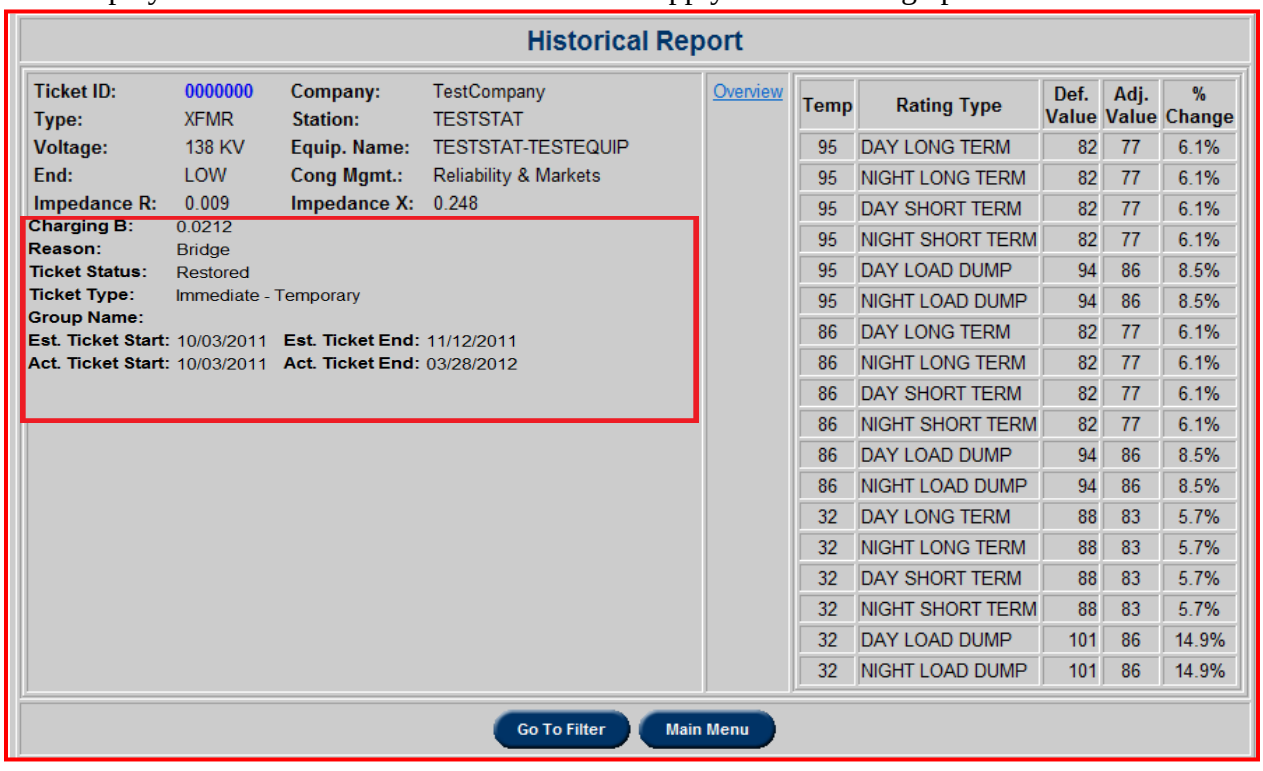


History Report

In order to access the history report of tickets for certain equipment and/or companies, select the **History Report** button on the **TERM Reports** to open the **Historical Report Filter** shown below:



This displays a detailed view of all the tickets that apply to the filtering options:



Click an **Overview** link to open a window with a detailed view of the ticket as shown below:

Historical Overview

Ticket Number:	0000000	**Type:**	XFMR
Station Name:	TESTSTAT	**Voltage:**	138 KV
Equipment Name:	TESTSTAT-TESTEQUIP	**End:**	LOW
Impedance R:	0.009	**Impedance X:**	0.248

	Normal		Long Term		Short Term		Load Dump	
Temp	Day	Night	Day	Night	Day	Night	Day	Night
95	57/ /	57/ /	82 / 77 / -6.1%	82 / 77 / -6.1%	82 / 77 / -6.1%	82 / 77 / -6.1%	94 / 86 / -8.5%	94 / 86 / -8.5%
86	57/ /	57/ /	82 / 77 / -6.1%	82 / 77 / -6.1%	82 / 77 / -6.1%	82 / 77 / -6.1%	94 / 86 / -8.5%	94 / 86 / -8.5%
77	57/ /	57/ /	82 / 77 / -6.1%	82 / 77 / -6.1%	82 / 77 / -6.1%	82 / 77 / -6.1%	94 / 86 / -8.5%	94 / 86 / -8.5%
68	57/ /	57/ /	77/ /	82 / 77 / -6.1%	77/ /	82 / 77 / -6.1%	86/ /	94 / 86 / -8.5%
59	66/ /	66/ /	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	101 / 86 / -14.9%	101 / 86 / -14.9%
50	66/ /	66/ /	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	101 / 86 / -14.9%	101 / 86 / -14.9%
41	66/ /	66/ /	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	101 / 86 / -14.9%	101 / 86 / -14.9%
32	66/ /	66/ /	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	88 / 83 / -5.7%	101 / 86 / -14.9%	101 / 86 / -14.9%

Original Value / Changed Value / % Change

Limitations

Temp	Category	Time of Day	Limitation

Close Window

Expiring Temporary Tickets

The **Expiring Temp. Tickets** button shows a list of tickets that will expire within the next 24 hours. The button will appear red when there are tickets expiring. Click on a **Ticket ID** to view the ticket in its entirety.

Expiring Temporary Tickets

Number of rows in report is limited to 1000 rows.

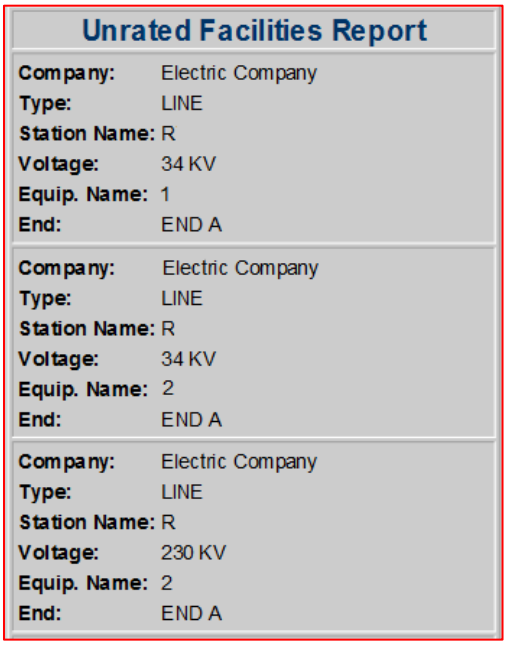
Implemented and Implemented w/o Approval tickets estimated to end before 11-05-2015 13:59:18

Ticket ID	Company	Ticket Status	Type	Station Name	Voltage	Equipment Name	Est. Start	Est.End	End
1562994	PJM TEST	Implemented w/o Approve	LINE		138 KV		08/03/2015 11:51	09/02/2015 11:51	END B
1565924	PJM TEST	Implemented w/o Approve	LINE		345 KV		08/03/2015 11:51	09/02/2015 11:51	END B

Users will be able to click on each ticket in the list and make any updates necessary.

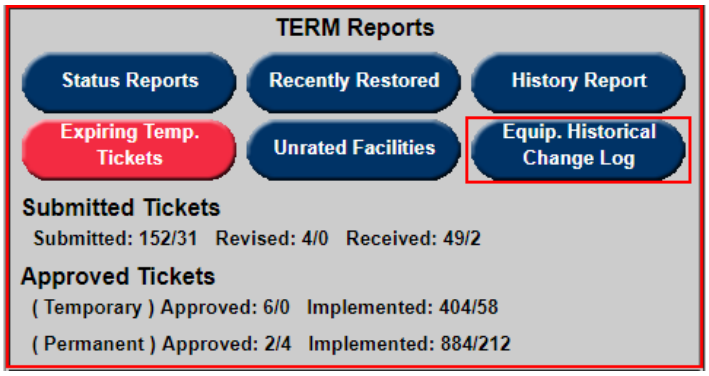
Unrated Facilities Report

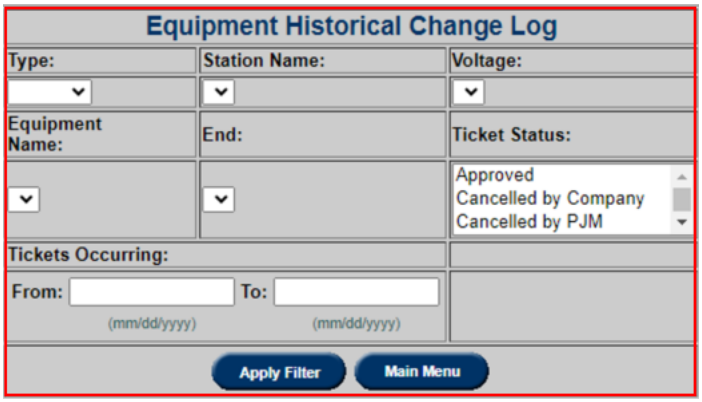
Clicking on the **Unrated Facilities** button will bring up a list of the facilities that are not rated in eDART. Users can search for a specific equipment or hit **Apply Filter** to search for all unrated equipment. Users will see a similar list below.

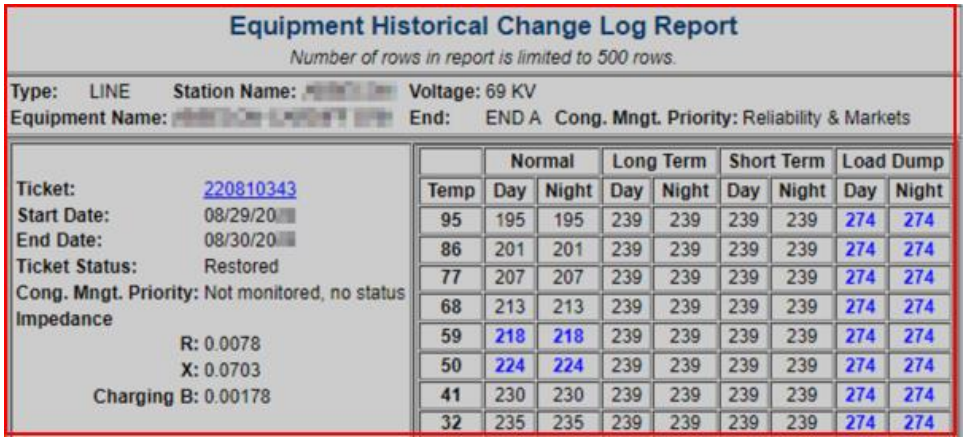


Equipment Historical Change Log

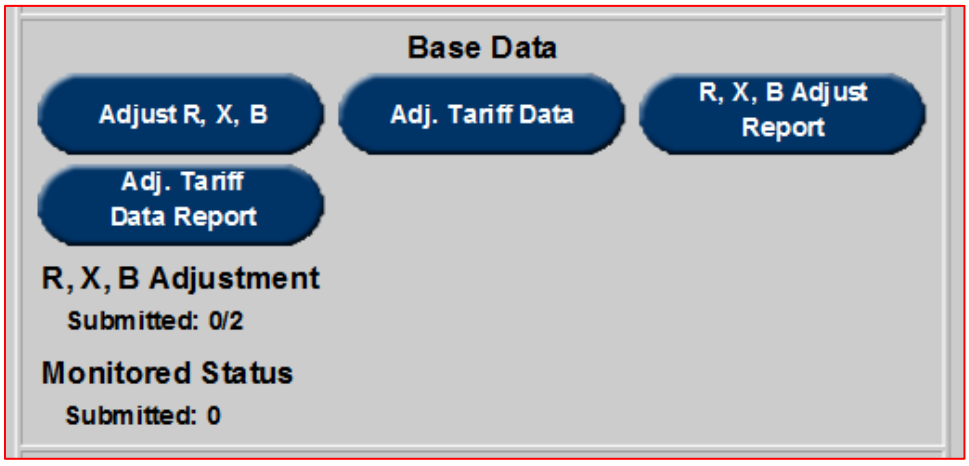
In order to access the Equipment Historical Change Log, select the **Equipment Historical Change Log** button on the **TERM Reports** to open the **Historical Report Filter** shown below:







Base Data

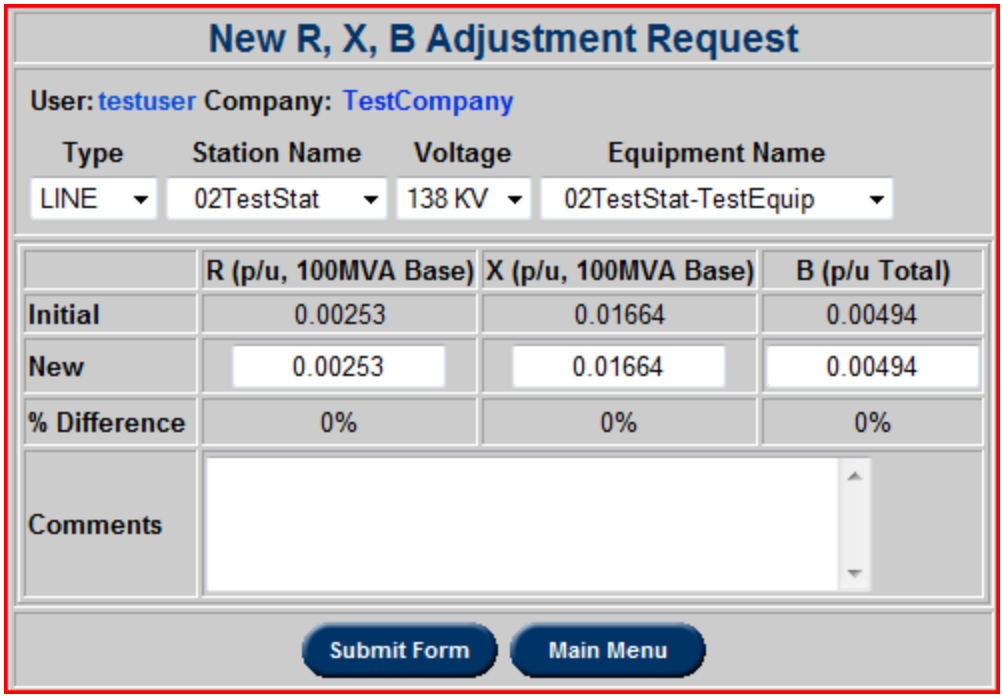


Adjust R, X, B

The R, X, B ticket was created to allow the TOs to adjust the impedance and charging values.

In order to modify or create new R, X, B Values, select the **Adjust R, X, B** button on the **TERM Main Menu** under the **Base Data Tab** to open the **New R, X, B Adjustment Request**.

After inputting the equipment to be changed, the window will expand to include fields to make adjustments.

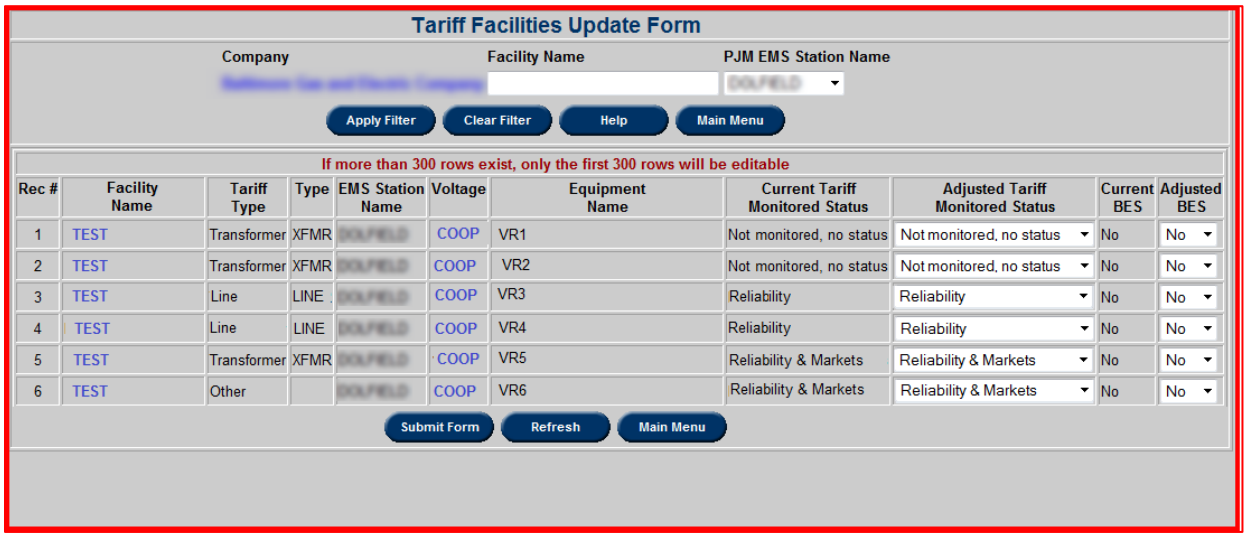


Enter new impedances in the "New" row under the "Initial" column. After entering new impedances, the "% Difference" row will automatically calculate the percent difference to show the how much it changed. In the "Comments" field, enter the reason for adjustment and any other pertinent information.

Adjust Tariff Data

In order to access status updates for certain equipment, click the **Adj. Tariff Data** button on the **TERM Main Menu** under the **Base Data Tab** to open the **Tariff Facilities Update Form**.

These priorities decide how PJM monitors the equipment. The priority of a facility can change anytime with prior notice from PJM or the TO. TO's DMWG (Data Management Working Group) contact will be notified when PJM initiates the change.

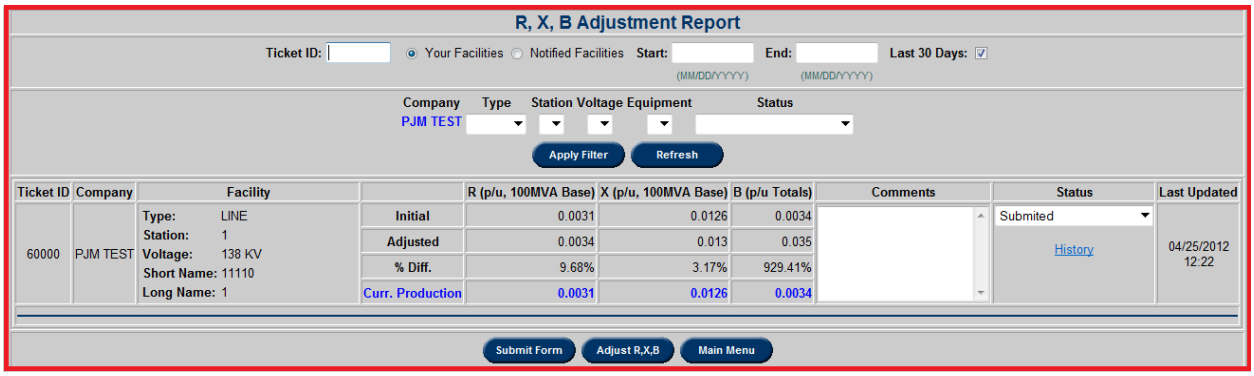


When new equipment is added to eDART, it is flagged as a Bulk Electric System (BES) if the voltage is equal to or greater than 100kV. The new columns added to the chart are as follows:

- Current BES: read only field to display BES status.
- Adjusted BES: drop down field to change BES status.

R, X, B Adjust Report

In order to access the impedances report of tickets for certain equipment and/or companies, select the **R, X, B Adjust Report** button on the **Base Data** to open the **R, X, B Adjustment Report** shown below:



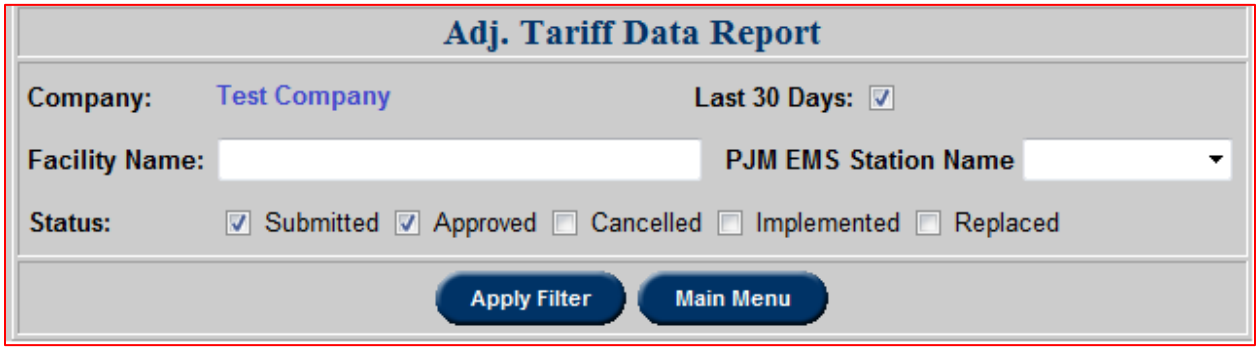
This function allows the user to view a report of all the adjustment made to the R, X, B values. These results can be filtered.

Users can view R, X, B values in the **R, X, B Adjustment Report** window. Additionally, users can adjust and/or cancel tickets by using the **Status** drop down box and selecting **Cancelled by Company**. After changing the **Status** field, click **Submit Form** to make changes. To adjust R, X, B values, click the **Adjust R, X, B** button.

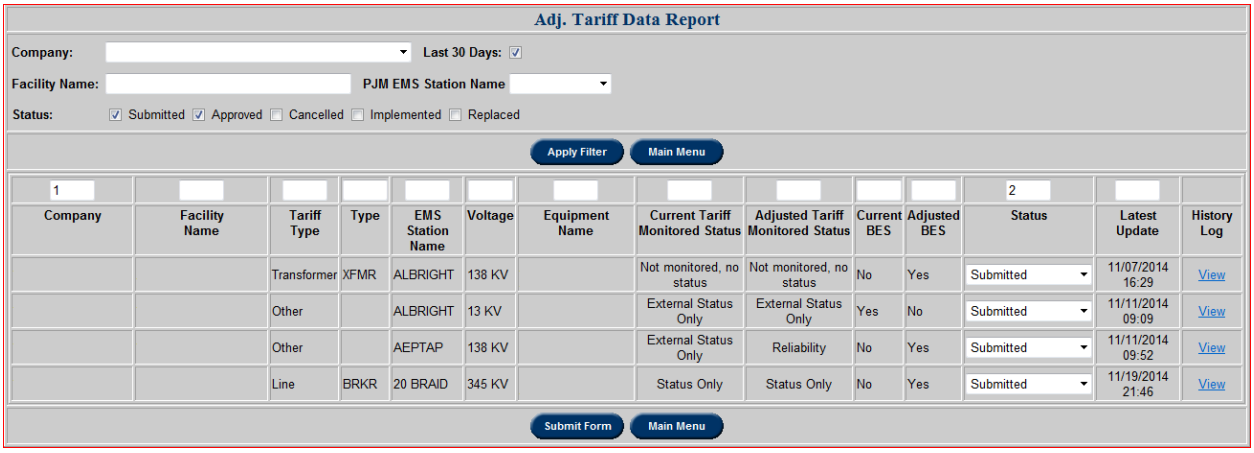
Refer to the R, X, B Values section for more on adjusting R, X, B values.

Adjusted Tariff Data Report

The ‘Adj. Monitored Status Report’ has been changed to ‘Adj. Tariff Data Report”



Columns reflecting Current and Adjusted BES have been added to the report.



Adj. Tariff Data Report

Company: Last 30 Days:

Facility Name: PJM EMS Station Name

Status: Submitted Approved Cancelled Implemented Replaced

Apply Filter Main Menu

Company	Facility Name	Tariff Type	Type	EMS Station Name	Voltage	Equipment Name	Current Tariff Monitored Status	Adjusted Tariff Monitored Status	Current BES	Adjusted BES	Status	Latest Update	History Log
		Transformer	XFMR	ALBRIGHT	138 KV		Not monitored, no status	Not monitored, no status	No	Yes	Submitted	11/07/2014 16:29	View
		Other		ALBRIGHT	13 KV		External Status Only	External Status Only	Yes	No	Submitted	11/11/2014 09:09	View
		Other		AEPTAP	138 KV		External Status Only	Reliability	No	Yes	Submitted	11/11/2014 09:52	View
		Line	BRKR	20 BRAID	345 KV		Status Only	Status Only	No	Yes	Submitted	11/19/2014 21:46	View

Submit Form Main Menu

Voltage Limits

Voltage Limits functionality to allow Transmission Owners (TOs) to update and view current voltage limits on buses.

- TOs submit changes to Voltage Limits: company defaults or per station/voltage combination with effective date.
- PJM approves changes to Voltage Limits.
- Tickets implemented in PJM's EMS by PJM or implemented without approval if limits already updated in PJM's EMS.
- Report for PJM & TOs to see effective voltage limits and PJM defaults.
- Initial Voltage Limits in eDART will be populated with data in PJM Manual 03 (https://www.pjm.com/-/media/documents/manuals/m03.ashx).
- New stations will be assigned the company default limits as part of the model build.
- eDART Voltage Limits only includes companies and stations with PJM monitored equipment:

  – MP1: Reliability & Markets
  – MP2: Reliability BES
  – MP6: Reliability non-BES

Voltage Limits Types

Company

- Voltage Limits per Voltage level.
- Company Voltage Limits will be applied to all Stations in the company per voltage level.
- Station tickets can be created for exceptions.

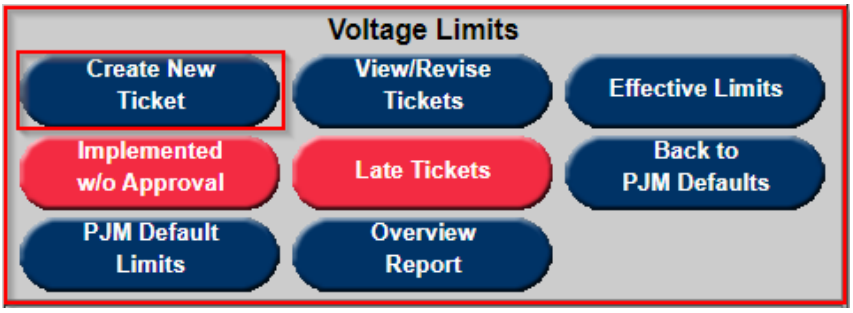
Station

- Voltage Limits per Station per Voltage level
- Not needed if following Company defaults.

To get to Voltage Limits, go to TERM Main Menu. Red buttons indicate required actions.

Create New ticket

To submit a new Voltage Limits ticket, click on **Create New Ticket** button.

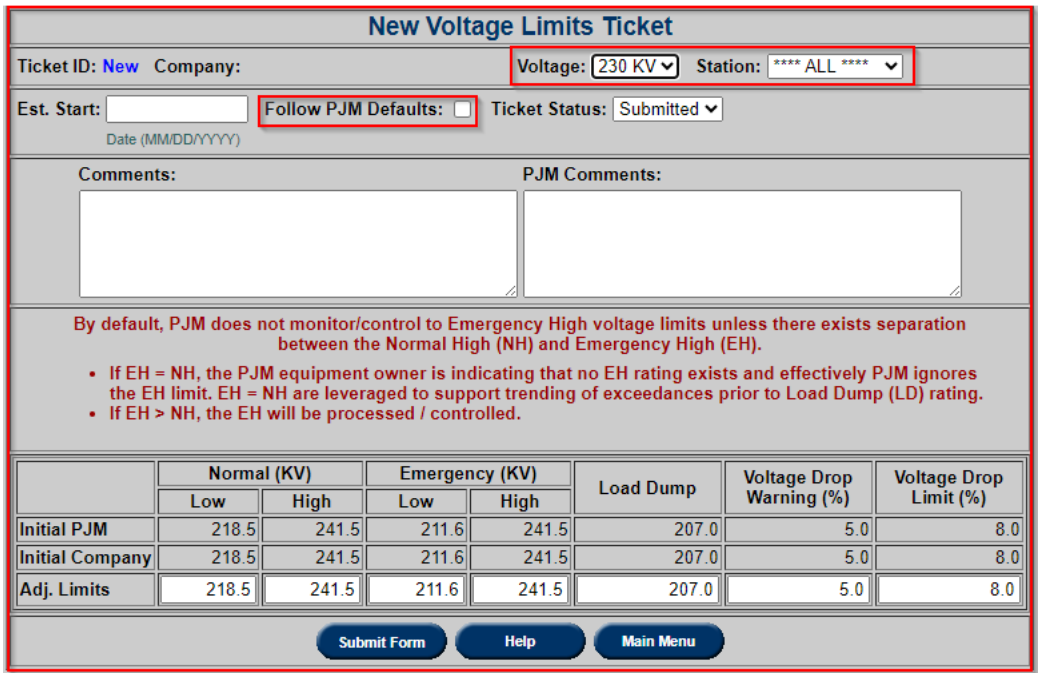


Company Voltage Limits ticket

To create a company limits ticket, select Voltage and leave station as **** ALL ****.

Adj. limits is prepopulated with Initial Company limits; user can edit fields as needed

To follow PJM defaults, check the Follow PJM Defaults box.

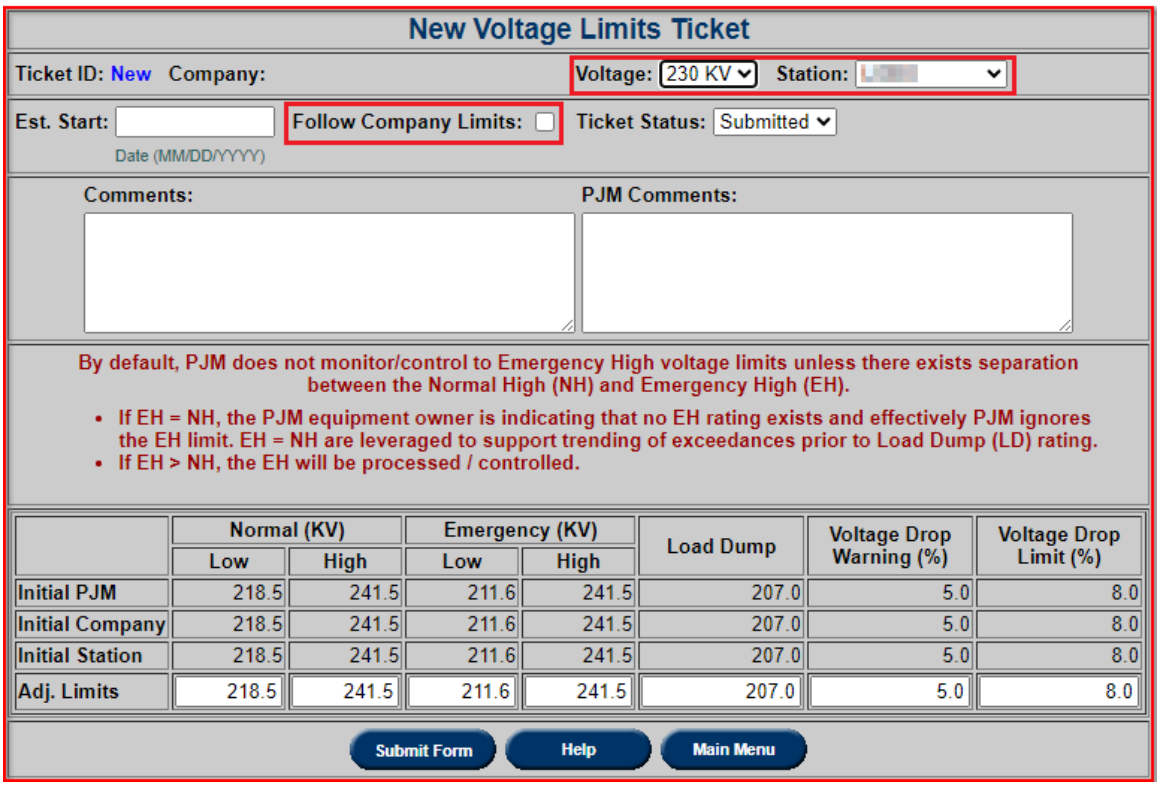


Station Voltage Limits ticket

To create a station limits ticket, select Voltage and station.

Adj. limits is prepopulated with Initial Station limit; user can edit fields as needed

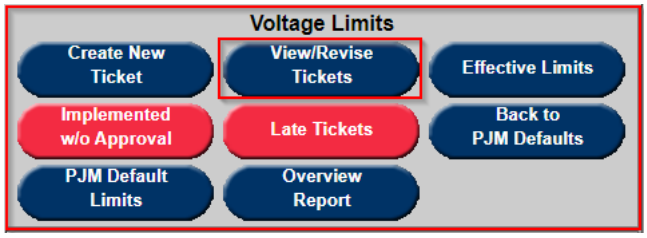
To follow Company Limits, check the Follow Company Limits box.



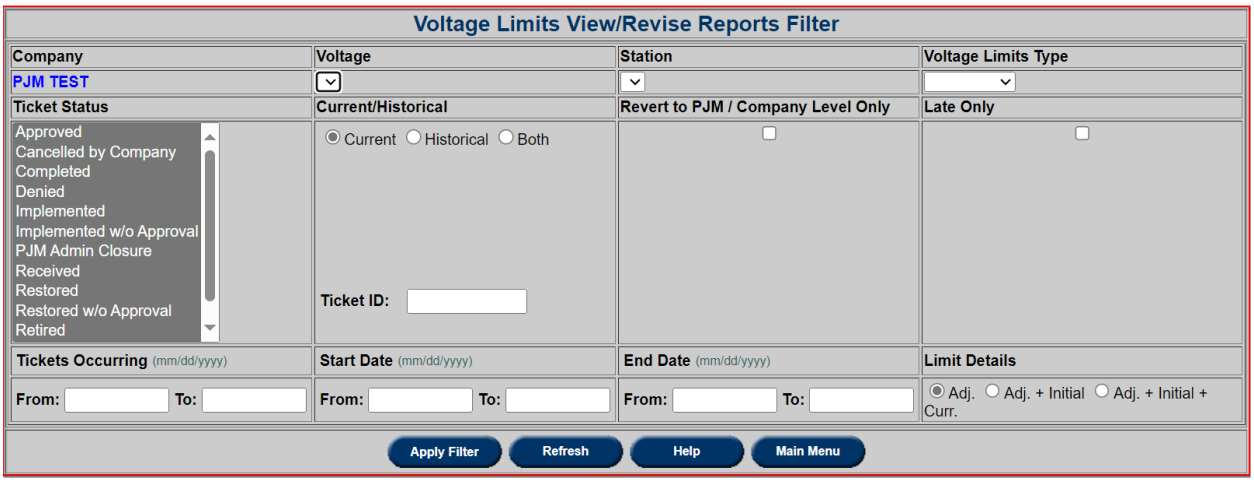
Click on **Help** button to download training presentation "Voltage Limits Help for TO Members".

View/Revise Ticket

To review or revise Voltage Limits tickets, click on **Review/Revise Tickets** button.

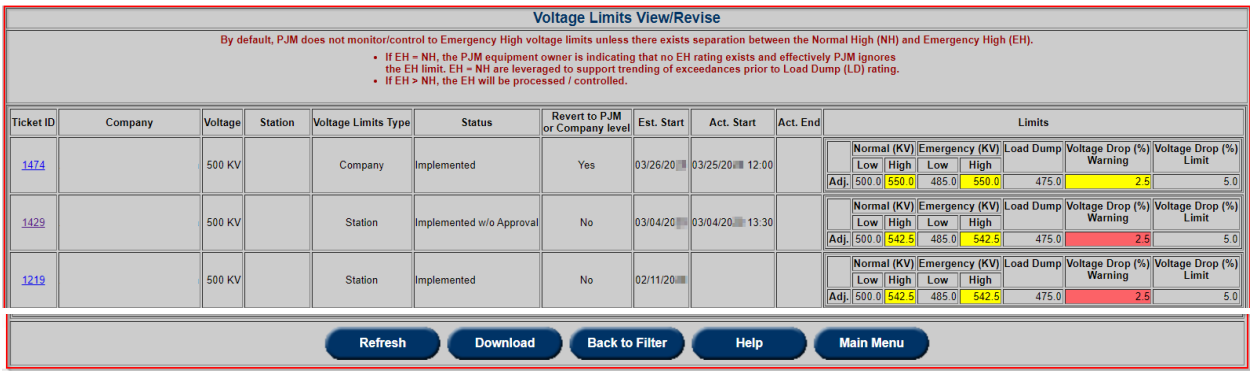


Select all required filter parameters and click on **Apply Filter** button.



Ticket Status

Submitted – Ticket has been submitted to PJM
Received – Acknowledgement that PJM received the ticket – Changes to Received ticket will result in status change to Submitted
Approved – Ticket has been reviewed, accepted as valid & approved by PJM
Implemented – Data from approved ticket has been reconciled in PJM EMS – Actual Start Date confirms that ticket is in use by EMS
Implemented w/o Approval – Data from non-approved ticket has been reconciled in PJM EMS – Ticket was automatically generated based on PJM EMS data – Actual Start Date confirms that ticket is in use by PJM EMS
Cancelled by Company/PJM Admin Closure – Ticket can be cancelled by PJM or TO for various reasons
Implemented – Data from approved ticket has been reconciled in PJM EMS – Actual Start Date confirms that ticket is in use by EMS
Implemented w/o Approval – Data from non-approved ticket has been reconciled in PJM EMS – Ticket was automatically generated based on PJM EMS data – Actual Start Date confirms that ticket is in use by PJM EMS
Cancelled by Company/PJM Admin Closure – Ticket can be cancelled by PJM or TO for various reasons
Restored – Station ticket status for restoring station limits to company limits
Restored w/o approval – Station ticket status when station limits from PJM EMS matches company limits without ticket being approved.
Completed – The ticket is completed due to a new implemented ticket – Actual End Date confirms that ticket is no longer in use by PJM EMS
Retired – Ticket is for station that has been retired or company that is longer a part of Voltage Limits – PJM is no longer monitoring company or station

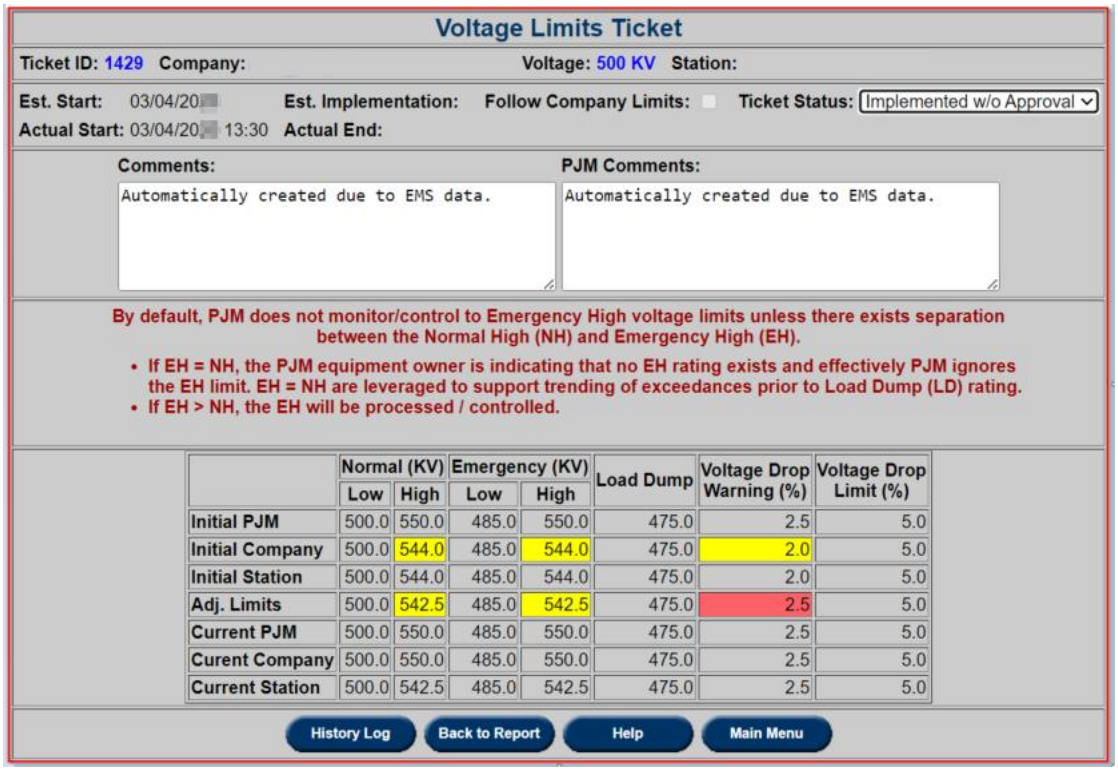


Click on **Download** button to generate Excel Comma Separated Values File (.csv) file with all tickets displayed in Review/Revise Tickets report.

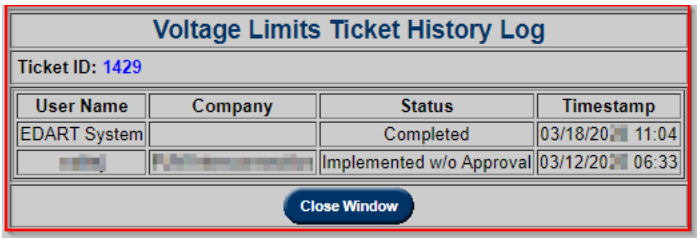
Color Legend

Yellow - indicates that Voltage Limit of current level is different from Voltage Limit of the next level up.
Company limit is different from PJM Default.
Station limit is different from Company default limit.
Red - indicates that Station Voltage Limit is different from Company default limit but the same as PJM Default.

Click on **Ticket ID** hyperlink to view Voltage Limits ticket.



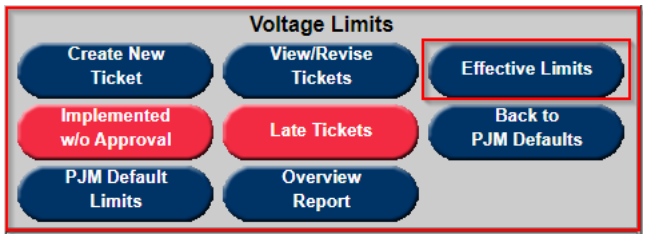
Click on **History Log** button to view Voltage Limits Ticket History Log.

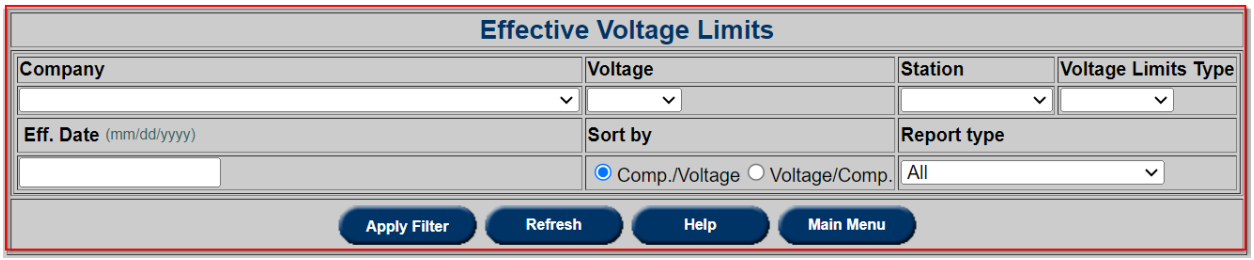


Effective Limits

Report of Voltage Limits effective on selected dates. TOs can view effective limits of other TOs.

- Report types
- All
- Follow PJM Defaults
- Not Following PJM Defaults
- Exceptions
- Non-Exceptions
- Overview Report : Company Version of Manual 03 Report

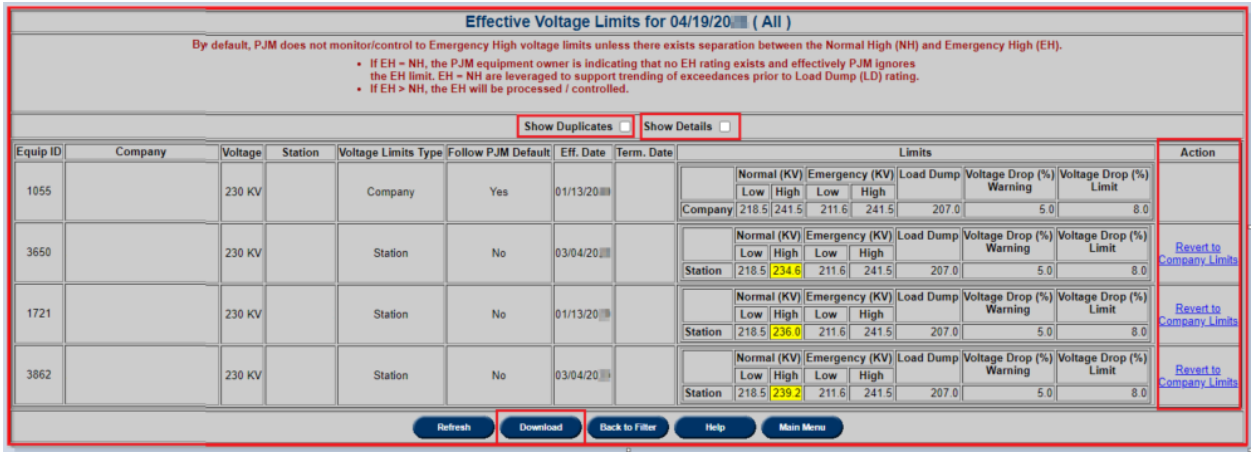




Defaults is set up to user's company. User can pick other TOs from the Company list.

Check **Show Duplicates** to display all stations - stations following company limits are hidden by default.

Check **Show Details** to display all limit levels – if limits match only the lowest level is displayed by default.

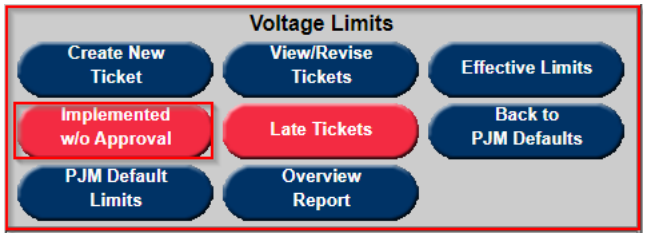


Click on the **Download** button to export CSV file of the report.

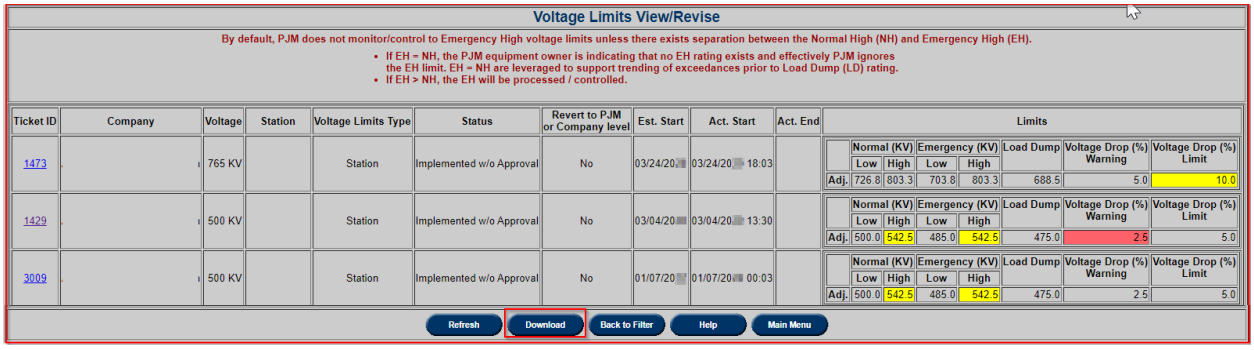
Click on the **Action** to open a new, prepopulated ticket.

Implemented w/o Approval

Click on **Implemented w/o Approval** button to view the report of tickets in Implemented w/o Approval and Restored w/o Approval statuses.

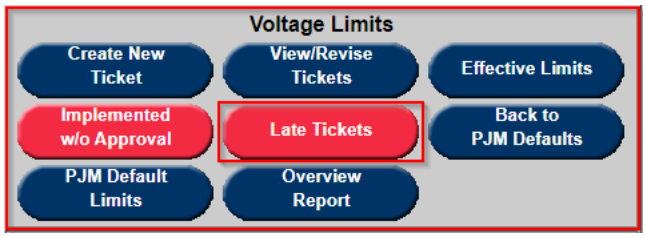


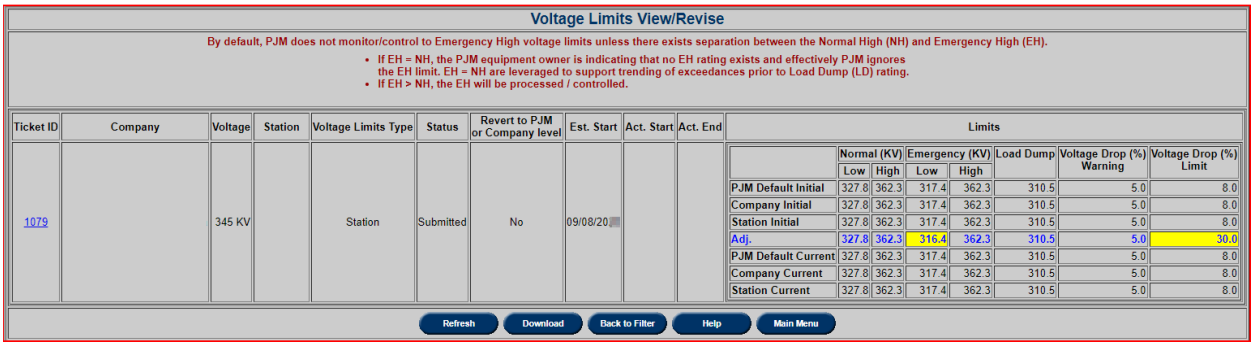
Click on the **Download** button to export CSV file of the report.



Late Tickets

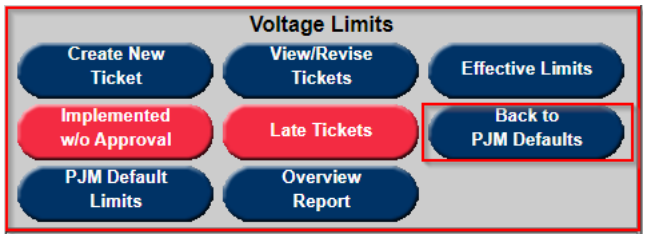
Click on **Late Tickets** button to view tickets that have not been implemented and the Est. Start date is in the past.

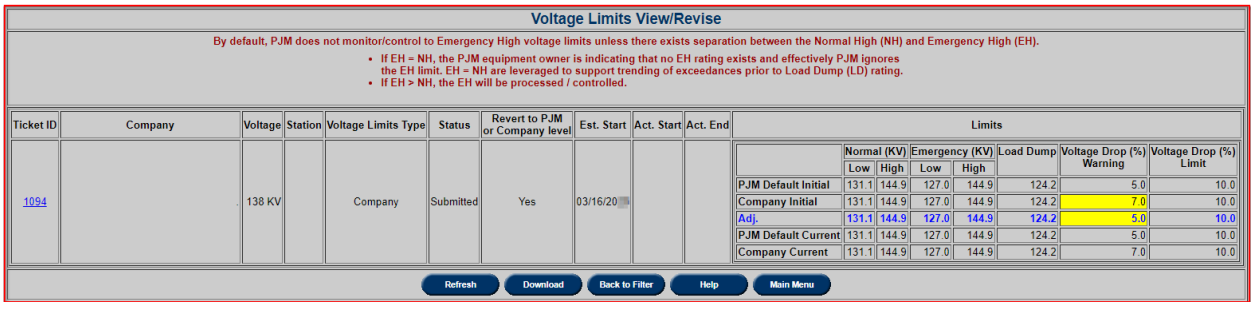




Back to PJM Defaults

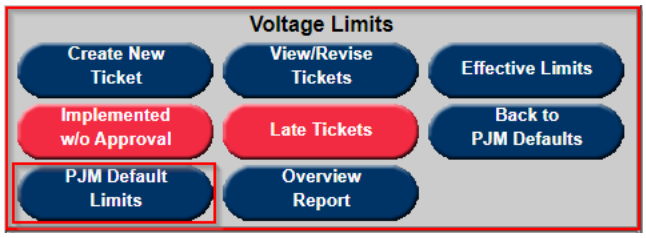
Click on **Back to PJM Defaults** button to view the report of company tickets created to follow PJM Defaults.



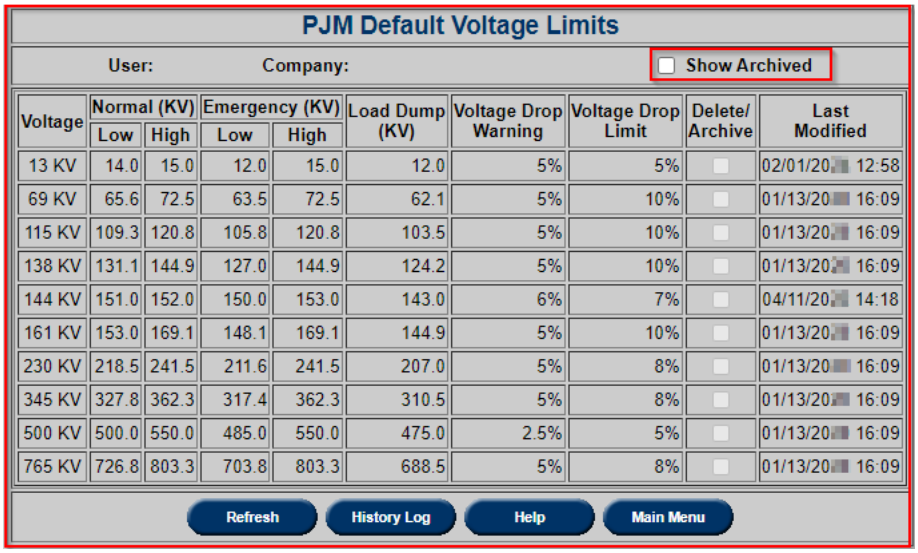


PJM Default Limits

Click on **PJM Default Limits** button to view the report of company tickets created to follow PJM Defaults.



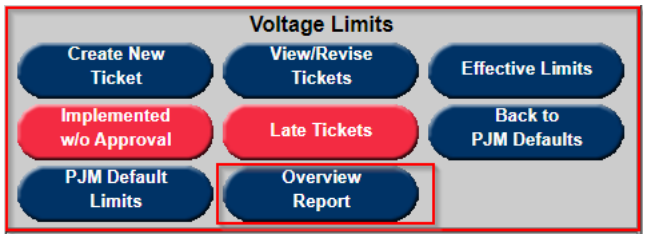
Check **Show Archived** to display data that was deleted or archived by PJM.

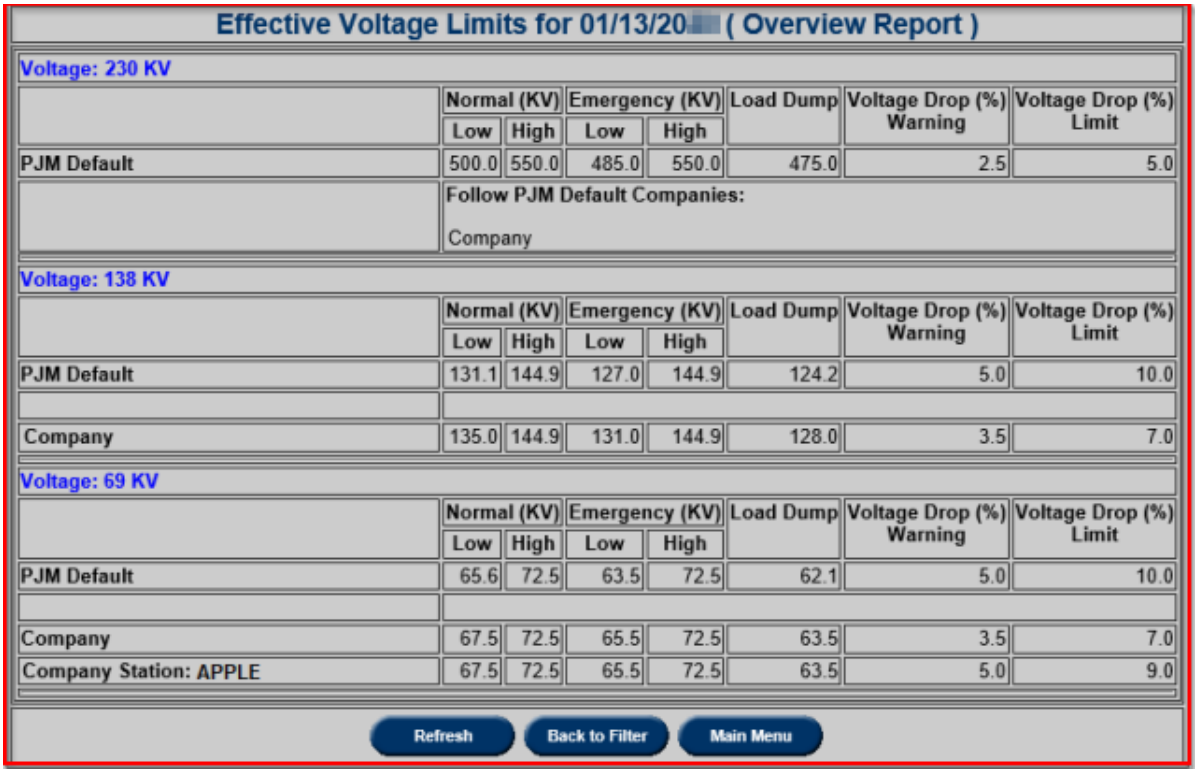


Voltage	Normal (KV)		Emergency (KV)		Load Dump (KV)	Voltage Drop Warning	Voltage Drop Limit	Delete/ Archive	Last Modified
	Low	High	Low	High					
13 KV	14.0	15.0	12.0	15.0	12.0	5%	5%		02/01/20 12:58
69 KV	65.6	72.5	63.5	72.5	62.1	5%	10%		01/13/20 16:09
115 KV	109.3	120.8	105.8	120.8	103.5	5%	10%		01/13/20 16:09
138 KV	131.1	144.9	127.0	144.9	124.2	5%	10%		01/13/20 16:09
144 KV	151.0	152.0	150.0	153.0	143.0	6%	7%		04/11/20 14:18
161 KV	153.0	169.1	148.1	169.1	144.9	5%	10%		01/13/20 16:09
230 KV	218.5	241.5	211.6	241.5	207.0	5%	8%		01/13/20 16:09
345 KV	327.8	362.3	317.4	362.3	310.5	5%	8%		01/13/20 16:09
500 KV	500.0	550.0	485.0	550.0	475.0	2.5%	5%		01/13/20 16:09
765 KV	726.8	803.3	703.8	803.3	688.5	5%	8%		01/13/20 16:09

Overview Report

Click on **Overview Report** button to view company version of PJM Manual 03 Report.





Effective Voltage Limits for 01/13/20 (Overview Report)

Voltage: 230 KV

	Normal (KV)		Emergency (KV)		Load Dump	Voltage Drop (%) Warning	Voltage Drop (%) Limit
	Low	High	Low	High			
PJM Default	500.0	550.0	485.0	550.0	475.0	2.5	5.0
	Follow PJM Default Companies:						
	Company						

Voltage: 138 KV

	Normal (KV)		Emergency (KV)		Load Dump	Voltage Drop (%) Warning	Voltage Drop (%) Limit
	Low	High	Low	High			
PJM Default	131.1	144.9	127.0	144.9	124.2	5.0	10.0
Company	135.0	144.9	131.0	144.9	128.0	3.5	7.0

Voltage: 69 KV

	Normal (KV)		Emergency (KV)		Load Dump	Voltage Drop (%) Warning	Voltage Drop (%) Limit
	Low	High	Low	High			
PJM Default	65.6	72.5	63.5	72.5	62.1	5.0	10.0
Company	67.5	72.5	65.5	72.5	63.5	3.5	7.0
Company Station: APPLE	67.5	72.5	65.5	72.5	63.5	5.0	9.0

Refresh | Back to Filter | Main Menu

230 KV: Company is following PJM Default

138 KV: Company is not following PJM Default

69kV: Company is not following PJM Default APPLE station is not following Company Default

The Overview Report will also be available on pjm.com
https://edart.pjm.com/reports/voltagelimits.csv

It is a reflection of the current PJM EMS voltage limits, updated daily.

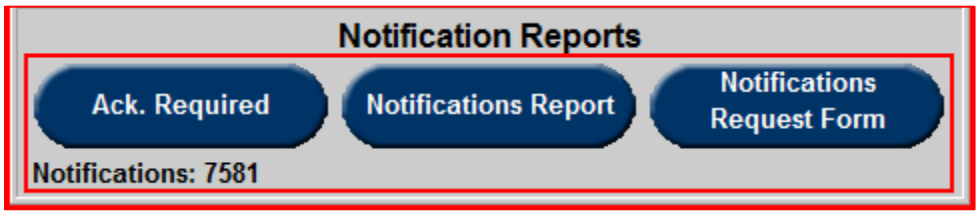
It provides PJM Default Voltage and Voltage Stability Limits by voltage class.

In addition, any Equipment Owner (Company) or Station deviations by voltage class can be identified where the 'Follow PJM' column is set to 'No'. Companies only have a line entry for voltage classes for which that have that voltage level of equipment under the control of PJM. (i.e., Only those companies that have a given level of equipment under PJM control are listed.)

	A	B	C	D	E	F	G	H	I	J	K
1	TIMESTAMP: 01-02-20xx 00:02:01										
2	The table below is a reflection of the current PJM EMS voltage limits, updated daily. It provides PJM Default Voltage and Voltage Stability Limits by voltage class. In addition, any Equipment Owner (Company) or Station deviations by voltage class can be identified where the 'Follow PJM' column is set to 'No'. Companies only have a line entry for voltage classes for which that have that voltage level of equipment under the control of PJM. (i.e., Only those companies that have a given level of equipment under PJM control are listed.) By default, PJM does not monitor/control to Emergency High voltage limits unless there exists separation between the Normal High (NH) and Emergency High (EH). If EH = NH, the PJM equipment owner is indicating that no EH rating exists and effectively PJM ignores the EH limit. EH = NH are leveraged to support trending of exceedances. When EH > NH, the EH will be processed / controlled.										
3											
4	Company	Voltage	Follow PJM	Station	Load Dump	Emergency Low (KV)	Normal Low (KV)	Normal High (KV)	Emergency High (KV)	Voltage Drop Warning(%)	Voltage Drop Limit(%)
5	PJM Default	765 KV			688.5	703.8	726.8	803.3	803.3	5	8
6	Company 1	765 KV	No		688.5	703.8	726.8	803.3	803.3	5	10
7	Company 2	765 KV	No		688.5	703.8	726.8	803.3	803.3	5	10
8	Company 2	765 KV	No	Station 1	688.5	703.8	726.8	803.5	803.5	5	10
9	Company 2	765 KV	No	Station 2	688.5	688.5	726.8	803.3	803.3	5	10
10	Company 3	765 KV	No		688.5	703.8	726.8	803.3	803.3	7	10
11	PJM Default	500 KV			475	485	500	550	550	2.5	5
12	Company 1	500 KV	Yes		475	485	500	550	550	2.5	5
13	Company 2	500 KV	Yes		475	485	500	550	550	2.5	5
14	Company 3	500 KV	Yes		475	485	500	550	550	2.5	5
15	Company 4	500 KV	Yes		475	485	500	550	550	2.5	5
16	Company 5	500 KV	Yes		475	485	500	550	550	2.5	5
17	Company 6	500 KV	Yes		475	485	500	550	550	2.5	5
18	Company 7	500 KV	Yes		475	485	500	550	550	2.5	5
19	Company 8	500 KV	Yes		475	485	500	550	550	2.5	5

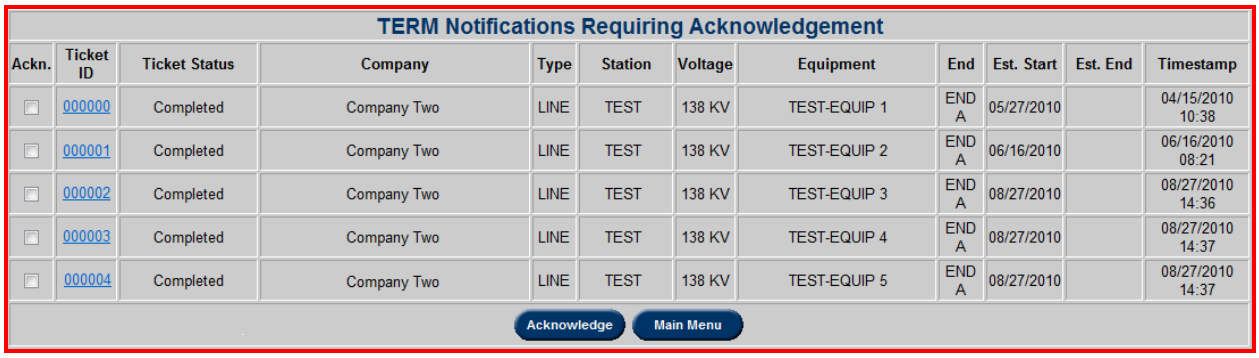
Company Notification Request and Reports

In order to access the Notification Report, select the **TERM** button to view the **TERM Main Menu,** and look for the **Notification Report** category shown below:



Acknowledgements Required

Using the **Ack. Required** button, users can view and acknowledge TERM tickets. Click an "Ackn." checkbox and click the **Acknowledge** button to acknowledge a ticket. Click the **Main Menu** button to return to the **TERM Main Menu**



TERM Notifications Requiring Acknowledgement

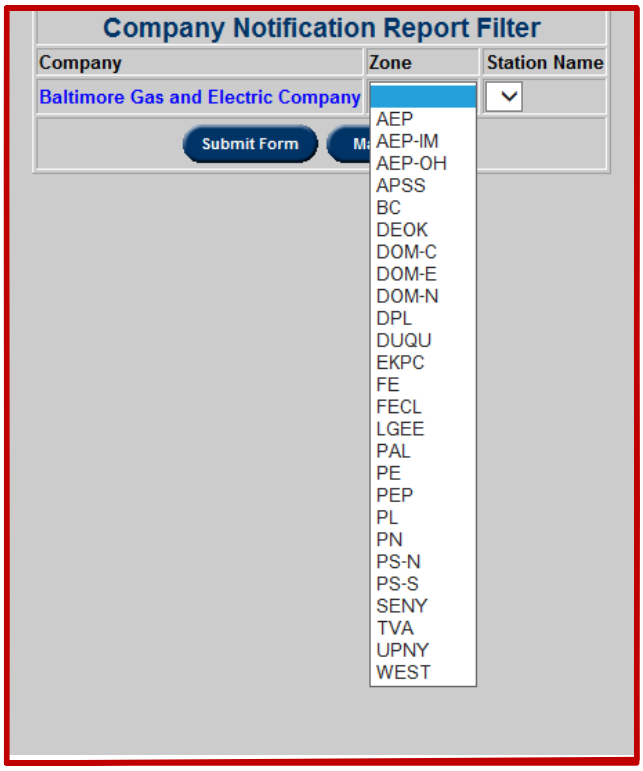
Ackn.	Ticket ID	Ticket Status	Company	Type	Station	Voltage	Equipment	End	Est. Start	Est. End	Timestamp
☐	000000	Completed	Company Two	LINE	TEST	138 KV	TEST-EQUIP 1	END A	05/27/2010		04/15/2010 10:38
☐	000001	Completed	Company Two	LINE	TEST	138 KV	TEST-EQUIP 2	END A	06/16/2010		06/16/2010 08:21
☐	000002	Completed	Company Two	LINE	TEST	138 KV	TEST-EQUIP 3	END A	08/27/2010		08/27/2010 14:36
☐	000003	Completed	Company Two	LINE	TEST	138 KV	TEST-EQUIP 4	END A	08/27/2010		08/27/2010 14:37
☐	000004	Completed	Company Two	LINE	TEST	138 KV	TEST-EQUIP 5	END A	08/27/2010		08/27/2010 14:37

Acknowledge Main Menu

.

Notifications Report

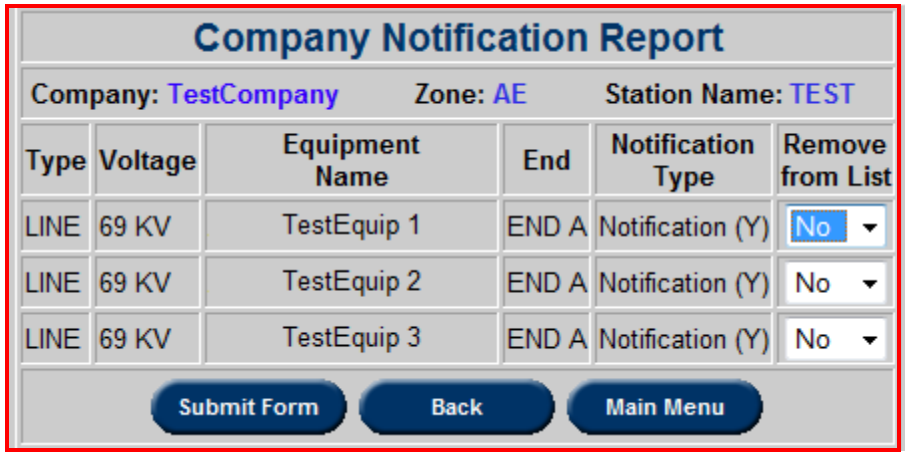
From the **TERM Main Menu**, click the **Notifications Report** button to go to the **Company Notification Report Filter**. From here, users can select a "Zone" and a "Station Name" to filter by. After selecting appropriate filter criteria, click the **Submit Form** button to view a **Company Notification Report**, or click the **Main Menu** button to return to the **TERM Main Menu**.



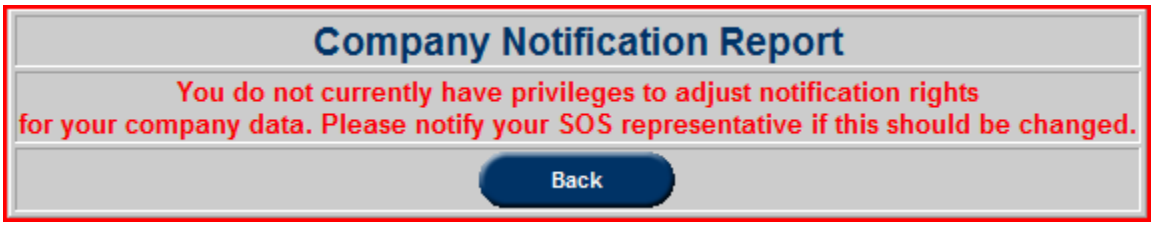
. There are two types of notification, X and Y.

- **X Notification** is for companies that have total access to the equipment and can submit new ratings or change existing ones.
- **Y Notification** is for companies that only get notified of any changes made to the equipment, with no way to actually make changes to the equipment directly.

In the **Company Notification Report**, users can modify which units they receive notifications about. Use the "Remove from List" drop down menu to select whether to receive notifications for a unit. After selecting "Yes" or "No," click the **Submit Form** button to make the changes. Alternatively, click the **Back** button to return to the **Company Notification Report Filter**, or click the **Main Menu** button to return to the **TERM Main Menu**.



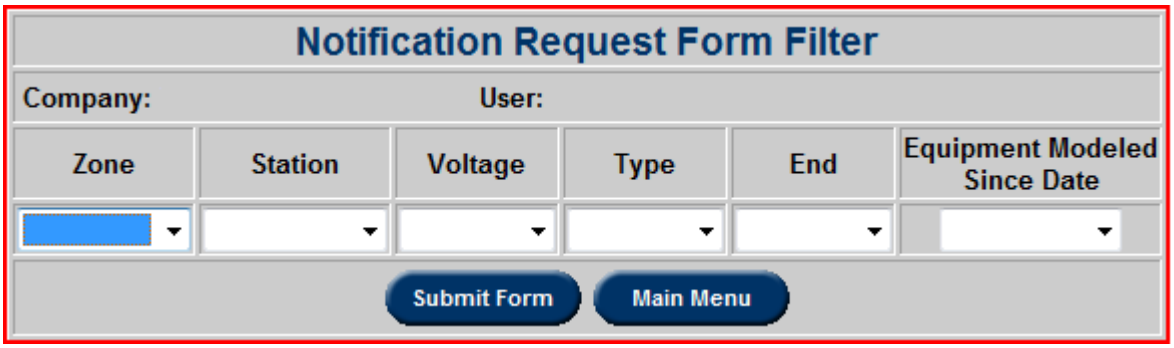
The following message will appear if a user tries to change notification settings but does not have the privileges necessary to adjust notification rights for their company. Click the **Back** button to exit the error window.



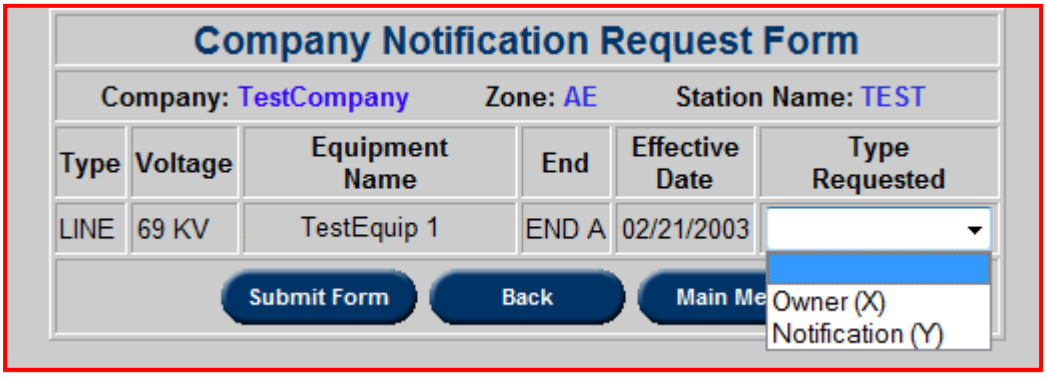
Notification Request Form

From the **TERM Main Menu**, click the **Notifications Request Form** button to go to the **Notification Request Form Filter**.

U users can filter by "Zone," "Station," "Voltage," "Type," "End," and "Equipment Modeled Since Date." Click the **Submit Form** button to produce the a **Company Notification Request Form** for all pieces of equipment relevant to the filter, or click the **Main Menu** button to return to the **TERM Main Menu**.



From the **Company Notification Request Form**, use the drop down menus to identify which level of notification to request. After making all appropriate selections, click the Submit Form button to submit the notification requests. Alternatively, click the **Back** button to return to the **Notification Request Form Filter**, or click the **Main Menu** button to return to the **TERM Main Menu**.



Reactive Reserve Check

PJM Dispatch requests **Reactive Reserve** data from Transmission Owners (TOs) for the generating units within their zone. Using the Reactive Reserve application, an "All Call" is sent to Local Control Centers (LCC) and Market Operation Centers (MOC): TOs are responsible for submitting Reactive Reserve Check (RRC) data; MOCs should verify reactive capabilities of their units. After TOs submit RRC data, PJM summarizes and posts the data.

Business Rules

- TOs cannot submit RRC data until PJM creates a new RRC for their zone(s).
- TOs can make necessary reactive reserve data resubmissions before PJM posts the new reactive reserve report.

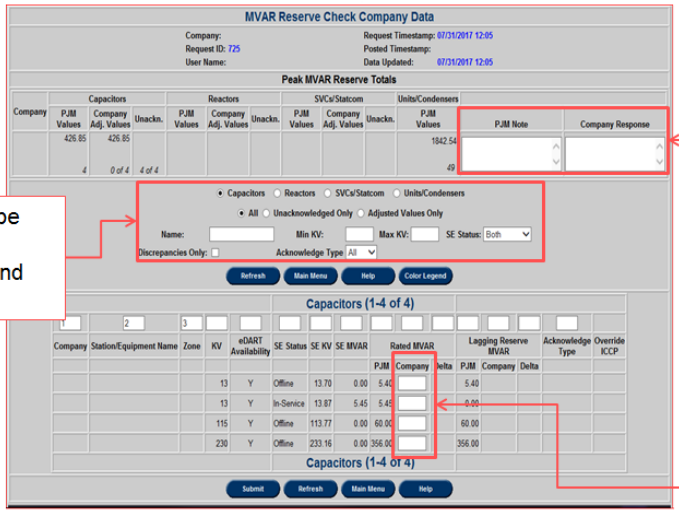
Manual Reference: PJM M-14D, Generator Operational Requirements, Attachment D.

Submit RRC Data

When logged into eDART, click on the **Reactive Reserve** button on the left menu to open the **Reactive Reserve Check** main menu. Click the **Submit RRC Data** button to open the **RRC Company Data** form and enter RRC data:

After opening the **RRC Company Data** form, the following screen displaying Capacitors will appear. The equipment type filters can be used to switch from Capacitors to Reactors, SVCs/Statcom, and Units/Condensers.

Capacitors/Reactors

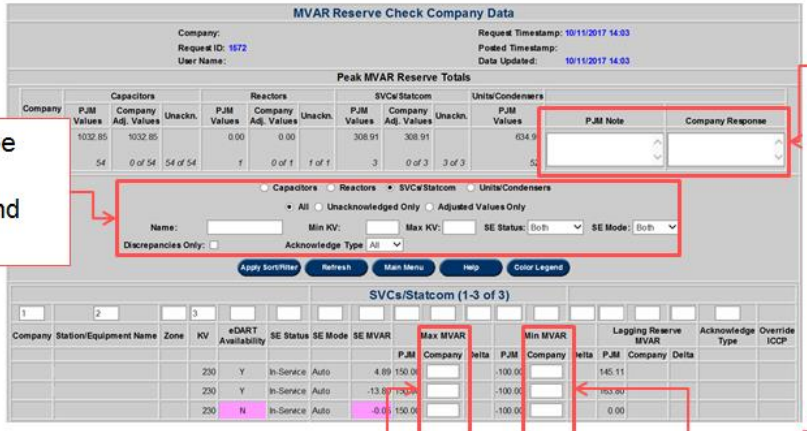


Equipment can be filtered by type, name, voltage and SE status.

- PJM can include notes to all and/or specific TOs.
- User can add note to PJM.

Enter reserve values as needed.

SVCs/Statcom



Equipment can be filtered by type, name, voltage and SE status.

- PJM can include notes to all and/or specific TOs.
- User can add note to PJM.

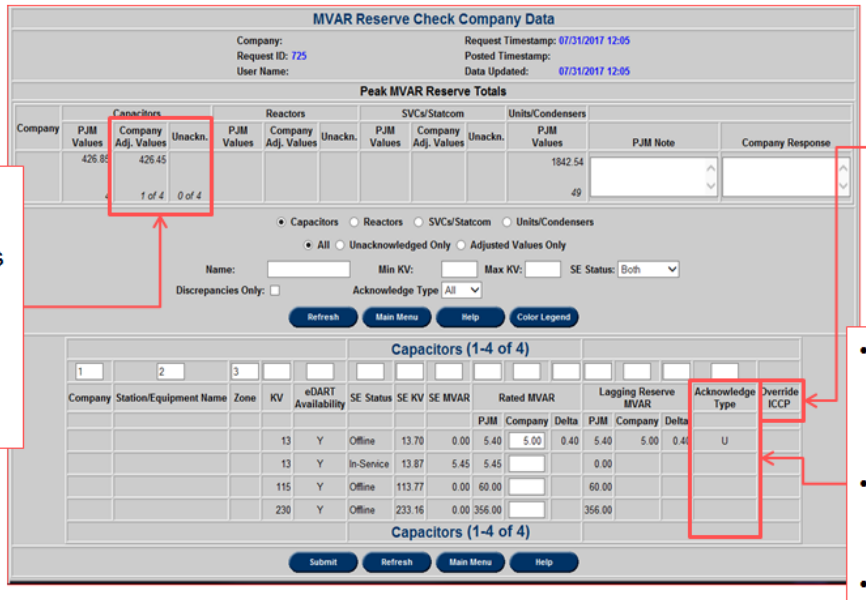
Enter reserve values as needed.

Units/Condensers

Equipment can be filtered by type, name, voltage and SE status.

- PJM can include notes to all and/or specific TOs.
- User can add note to PJM.

Other Notes



Clicking Submit acknowledges reserve values: company entered or PJM values.

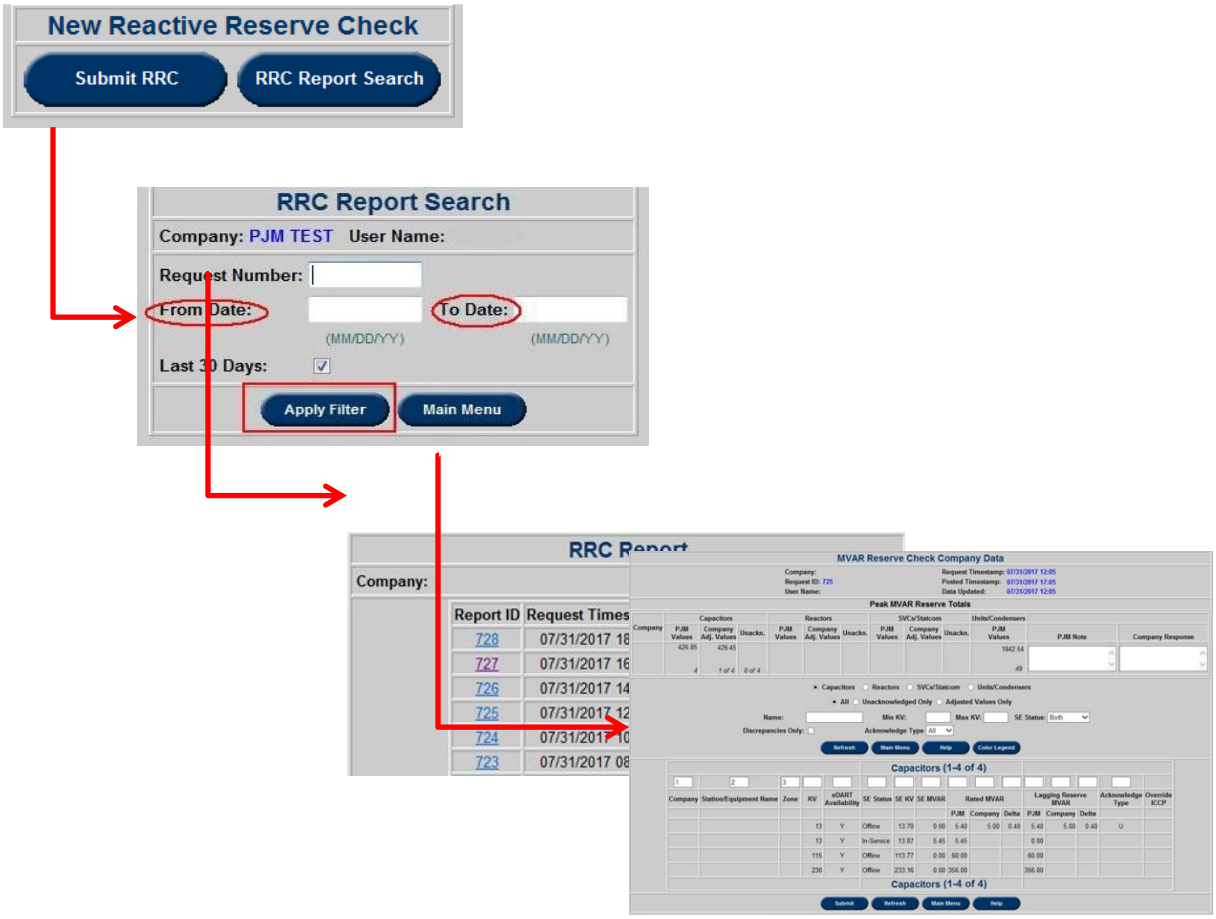
ICCP values retrieved when RRC issued. User can override ICCP values if needed.

- I ➔ ICCP: reserve values from ICCP data.
- X ➔ XML: RRCRevise upload.
- U ➔ UI: web UI.

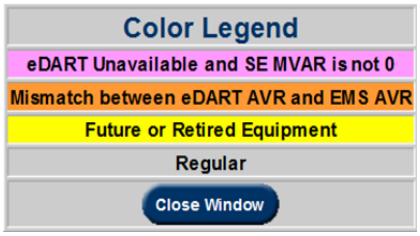
RRC Report Search

To view historical summaries of the RRC Reports, click the **RRC Report Search** button to search for reports using the available filter settings. The **From Date** and **To Date** fields are used to filter by the **Report Timestamp** (when the RRC was requested). By default, reports are displayed for the last 30 days. Uncheck **Last 30 Days** to view all historical reports.

The following menu path shows how to progress through each step.



Reactive Reserve Check Color Legend



eDART Unavailable and SE MVAR is not 0
- Whenever eDART identifies a facility as unavailable, but the PJM EMS SE MVAR output indicates that the facility is in-service

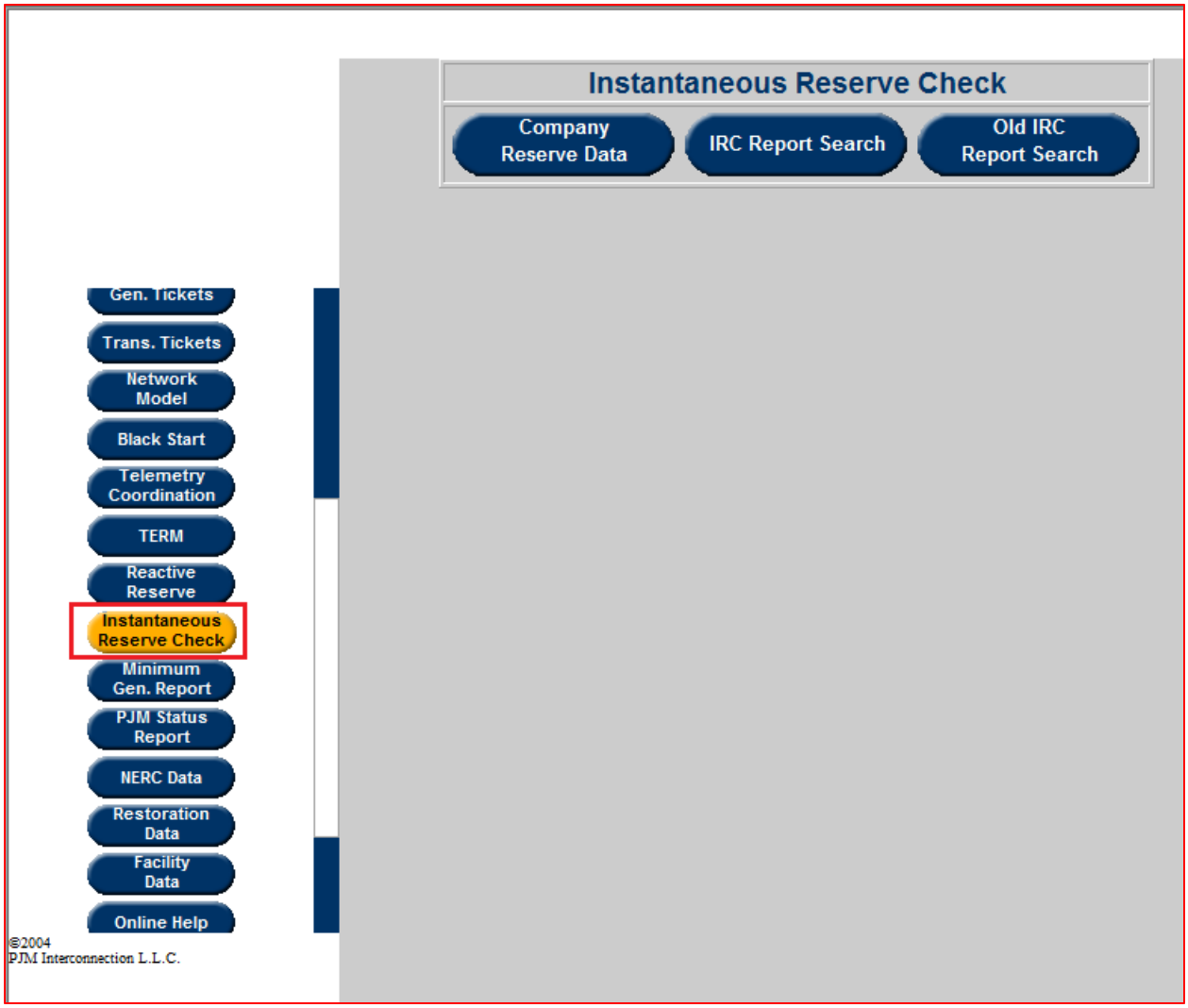
Mismatch between eDART AVR and EMS AVR
- Whenever an eDART AVR ticket exists, but the PJM EMS has the AVR in AUTO mode
- Whenever no eDART AVR ticket exists, but the PJM EMS has the AVR in Manual Mode

Future or Retired Equipment
- Whenever a facility is marked as retired or future in the eDART database

Instantaneous Reserve Check

Instantaneous Reserve Check (IRC) is used to verify that enough reserve generation is available. All generators must report their reserve information to PJM when requested. PJM initiates IRCs and TOs are expected to respond in a timely fashion. IRCs are performed at least twice per day and the results are used to initiate some emergency procedures. There are separate reports for PJM Mid-Atlantic Region, Western Region, Southern Region and Northern Illinois.

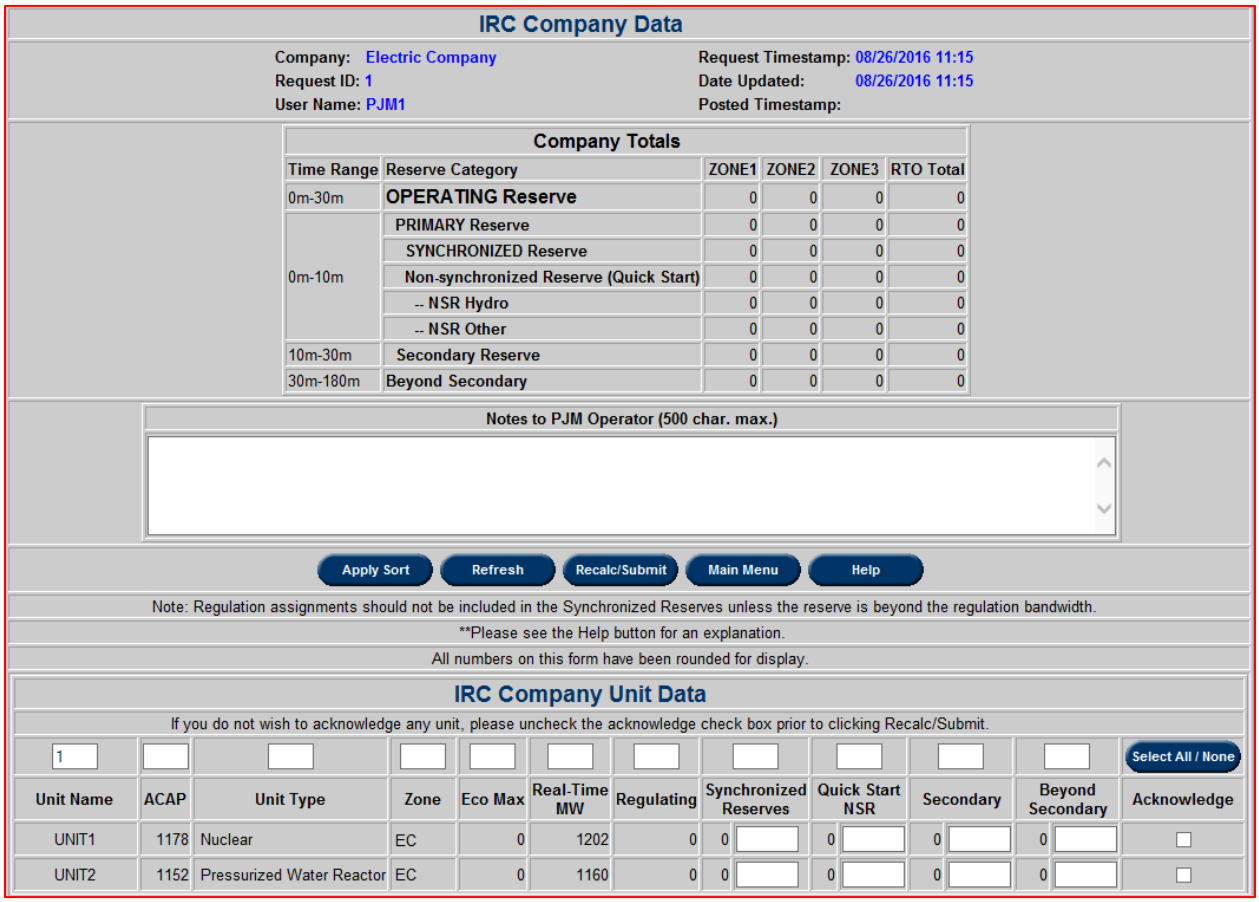
After logging into eDART, click on **Instantaneous Reserve Check** button as highlighted in the left menu to access the **Instantaneous Reserve Check** menu.



Submit IRC Data

Generation Read and Write users can submit their IRC data using the **Submit IRC Data** button when PJM requests for IRCs.

After clicking the **Submit IRC Data** button, the user will be taken to the **IRC Company Data** window. Users should submit data for each appropriate field. Because PJM initiates an IRC about twice a day, IRC data should be submitted about twice a day. PJM typically initiates an IRC during the morning and during the afternoon. Users will only see columns for fields they have permission for.



IRC Company Data

Company: Electric Company
Request ID: 1
User Name: PJM1
Request Timestamp: 08/26/2016 11:15
Date Updated: 08/26/2016 11:15
Posted Timestamp:

Company Totals

Time Range	Reserve Category	ZONE1	ZONE2	ZONE3	RTO Total
0m-30m	OPERATING Reserve	0	0	0	0
0m-10m	PRIMARY Reserve	0	0	0	0
	SYNCHRONIZED Reserve	0	0	0	0
	Non-synchronized Reserve (Quick Start)	0	0	0	0
	-- NSR Hydro	0	0	0	0
	-- NSR Other	0	0	0	0
10m-30m	Secondary Reserve	0	0	0	0
30m-180m	Beyond Secondary	0	0	0	0

Notes to PJM Operator (500 char. max.)

Apply Sort | Refresh | Recalc/Submit | Main Menu | Help

Note: Regulation assignments should not be included in the Synchronized Reserves unless the reserve is beyond the regulation bandwidth.
**Please see the Help button for an explanation.
All numbers on this form have been rounded for display.

IRC Company Unit Data

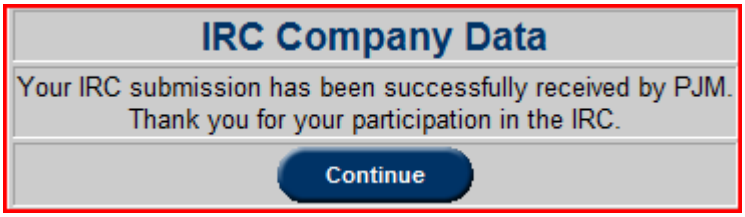
If you do not wish to acknowledge any unit, please uncheck the acknowledge check box prior to clicking Recalc/Submit.

Select All / None

Unit Name	ACAP	Unit Type	Zone	Eco Max	Real-Time MW	Regulating	Synchronized Reserves	Quick Start NSR	Secondary	Beyond Secondary	Acknowledge
UNIT1	1178	Nuclear	EC	0	1202	0	0	0	0	0	
UNIT2	1152	Pressurized Water Reactor	EC	0	1160	0	0	0	0	0	

After entering all IRC data, users should click the **Submit Form** button to submit their data to PJM. From the **IRC Company Data** window, users can also click the **Refresh** button to reset their window, or click the **Main Menu** button to return to the **Instantaneous Reserve Check** menu.

After clicking the **Submit Form** button, users will be taken to a confirmation window. To exit this window, click the **Continue** button.



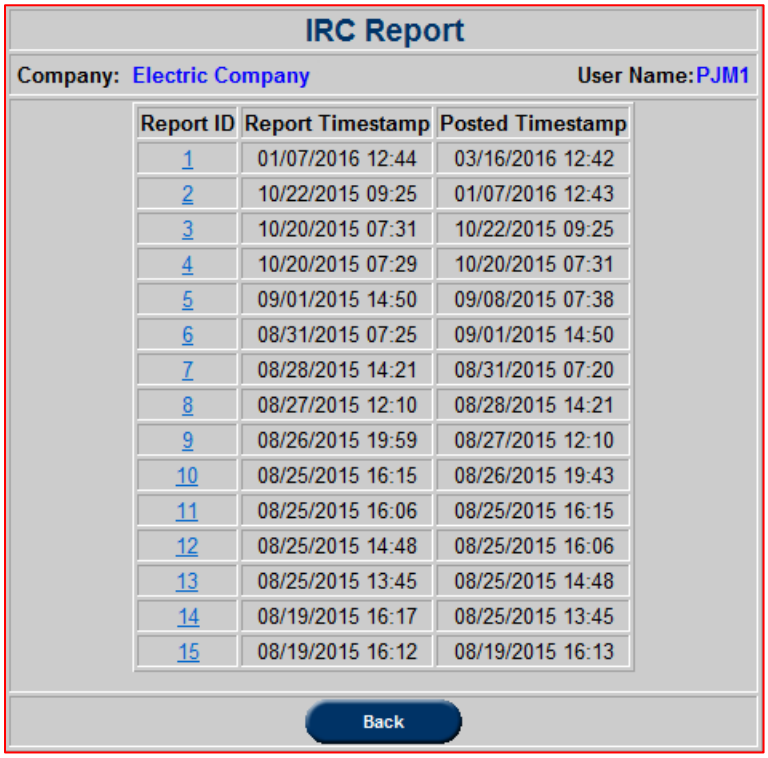
IRC Report Search

To look up past IRC reports, click the **IRC Report Search** button from the **Instantaneous Reserve Check** window.

Clicking the **IRC Report Search** button will take users to the **IRC Report Search** window where users can enter filter criteria to find IRC reports. If users are looking for a specific IRC report, users can enter the given "Request Number" into the **Request Number** field. Additionally, users can enter a date range by using the **From Date** and **To Date** fields. Only entries between the two entered dates will return. Users can click the **Last 30 Days** checkbox to get results from only the last 30 days. If users want to view the most recent IRC report, they can click the **Most Recent** button. Finally, to return to the **Instantaneous Reserve Check** menu, click the **Main Menu** button.

After entering any desired filter criteria, click the **Apply Filter** button to go to an **IRC Report** window.

Users can select an IRC Report ID number to see the details of that report. To exit the **IRC Report**, click the **Back** button.



Clicking a **Report ID** number will open an **IRC Company Data** window. An example of an IRC result can be found below.

IRC Company Data

Company: Electric Company
Request ID: 1
User Name: PJM1

Request Timestamp: 01/07/2016 12:44
Date Updated: 01/07/2016 12:44
Posted Timestamp: 03/16/2016 12:42

PJM RTO & Reserve Pool Totals

Reserve Category	RTO	RTO Req.	MAD	MAD Req.
Operating Reserve	16289		5310	
PRIMARY Reserve	3613	2171	2083	1996
SYNCHRONIZED Reserve	2156	1447	1363	1331
Additional Reserve Info	RTO	RTO Req.	MAD	MAD Req.
Largest Contingency	1447		1331	

Company Totals

Time Range	Reserve Category	ZONE1	ZONE2	ZONE3	ZONE4	RTO Total
0m-30m	**OPERATING Reserve**	0	0	51	0	51
0m-10m	PRIMARY Reserve	0	0	0	0	0
	SYNCHRONIZED Reserve	0	0	0	0	0
	Non-synchronized Reserve (Quick Start)	0	0	0	0	0
	-- NSR Hydro	0	0	0	0	0
	-- NSR Other	0	0	0	0	0
10m-30m	Secondary Reserve	0	0	51	0	51
30m-180m	Beyond Secondary	0	0	0	0	0

Notes to PJM Operator (500 char. max.)

Apply Sort | Refresh | Back | Help

Note: Regulation assignments should not be included in the Synchronized Reserves unless the reserve is beyond the regulation bandwidth.

**Please see the Help button for an explanation.

All numbers on this form have been rounded for display.

IRC Company Unit Data

If you do not wish to acknowledge any unit, please uncheck the acknowledge check box prior to clicking Recalc/Submit.

Unit Name	ACAP	Unit Type	Zone	Eco Max	Real-Time MW	Regulating	Synchronized Reserves	Quick Start NSR	Secondary	Beyond Secondary	Acknowledge
1											
UNIT1	70	Combustion Turbine	EC	0	0	0	0	0	51	0	☐
UNIT2	25	Battery	EC	0	0	0	0	0	0	0	
UNIT3	50	Bio Mass	EC	0	0	0	0	0	0	0	

Minimum Generation Report

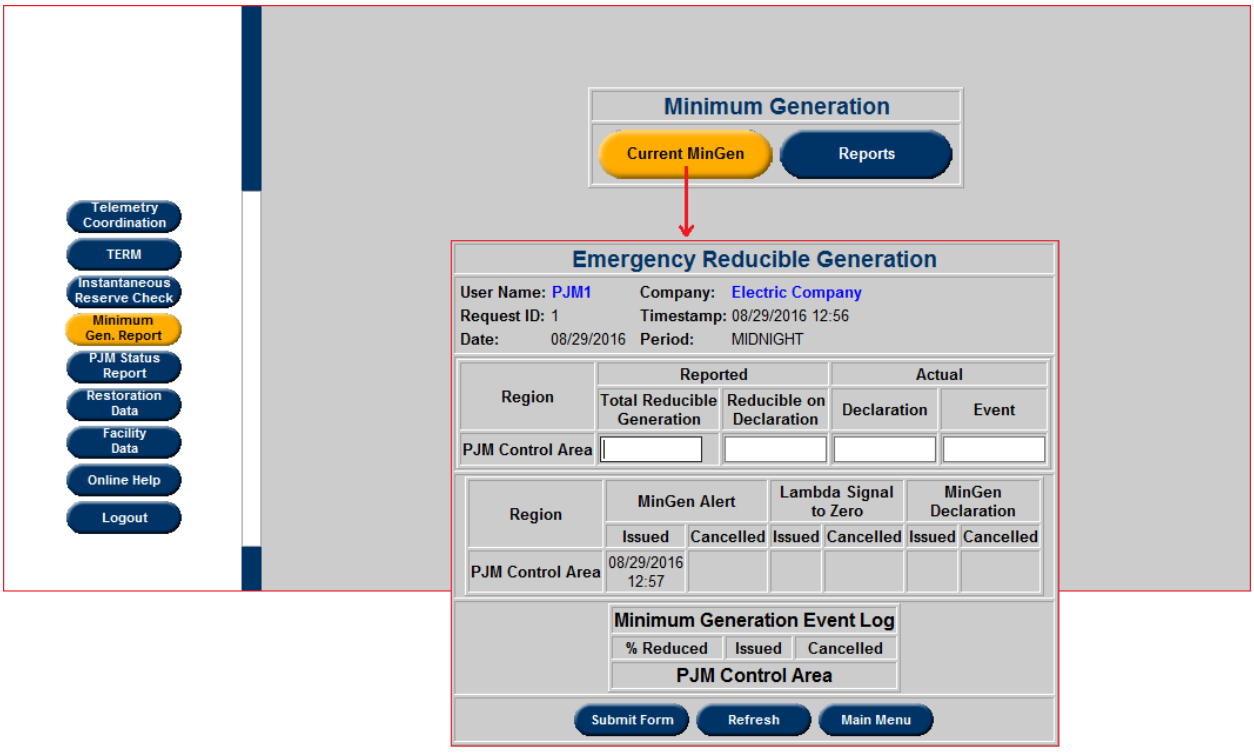
The **Minimum Gen. Report** application is used to alert the user that system conditions may require the use of minimum generation emergency procedures. For more detailed information, consult **PJM Manual M-13**.

Members can:

- Check and update unit data in PJM computer systems
- Check if unit maintenance could be scheduled over light load period

Current MinGen

Once PJM has issued a minimum generation alert, the **Current MinGen** button will be available for users to report their emergency reducible information. Click the **Current MinGen** button from the **Minimum Generation** main menu to access the **Emergency Reducible Generation** form.

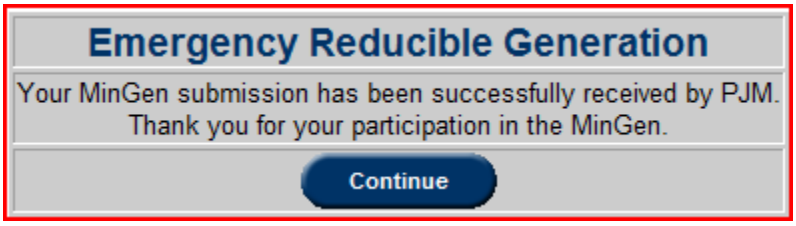


Transmission Owners cannot submit **Minimum Gen. Reported** data. Generation Owners must enter any prior information under **Reported** in Minimum Gen.

- **Total Reducible Generation:** Enter the total reducible generation available for both the declaration and the event. Joint-owned generation is reported by the operating company.
- **Reducible on Declaration**: Enter the emergency reducible generation that will begin reducing down when PJM makes the Minimum Generation Emergency Declaration, before the actual Minimum Generation event.

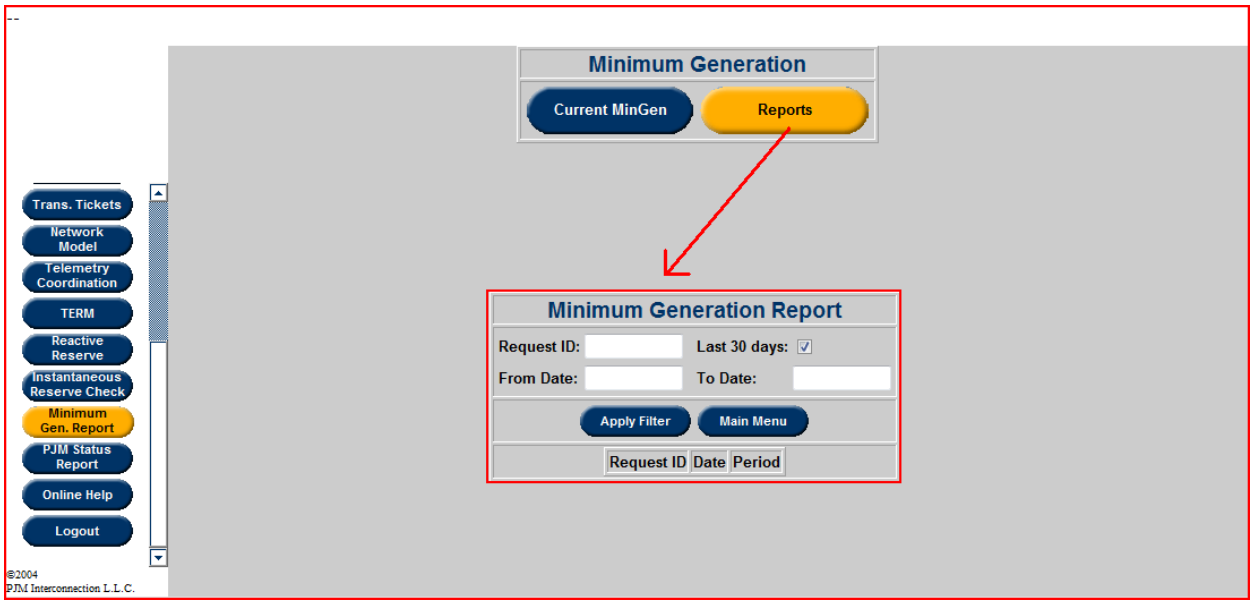
Generation and Transmission Owners can use **Emergency Reducible Generation** to enter the **Actual** generation reduced at **Declaration** and **Event** after the fact.

After entering all known data, select **Submit**. A successful submission will yield the following message.

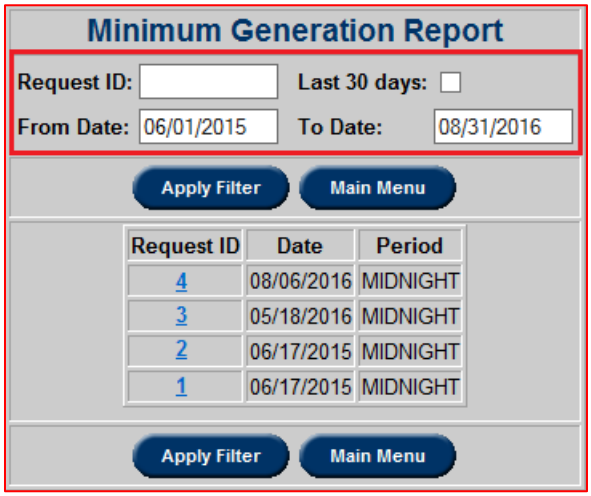


Reports

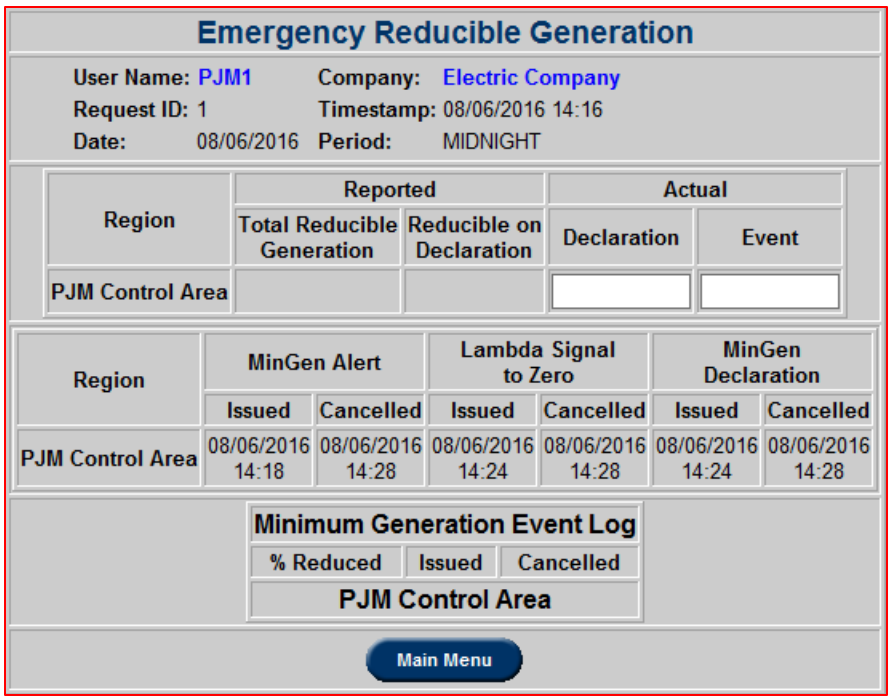
To view **Minimum Generation Reports**, click the **Reports** button in the **Minimum Generation** main menu window.



Transmission and Generation owners can enter a specific **Request ID** to apply the filter for the **Minimum Generation Report**; alternatively, users can enter either a **From Date** or a **To Date** to view a specific timeframe. Once the filter settings have been set, clicking **Apply Filter** will display a list of requests matching the filter criteria.



Clicking on a **Request ID** will open up data for individual entries (notice that the Cancelled dates are shown to inform members the completion date of the Minimum Generation Report). Users can click the **Main Menu** button to return to the **Minimum Gen. Report** menu.

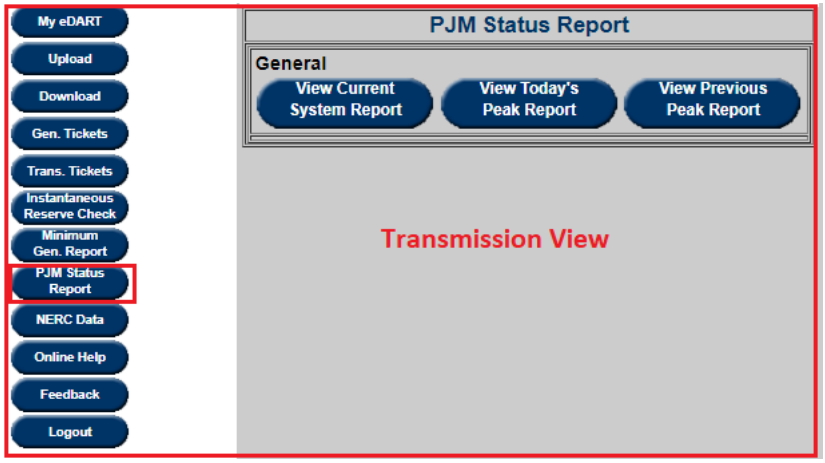


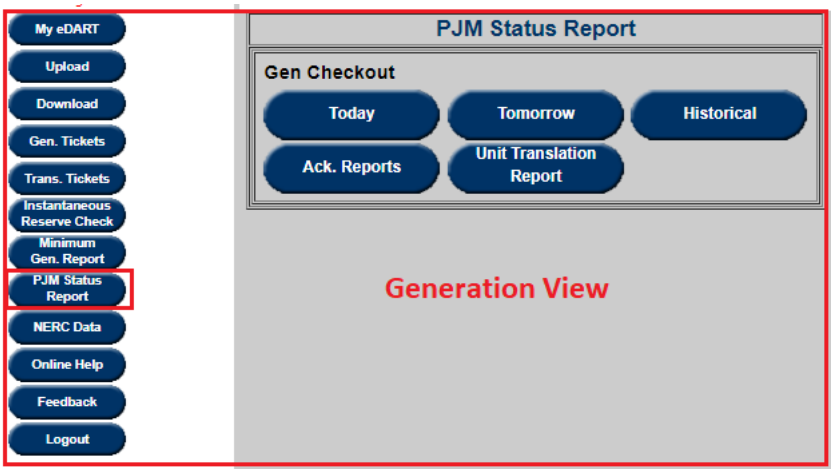
The **MinGen Alert**, **Lambda Signal to Zero** and **MinGen Declaration** are all timestamps for different stages of the Emergency Reducible Generation process. These sections are all completed by PJM Dispatch.

PJM Status Report

PJM Status Reports application includes the Current, Peak and Gen Checkout reports.

When logged into eDART, click on the **PJM Status Report** button on the left menu to open the **PJM Status Report** main menu.

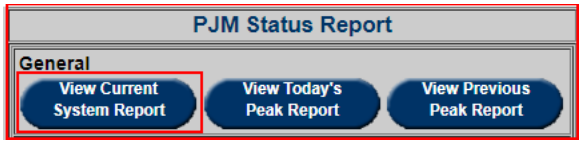


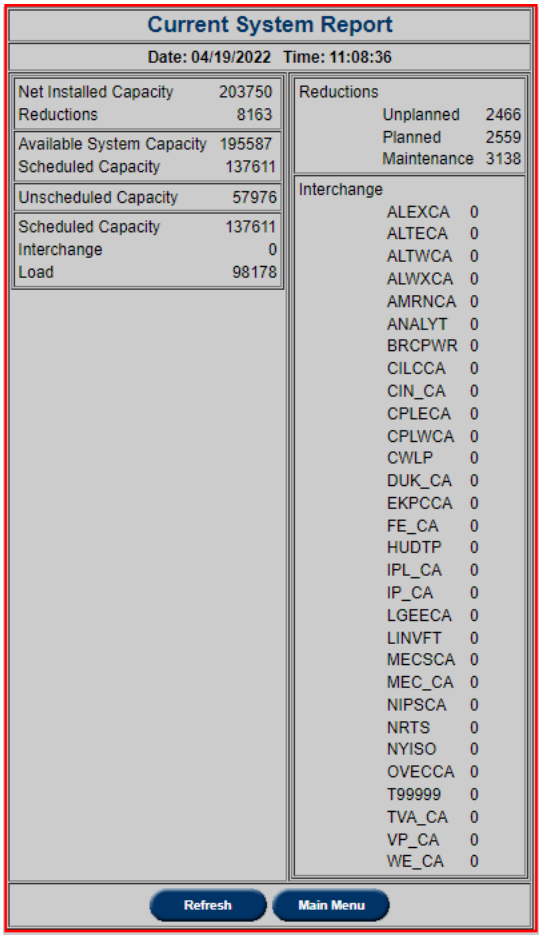


Manual reference: PJM M-13, Emergency Operations Manual - Attachment A

View Current System Report

On the **PJM Status Report** main menu, click **View Current System Report** to open the **Current System Report** form. The report is updated every 15 minutes by PJM.





Current System Report Fields:

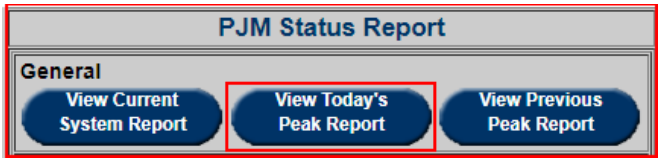
- **Date & Time:** Displays the time period for which the **System Status Report** was prepared.
- **Net Installed Capacity:** The MW total of all PJM installed capacity for the report period.
- **Reductions:** The MW amount of generation reductions entered into eDART by the Generation Owners/Operators for the report period.
- **Available System Capacity:** The net installed capacity minus the generation reductions.
- **Unscheduled Capacity:** The internal generation not scheduled for load and reserves.
- **Scheduled Capacity:** The internal generation scheduled for load and reserves.

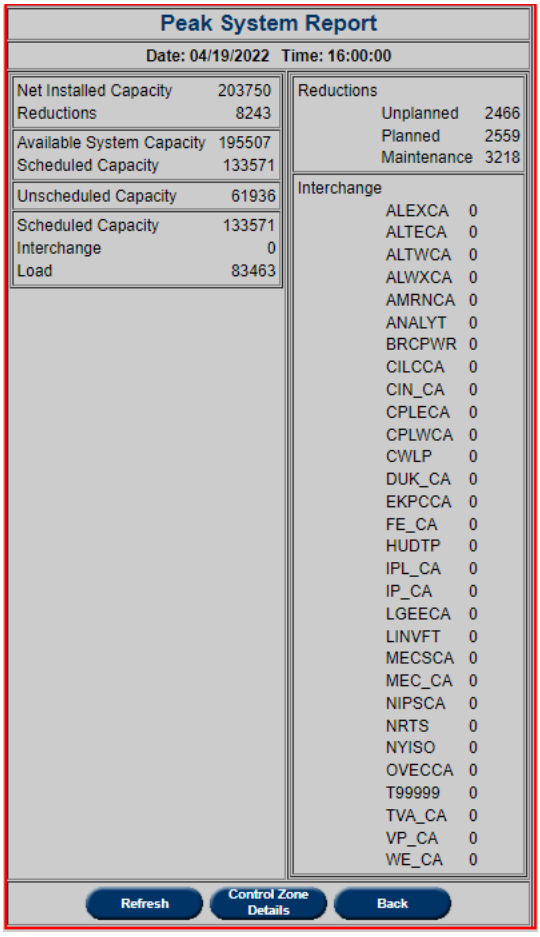
- **Interchange:** The total energy breakdown of the energy transferred between the PJM control area and each individual neighboring control area.
- **Load:** The total energy in MW being delivered to customers at the time of the report.
- **Reductions:** Displays the MW breakdown of the total reduction values by reduction type.
    - **Unplanned:** An outage that cannot be postponed beyond the end of the next weekend.
    - **Planned:** An outage of predetermined length, scheduled well in advance of its occurrence.
    - **Maintenance:** An outage that can be postponed beyond the end of the next weekend but requires the unit to be removed before the next planned outage.
- **Refresh:** Refreshes the page and displays the most current **System Report.**

Main Menu: Click to return to the PJM Status Report menu.

View Today's Peak Report

To view the current day's peak system report, click the **View Today's Peak Report** button from the **PJM Status Report** main menu. The **Today's Peak Report** is generated for the projected peak of the day (usually occurring at 07:00 during the winter season and 16:00 during the summer season) and is similar in format to the **Current System Report**.





Peak System Report

Date: 04/19/2022 Time: 16:00:00

Net Installed Capacity	203750
Reductions	8243
Available System Capacity	195507
Scheduled Capacity	133571
Unscheduled Capacity	61936
Scheduled Capacity	133571
Interchange	0
Load	83463

Reductions

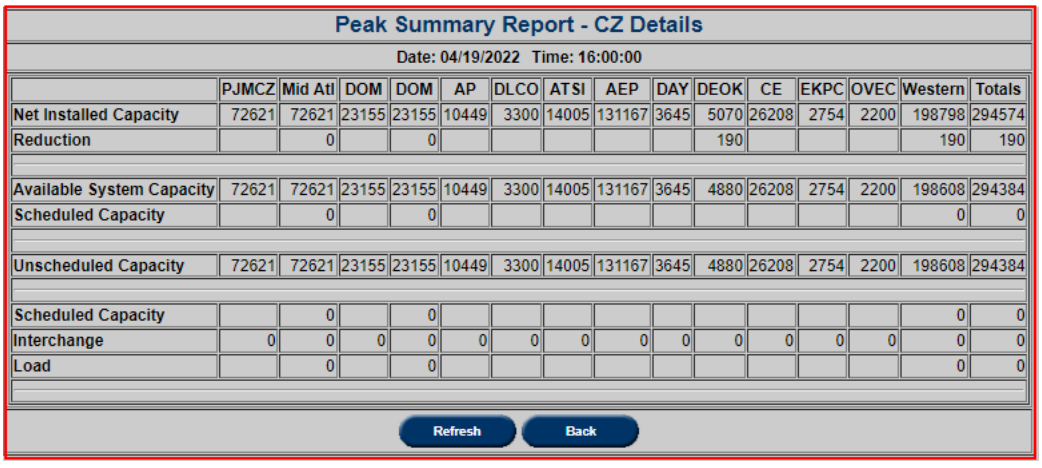
Unplanned	2466
Planned	2559
Maintenance	3218

Interchange

ALEXCA	0
ALTECA	0
ALTWCA	0
ALWXCA	0
AMRNCA	0
ANALYT	0
BRCPWR	0
CILCCA	0
CIN_CA	0
CPLECA	0
CPLWCA	0
CWLP	0
DUK_CA	0
EKPCCA	0
FE_CA	0
HUDTP	0
IPL_CA	0
IP_CA	0
LGEECA	0
LINVFT	0
MECSCA	0
MEC_CA	0
NIPSCA	0
NRTS	0
NYISO	0
OVECCA	0
T99999	0
TVA_CA	0
VP_CA	0
WE_CA	0

Refresh | Control Zone Details | Back

Control Zone Details: Shows the breakdown of capacity, interchange, load, and reductions by Control Zone, not just by the transmission operator but as a whole.



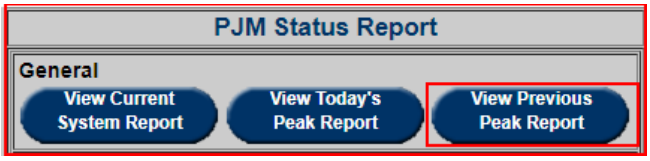
Peak Summary Report - CZ Details

Date: 04/19/2022 Time: 16:00:00

	PJMCZ	Mid Atl	DOM	DOM	AP	DLCO	ATSI	AEP	DAY	DEOK	CE	EKPC	OVEC	Western	Totals
Net Installed Capacity	72621	72621	23155	23155	10449	3300	14005	131167	3645	5070	26208	2754	2200	198798	294574
Reduction		0		0						190				190	190
Available System Capacity	72621	72621	23155	23155	10449	3300	14005	131167	3645	4880	26208	2754	2200	198608	294384
Scheduled Capacity		0		0										0	0
Unscheduled Capacity	72621	72621	23155	23155	10449	3300	14005	131167	3645	4880	26208	2754	2200	198608	294384
Scheduled Capacity		0		0										0	0
Interchange	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Load		0		0										0	0

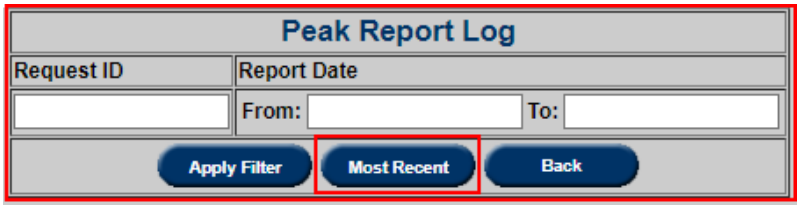
Refresh | Back

View Previous Peak Report

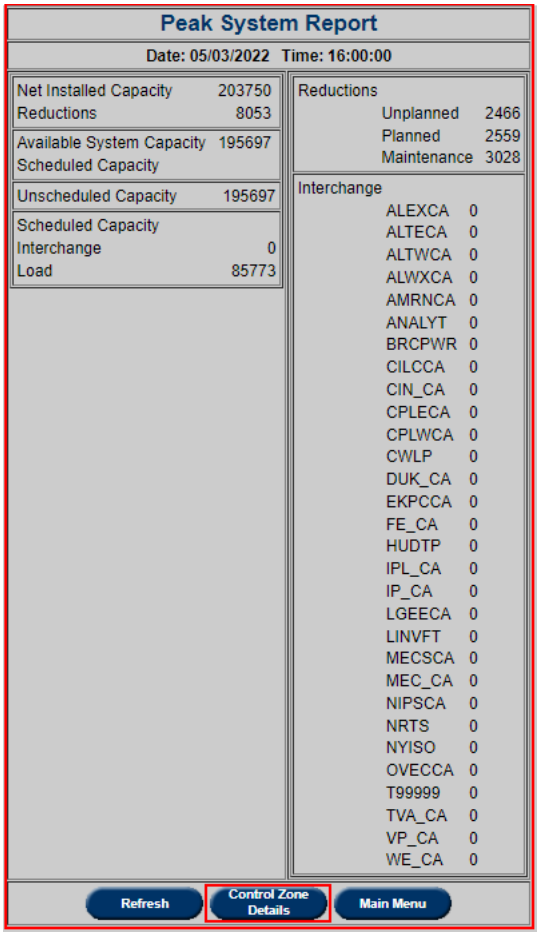


Historical Peak reports can be found using the using the **View Previous Peak Report** button from the **PJM Status Report** main menu. This will open a new page where the user can filter for reports:

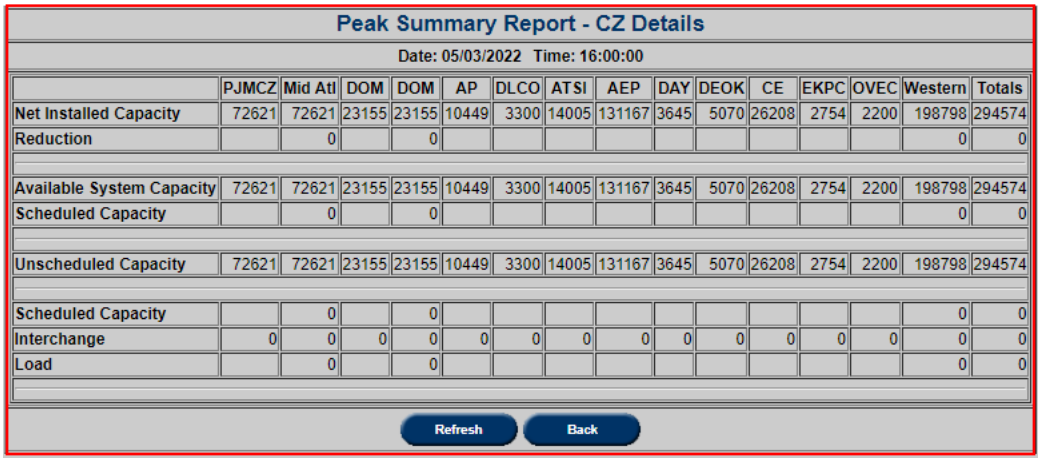
- **Request ID:** Enter the **Request ID** of a specific report to view its data.
- **Report Date:** Enter **From** and **To** dates to browse **Previous Peak Reports** within that range.
- **Apply Filter:** Submit filter data to browse Previous Peak Reports.
- **Most Recent:** Clicking Most Recent will bring up the most recent System Report.



Once a report is chosen within the **Peak Report Log**, a report similar to the **Peak System Report** will appear.



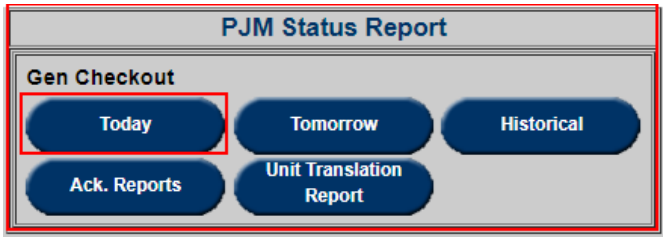
- **Control Zone Details:** Shows the breakdown of capacity, interchange, load, and reductions by Control Zone, not just by the transmission operator but as a whole.



	PJMCZ	Mid Atl	DOM	DOM	AP	DLCO	ATSI	AEP	DAY	DEOK	CE	EKPC	OVEC	Western	Totals
Net Installed Capacity	72621	72621	23155	23155	10449	3300	14005	131167	3645	5070	26208	2754	2200	198798	294574
Reduction		0		0										0	0
Available System Capacity	72621	72621	23155	23155	10449	3300	14005	131167	3645	5070	26208	2754	2200	198798	294574
Scheduled Capacity		0		0										0	0
Unscheduled Capacity	72621	72621	23155	23155	10449	3300	14005	131167	3645	5070	26208	2754	2200	198798	294574
Scheduled Capacity		0		0										0	0
Interchange	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Load		0		0										0	0

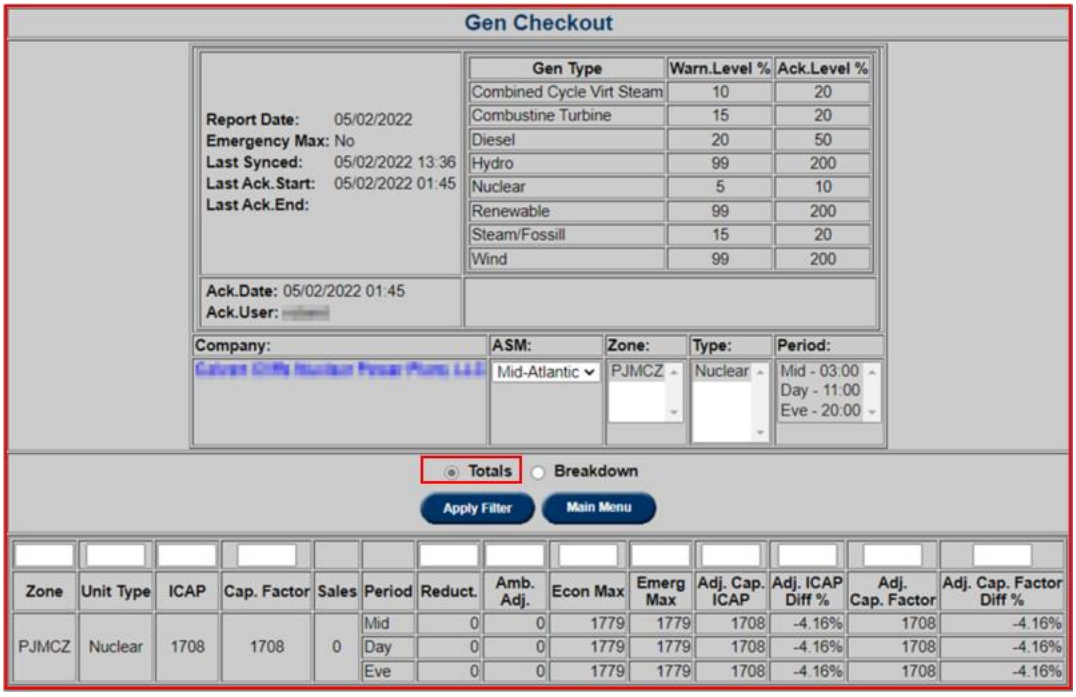
Gen Checkout – Today

Click the **Today** button to view the reports that have been initiated on the current date. Information for the current date will be visible from 4:15 pm (16:15) to midnight.

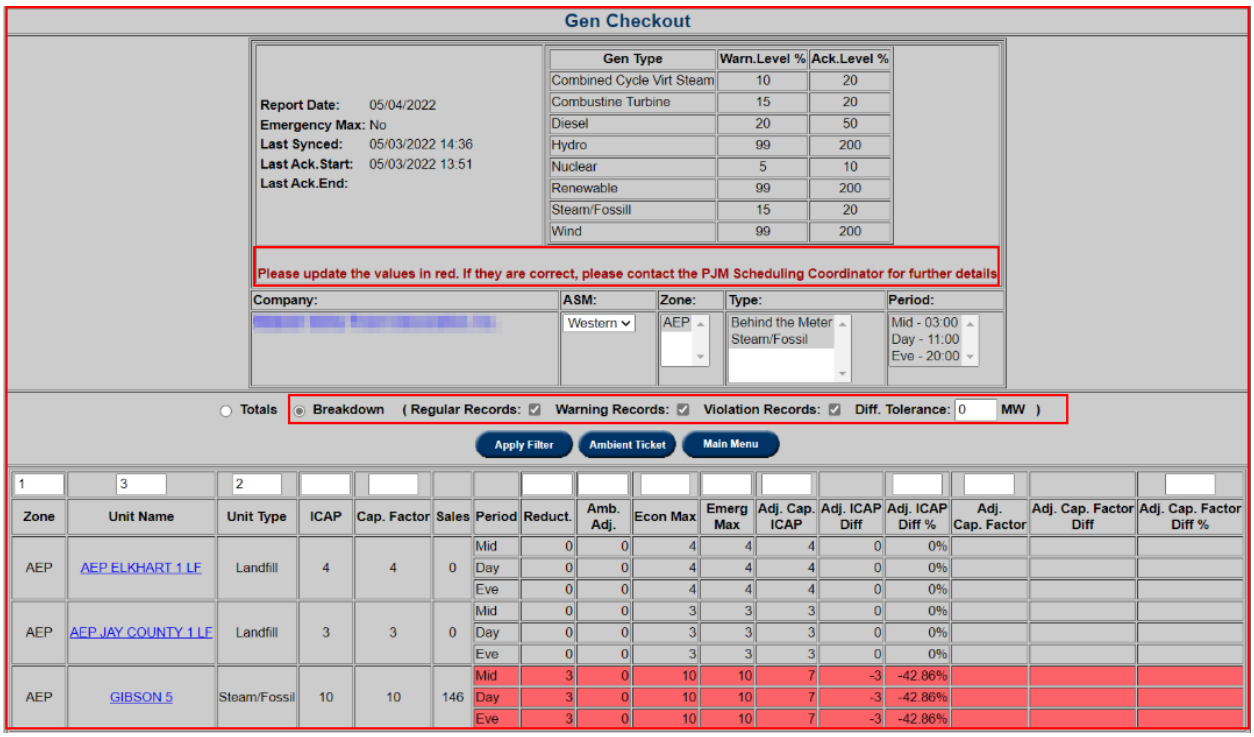


To view a **Gen Checkout** report for the current day, click **Today** in the **Gen Checkout** section of the **PJM Status Report** menu.

Today Report – Totals



Today Report - Breakdown



Gen Checkout

Report Date: 05/04/2022
Emergency Max: No
Last Synced: 05/03/2022 14:36
Last Ack.Start: 05/03/2022 13:51
Last Ack.End:

Gen Type	Warn.Level %	Ack.Level %
Combined Cycle Virt Steam	10	20
Combustine Turbine	15	20
Diesel	20	50
Hydro	99	200
Nuclear	5	10
Renewable	99	200
Steam/Fossil	15	20
Wind	99	200

Please update the values in red. If they are correct, please contact the PJM Scheduling Coordinator for further details

Company: [redacted] ASM: Western Zone: AEP Type: Behind the Meter, Steam/Fossil Period: Mid - 03:00, Day - 11:00, Eve - 20:00

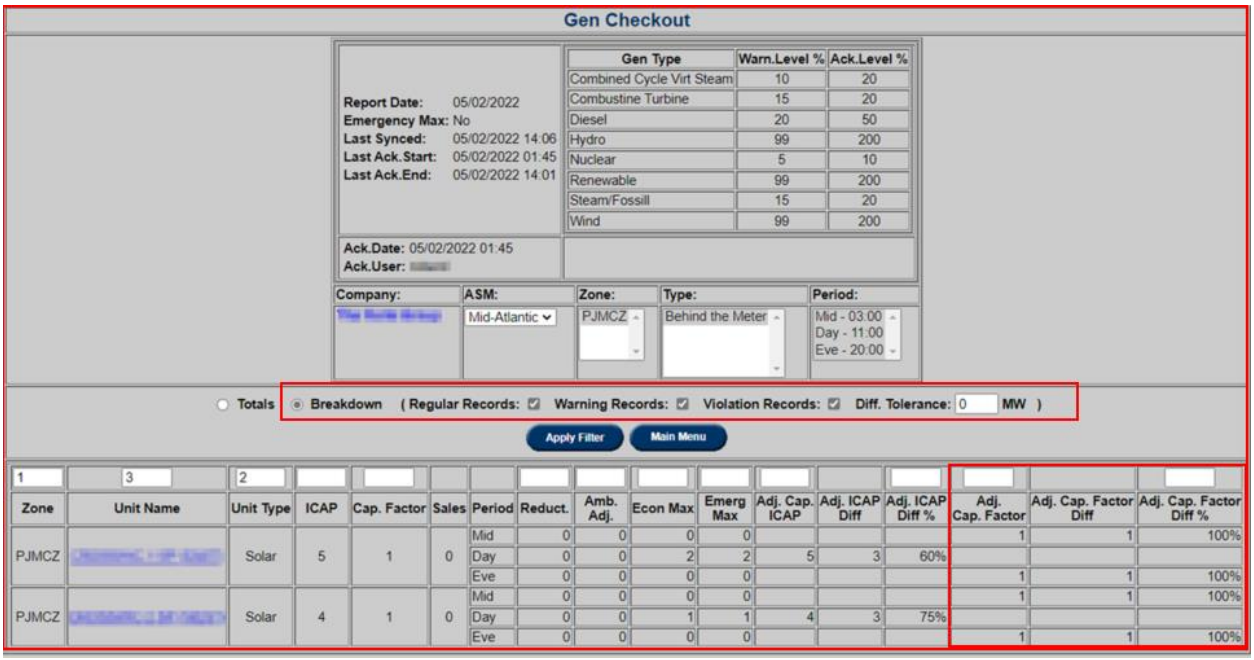
Totals Breakdown (Regular Records: Warning Records: Violation Records: Diff. Tolerance: 0 MW)

Apply Filter Ambient Ticket Main Menu

Zone	Unit Name	Unit Type	ICAP	Cap. Factor	Sales	Period	Reduct.	Amb. Adj.	Econ Max	Emerg Max	Adj. Cap. ICAP	Adj. ICAP Diff	Adj. ICAP Diff %	Adj. Cap. Factor	Adj. Cap. Factor Diff	Adj. Cap. Factor Diff %
AEP	AEP ELKHART 1 LF	Landfill	4	4	0	Mid	0	0	4	4	4	0	0%			
						Day	0	0	4	4	4	0	0%			
						Eve	0	0	4	4	4	0	0%			
AEP	AEP JAY COUNTY 1 LF	Landfill	3	3	0	Mid	0	0	3	3	3	0	0%			
						Day	0	0	3	3	3	0	0%			
						Eve	0	0	3	3	3	0	0%			
AEP	GIBSON 5	Steam/Fossil	10	10	146	Mid	3	0	10	10	7	-3	-42.86%			
						Day	3	0	10	10	7	-3	-42.86%			
						Eve	3	0	10	10	7	-3	-42.86%			

The image above displays breakdown information for the units (by type) that meet the filtering criteria for the specified date. New filters have been added to the Breakdown report to display units in or close to violations.
Regular Records: display units with periods of no violation (grey)
Warning Records: display units with periods exceeding warning level (yellow)
Note: Entries highlighted yellow are warnings and no action is required, but should be addressed if time permits.
Violation Records: display units with periods exceeding acknowledgement level (red)
Note: These violations need to be addressed as soon as possible!
Diff. Tolerance: will limit report to units where the:
|Adj. ICAP Diff| > Diff. Tolerance OR |Adj. Cap. Factor Diff| > Diff. Tolerance

Today Report with Adj. Cap Factor

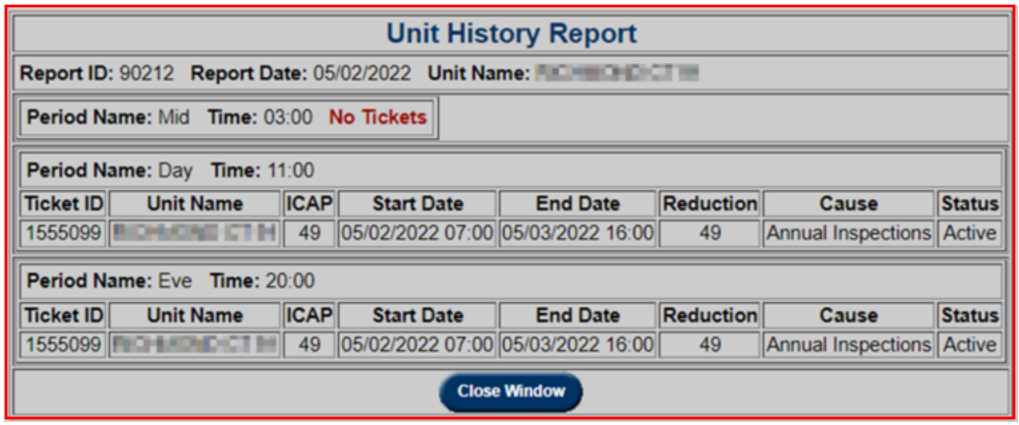


Typically Gen Checkout compares the MWs physically available based on eDART information to economic max. In certain situations, PJM Dispatch may choose to compare available MWs based on eDART information to emergency max.

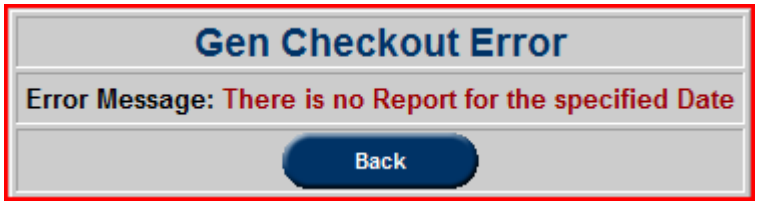
By default, all the checkboxes are checked, and the Diff. Tolerance value is 0 MW. The added columns reflect new calculations.

Period: Peak periods as outlined by PJM (Mid = 0300, Day = 1000, Eve = 2000)
Reduct.: Sum of all tickets excluding ambient air tickets.
Amb. Adj.: Sum of reduction of Ambient Air Generator Outage Tickets for unit at time of Period multiplied by -1. Amb. Adj. = (-1) * Reduction
Econ Max.: Econ Max for a period assigned in Markets Gateway
Emerg. Max: Emerg. Max for period assigned in Markets Gateway
Adj. Cap. ICAP: Calculation of capacity remaining after Generator Outage Ticket Reduction. AC = eDART Reportable MW + Amb. Adj. – Reduct. – (Emerg Max - Econ Max)
Adj. ICAP Diff: Calculation of difference between Markets Gateway values and Adj. Capacity.
Adj. ICAP Diff %: ((Adj. Cap. ICAP – Economic Max) / Adj. Cap. ICAP) * 100
Adj. Cap Factor: Indicates the unit's adjusted capacity based on the unit's capacity factor: 40% of ICAP for Solar units and 30% of ICAP for Wind units.
Adj. Cap. Factor Diff: Calculation of difference between Markets Gateway values and Adj. Cap. Factor
Adj. Cap. Factor Diff %: ((Adj. Cap. Factor – Economic Max) / Adj. Cap. Factor) * 100

Clicking on a unit name will yield a pop-up screen detailing a history report of submitted tickets for the selected unit.



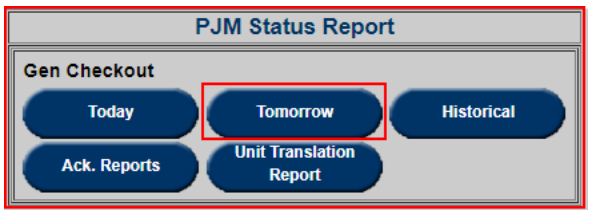
If there are reports for the current date, a list of them will appear. If not, the box below will appear.

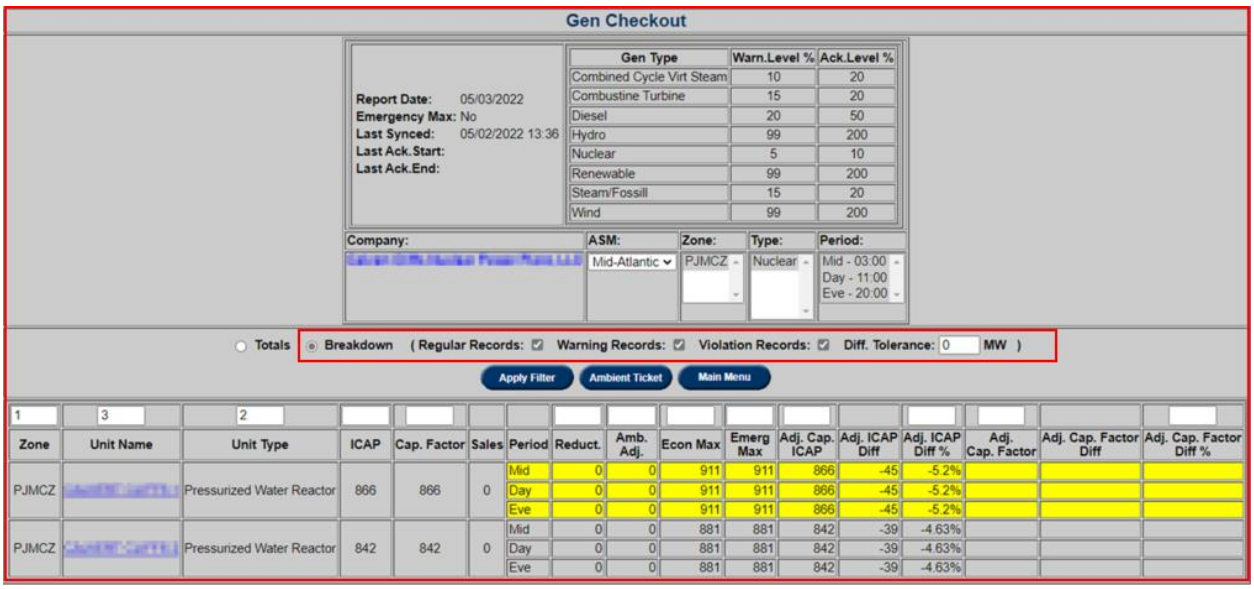


Click the Back button to return to the PJM Status Report menu.

Gen Checkout – Tomorrow

Reports for tomorrow's date are not posted until 4:15 of today's date.





The image above displays breakdown information for the units (by type) that meet the filtering criteria for the specified date. New filters have been added to the Breakdown report to display units in or close to violations.

- Regular Records: display units with periods of no violation (grey)
- Warning Records: display units with periods exceeding warning level (yellow)
  Note: Entries highlighted yellow are warnings and no action is required, but should be addressed if time permits.
- Violation Records: display units with periods exceeding acknowledgement level (red)
  Note: These violations need to be addressed as soon as possible!

Diff. Tolerance: will limit report to units where the:
|Adj. ICAP Diff| > Diff. Tolerance OR |Adj. Cap. Factor Diff| > Diff. Tolerance

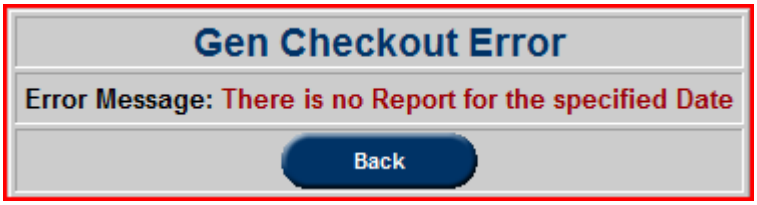
Typically Gen Checkout compares the MWs physically available based on eDART information to economic max. In certain situations, PJM Dispatch may choose to compare available MWs based on eDART information to emergency max.

By default, all the checkboxes are checked, and the Diff. Tolerance value is 0 MW. The added columns reflect new calculations.

- **Period:** Peak periods as outlined by PJM (Mid = 0300, Day = 1000, Eve = 2000)
- **Reduct.:** Sum of all tickets excluding ambient air tickets.
- **Amb. Adj.:** Sum of reduction of Ambient Air Generator Outage Tickets for unit at time of Period multiplied by -1. Amb. Adj. = (-1) * Reduction
- **Econ Max.:** Econ Max for a period assigned in Markets Gateway
- **Emerg. Max:** Emerg. Max for period assigned in Markets Gateway

- **Adj. Cap. ICAP:** Calculation of capacity remaining after Generator Outage Ticket Reduction. AC = eDART Reportable MW + Amb. Adj. – Reduct. – (Emerg Max - Econ Max)
- **Adj. ICAP Diff:** Calculation of difference between Markets Gateway values and Adj. Capacity.
- **Adj. ICAP Diff %:** ((Adj. Cap. ICAP – Economic Max) / Adj. Cap. ICAP) * 100
- **Adj. Cap Factor:** Indicates the unit's adjusted capacity based on the unit's capacity factor: 40% of ICAP for Solar units and 30% of ICAP for Wind units.
- **Adj. Cap. Factor Diff**: Calculation of difference between Markets Gateway values and Adj. Cap. Factor
- **Adj. Cap. Factor Diff %:** ((Adj. Cap. Factor – Economic Max) / Adj. Cap. Factor) * 100

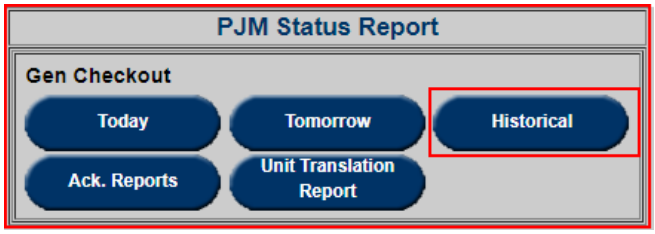
If there are any reports for tomorrow, a list of them will appear. If not, the box below will appear.



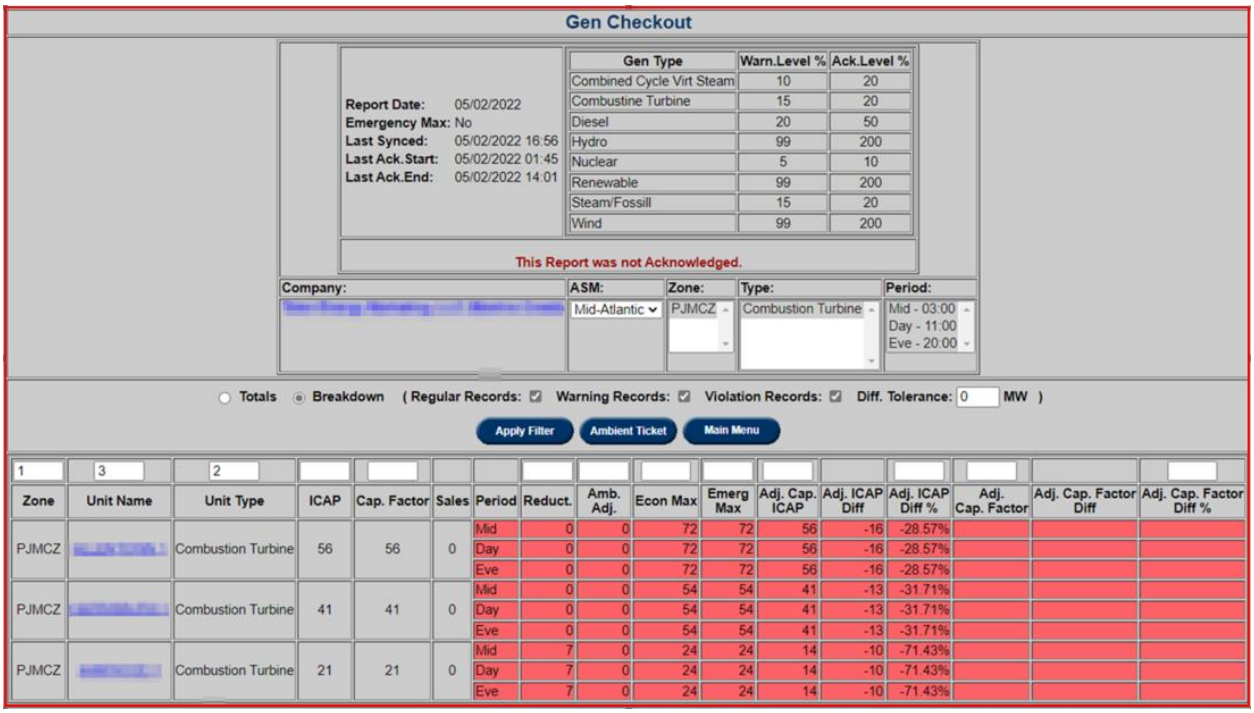
Click the **Back** button to return to the **PJM Status Report** menu.

Gen Checkout – Historical

To access Gen Checkout reports for a specific time range, click **Historical** from the **PJM Status Report** menu.



Users must enter a date for a **Gen Checkout** to view information. Users can also filter by **Company**, **ASM**, **Zone**, **Type** and/or **Period** of day. The **Breakdown** information appears by default, but users can view just **Totals.** After selecting any desired criteria, click the **Apply Filter** button to view **Gen Checkout** information. Users can also click the **Main Menu** button to return to the **PJM Status Report** window.



Gen Checkout

Report Date: 05/02/2022
Emergency Max: No
Last Synced: 05/02/2022 16:56
Last Ack.Start: 05/02/2022 01:45
Last Ack.End: 05/02/2022 14:01

Gen Type	Warn.Level %	Ack.Level %
Combined Cycle Virt Steam	10	20
Combustine Turbine	15	20
Diesel	20	50
Hydro	99	200
Nuclear	5	10
Renewable	99	200
Steam/Fossill	15	20
Wind	99	200

This Report was not Acknowledged.

Company: [redacted] | ASM: Mid-Atlantic | Zone: PJMCZ | Type: Combustion Turbine | Period: Mid - 03:00, Day - 11:00, Eve - 20:00

Totals / Breakdown (Regular Records: Warning Records: Violation Records: Diff. Tolerance: 0 MW)

Apply Filter | Ambient Ticket | Main Menu

Zone	Unit Name	Unit Type	ICAP	Cap. Factor	Sales	Period	Reduct.	Amb. Adj.	Econ Max	Emerg Max	Adj. Cap. ICAP	Adj. ICAP Diff	Adj. ICAP Diff %	Adj. Cap. Factor	Adj. Cap. Factor Diff	Adj. Cap. Factor Diff %
PJMCZ	[redacted]	Combustion Turbine	56	56	0	Mid	0	0	72	72	56	-16	-28.57%			
						Day	0	0	72	72	56	-16	-28.57%			
						Eve	0	0	72	72	56	-16	-28.57%			
PJMCZ	[redacted]	Combustion Turbine	41	41	0	Mid	0	0	54	54	41	-13	-31.71%			
						Day	0	0	54	54	41	-13	-31.71%			
						Eve	0	0	54	54	41	-13	-31.71%			
PJMCZ	[redacted]	Combustion Turbine	21	21	0	Mid	7	0	24	24	14	-10	-71.43%			
						Day	7	0	24	24	14	-10	-71.43%			
						Eve	7	0	24	24	14	-10	-71.43%			

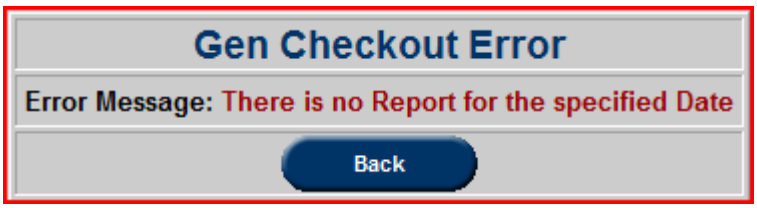
By default, all the checkboxes are checked, and the Diff. Tolerance value is 0 MW. The added columns reflect new calculations.

- **Period:** Peak periods as outlined by PJM (Mid = 0300, Day = 1000, Eve = 2000)
- **Reduct.:** Sum of all tickets excluding ambient air tickets.
- **Amb. Adj.:** Sum of reduction of Ambient Air Generator Outage Tickets for unit at time of Period multiplied by -1. Amb. Adj. = (-1) * Reduction
- **Econ Max.:** Econ Max for a period assigned in Markets Gateway
- **Emerg. Max:** Emerg. Max for period assigned in Markets Gateway
- **Adj. Cap. ICAP:** Calculation of capacity remaining after Generator Outage Ticket Reduction. AC = eDART Reportable MW + Amb. Adj. – Reduct. – (Emerg Max - Econ Max)
- **Adj. ICAP Diff:** Calculation of difference between Markets Gateway values and Adj. Capacity.
- **Adj. ICAP Diff %:** ((Adj. Cap. ICAP – Economic Max) / Adj. Cap. ICAP) * 100
- **Adj. Cap Factor:** Indicates the unit's adjusted capacity based on the unit's capacity factor: 40% of ICAP for Solar units and 30% of ICAP for Wind units.
- **Adj. Cap. Factor Diff**: Calculation of difference between Markets Gateway values and Adj. Cap. Factor
- **Adj. Cap. Factor Diff %:** ((Adj. Cap. Factor – Economic Max) / Adj. Cap. Factor) * 100

The image above displays breakdown information for the units (by type) that meet the filtering criteria for the specified date. New filters have been added to the Breakdown report to display units in or close to violations.

- Regular Records: display units with periods of no violation (grey)
- Warning Records: display units with periods exceeding warning level (yellow)
- Violation Records: display units with periods exceeding acknowledgement level (red)
- Diff. Tolerance: will limit report to units where the:
  |Adj. ICAP Diff| > Diff. Tolerance OR |Adj. Cap. Factor Diff| > Diff. Tolerance

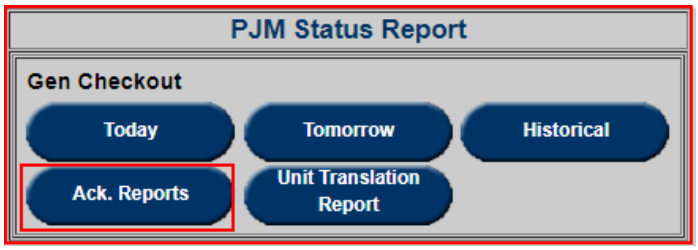
If there are any reports for tomorrow, a list of them will appear. If not, the box below will appear.

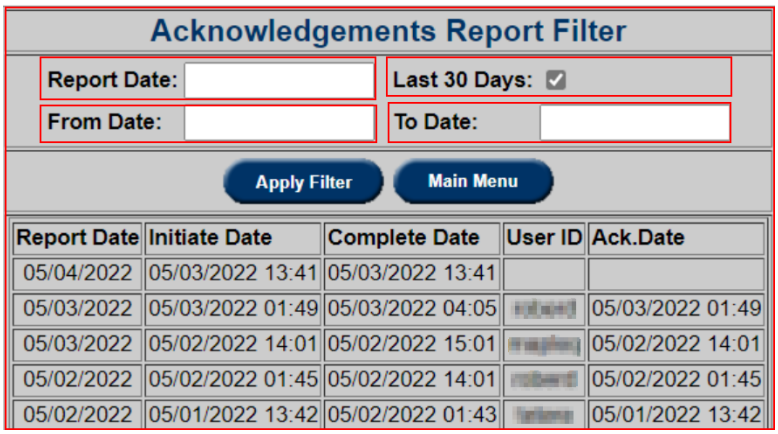


Click the **Back** button to return to the **PJM Status Report** menu.

Gen Checkout – Ack. Reports

To access the **Acknowledgement Reports** for a specific time range, click the **Ack. Reports** button from the **PJM Status Report** menu.

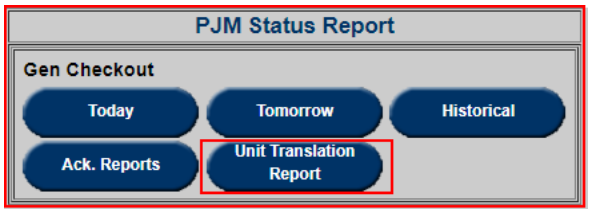




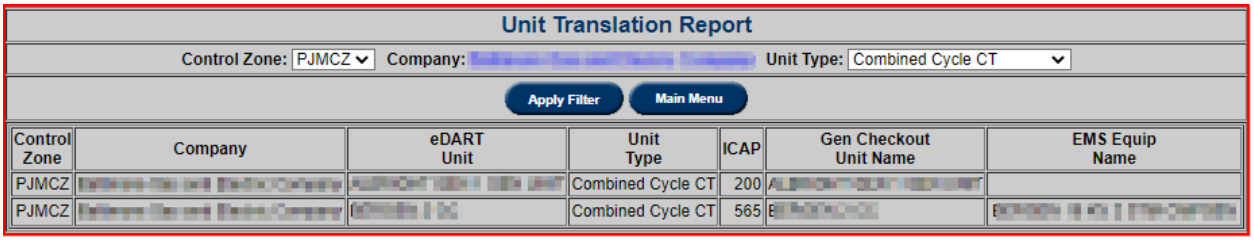
To view a report on a specific date, enter the date next to **Report Date**. To view all reports from the past 30 days, check the box next to **Last 30 Days**. To see all of the reports between a specified date range, enter the **From** and **To Dates** that to be viewed. After specifying the information to be viewed, click the **Apply Filter** button and a list will appear in order of the most recent report date.

Gen Checkout – Unit Translation Report

To view a report matching the unit names in eDART to the unit names in the Gen Checkout reports and PJM's EMS, click **Unit Transition Report** from the **PJM Status Report** menu.



The **Unit Translation Report** window will open up. Users can select a **Control Zone** and **Unit Type** to view information on units in that zone and of the selected type. Click the **Apply Filter** button to generate a list of reports. When finished, select **Main Menu** to return to the **PJM Status Report** menu.



For more information, visit the eDART Training Presentation page:
https://www.pjm.com/markets-and-operations/etools/edart

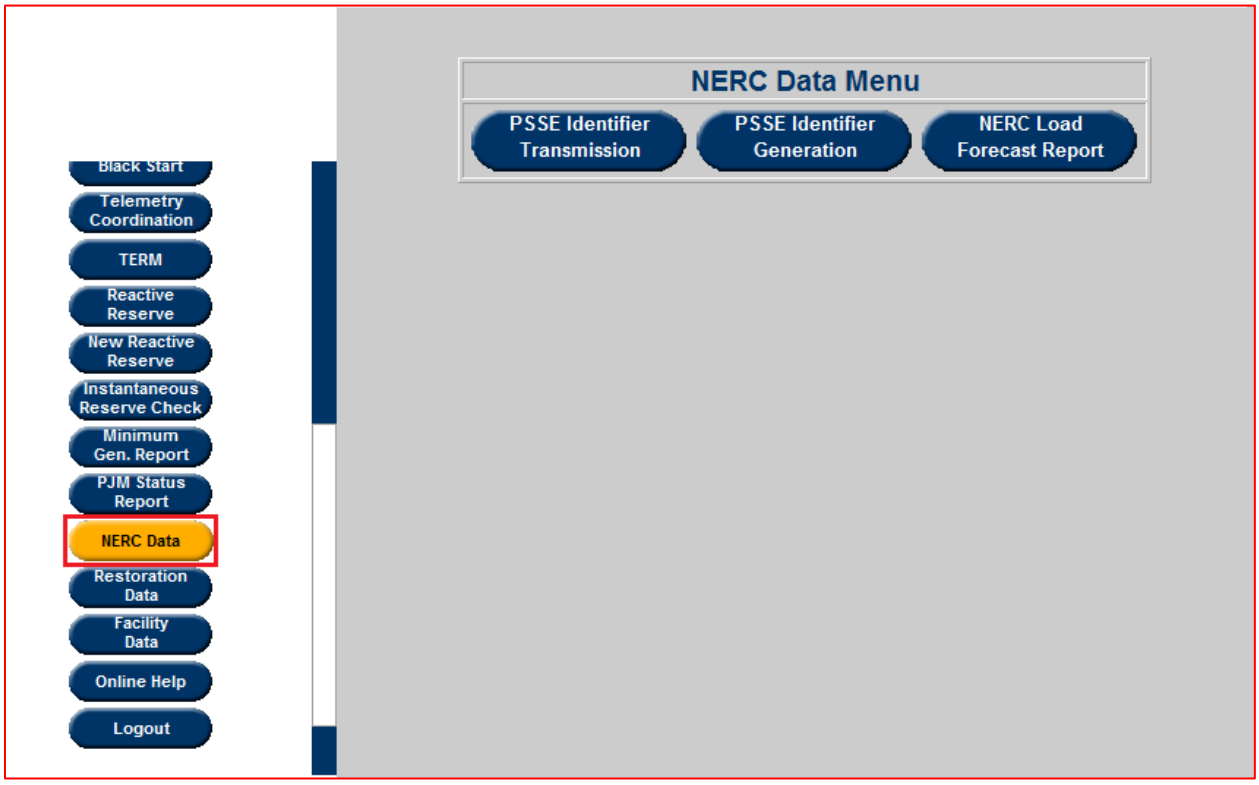
NERC Data

NERC Data is used to transfer outage and load forecast data to NERC SDX (System Data Exchange). The capacity and EMS model used in eDART is translated to the PSSE (Power System Simulator Engineering) model for generators and transmission facilities. Please note that the NERC Data functionality is not visible to most members and is only for special cases, this is because NERC Data is generally used by PJM only.

The NERC Data application allows the **Generation Read/Write** user to submit and/or update PSSE Identifiers (PSSE Stations and PSSE ID) for the generators in the user's company.
The NERC Data also allows the **Transmission Read/Write** users to update or submit new PSEE Identifiers for the lines, breakers and other equipment present in the user's company.
If the company has access to NERC Data, Read Only users can view and filter the information in the list of generators and transmission facilities but cannot submit any changes.

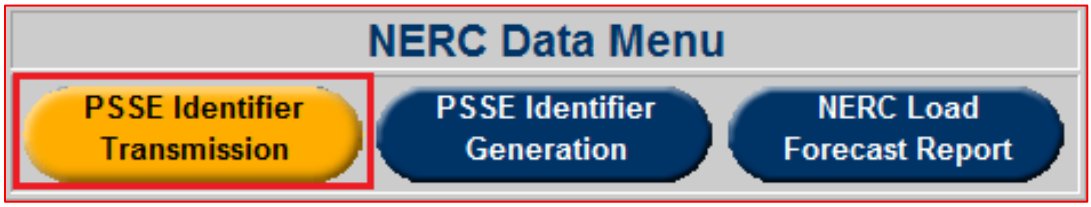
When logged in to eDART, click on the **NERC Data** button from the left menu to open the **NERC Data Menu** as shown below.

Note Not all buttons visible to users; ability to see buttons depends on qualifications.*

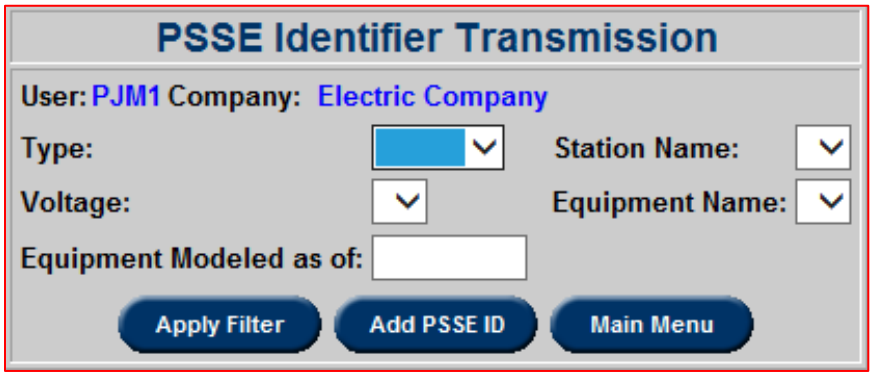


PSSE Identifier Transmission

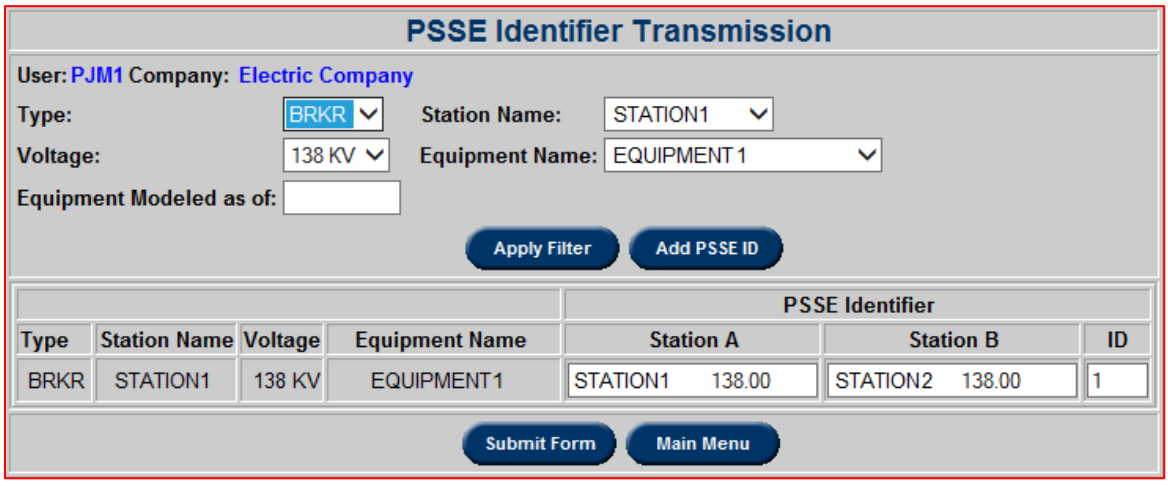
This form is used to translate EMS model to PSSE model so that Transmission outages can get transferred to NERC SDX. In order to create a PSSE Identifier for transmission, click the **PSSE Identifier Transmission** button from the **NERC Data Menu**.



To search for PSSE identifiers, choose some or all of the information from the drop down menus (note that Type must be chosen first, and then Station Name will be made available, etc.). Additionally, the **Equipment Modeled as of** field allows users to find PSSE identifiers based on the date they were modeled into the system.

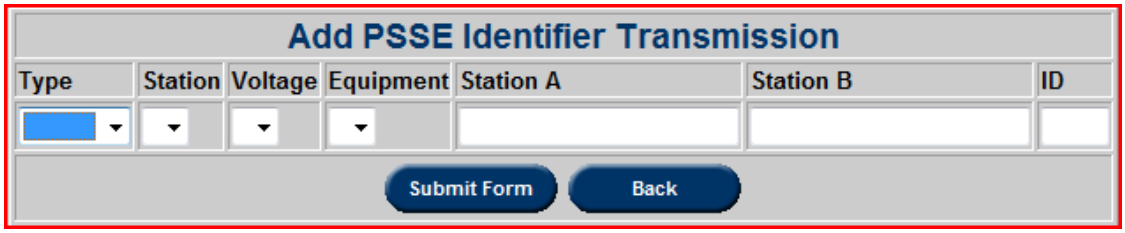


After filling out the filter form and clicking **Apply Filter**, the PSSE entry form should appear.

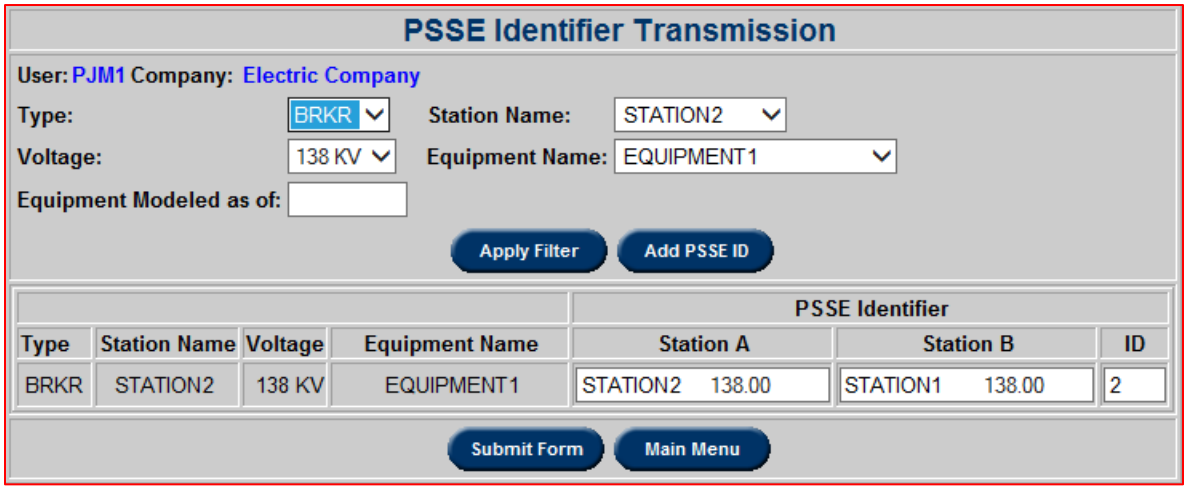


From the PSSE Identifier Transmission window, users can click the **Main Menu** button to return to the **NERC Data Menu**, or add another PSSE ID with the **Add PSSE ID** button. Additionally identifiers can be modified and saved with the **Submit Form** button, and users can filter for other identifiers with the **Apply Filter** button.

In the **PSSE Identifier Transmission** window, select **Add PSSE ID**.

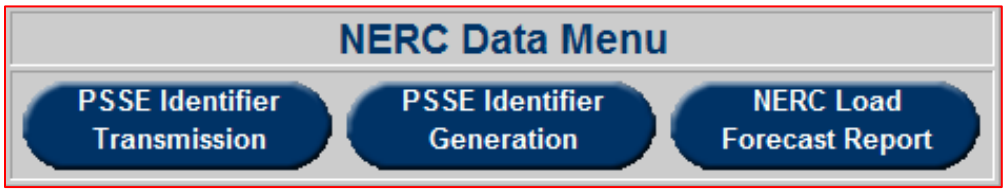


All fields on the **Add PSSE Identifier Transmission** window are mandatory. Select information from each drop down menu, including **Type**, **Station Name**, **Voltage**, and **Equipment Name**. Enter information in the PSSE Identifier fields **Station A**, **Station B**, and **ID**. Note that the character length of Station A and Station B must be exactly 18 and the ID length must be between 1 and 2.



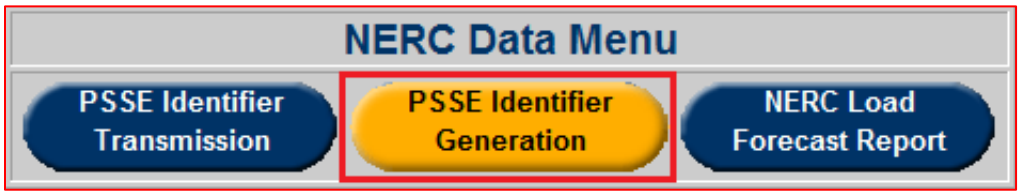
Station A and **Station B** denote the bus names where the line begins and ends, respectively. Sometimes there are multiple lines from one station to the next, thus the **ID** number identifies the specific line that is being referred to. An ID can be the same for several PSSE identifiers since several transmission types may be linked to the same equipment.

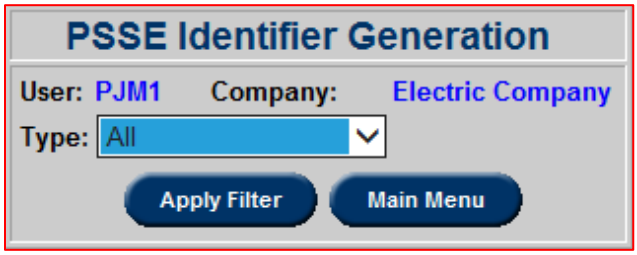
After the form has been submitted, the **Main Menu** button will go back to the **NERC Data Menu**.



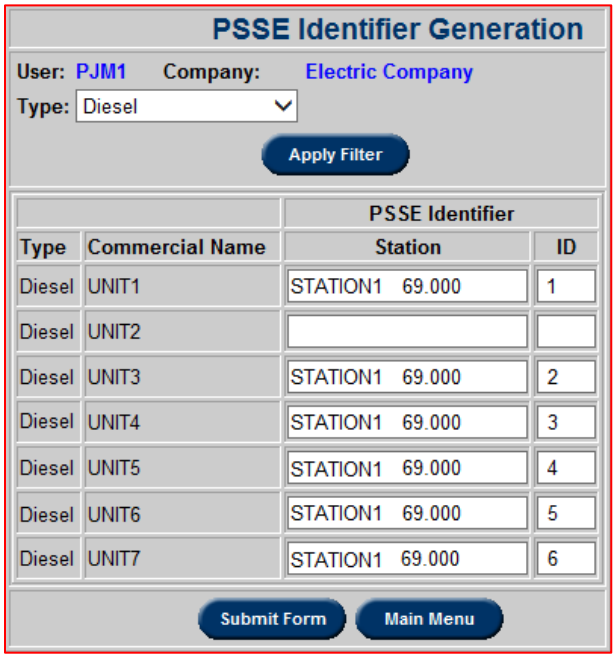
PSSE Identifier Generation

This is the capacity model to send Generator outages to NERC SDX. To search for a PSSE Identifier for generation, click the **PSSE Identifier Generation** button on the **NERC Data** Menu.





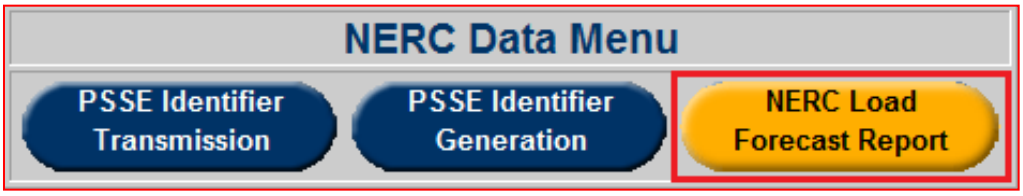
Select a **Type** from the dropdown menu, select **Apply Filter** and a list of PSSE's and the corresponding **Type**, **Commercial Name**, **Station** and **ID** will appear like the example below.



To modify data, change the information in open fields and click the **Submit Form** button. To find identifiers for other types, select another type from the **Type** drop down menu and click the **Apply Filter** button. To return to the **NERC Data Menu**, click the **Main Menu** button.

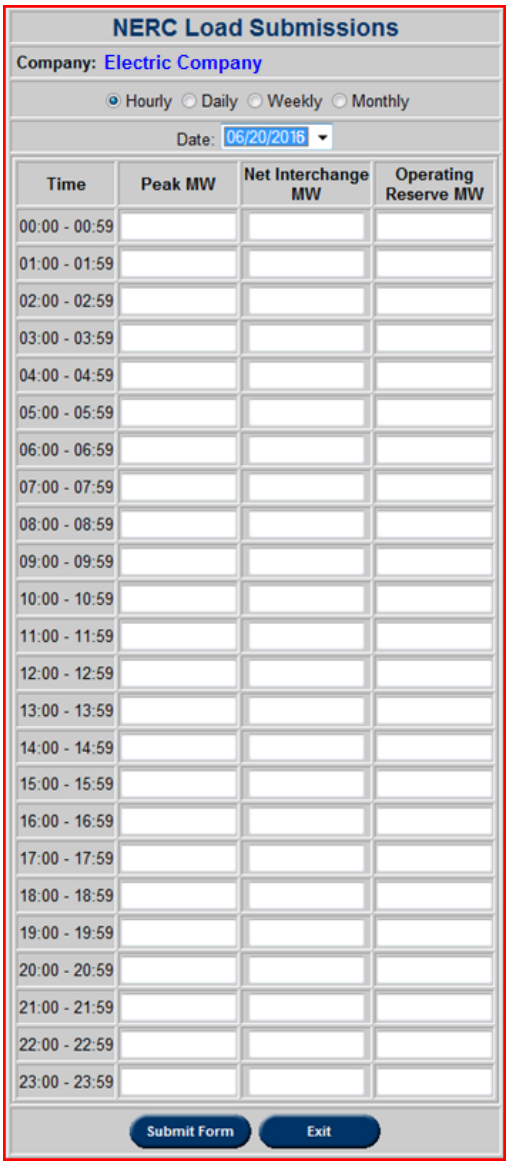
NERC Load Forecast Report

This functionality is only for cases where PJM asks Transmission Owners to manually provide load information instead of using the forecast. This is generally only used for a limited time such as aftermarket interactions or other special circumstances. This application transfers hourly, daily, weekly, and monthly forecast loads to SDX. To input data for or view the load forecast for today or several days in the future, select **NERC Load Forecast Report** button from the **NERC Data Menu.**



From the **NERC Load Submissions** button, select a radio button from Hourly, Daily, Weekly or Monthly. Next, select a date. This will produce a load submissions form. Enter any necessary information and click the **Submit Form** button. To close the **NERC Load Submissions** form, click the **Exit** button.

The following page provides a visual of the blank NERC Load Submissions form.



Facility Data – Retired 5/29/2019

Facility Data allowed TOs to update facility clearing times data. The data is to be used in PJM TSA (Transient Stability Analysis) tool for dynamic studies.

Retired as TSA has alternate sources for the required data.

Resources

In this section, users can find links to various eDART related PJM resources.

General eDART Questions: eDartHelp@pjm.com

eDART tool page and eDART Training presentations:
https://pjm.com/markets-and-operations/etools/edart
eDART User Guide: https://pjm.com/-/media/etools/edart/edart-user-guide.ashx
PJM Manuals: https://www.pjm.com/library/manuals.aspx

XML Documentation Page: http://www.pjm.com/pub/etools/edart/xmldocs/xmldoc.html
Dart Browserless User Guide:
https://www.pjm.com/-/media/etools/edart/dart-browserless-user-guide.ashx

eDART Forum and eDART XML Forum page:
https://pjm.com/committees-and-groups/forums/edart-forum
eDART Release Notes:
https://www.pjm.com/markets-and-operations/etools/edart/edart-release-notes
eDART FAQs https://learn.pjm.com/three-priorities/keeping-the-lights-on/~/link.aspx?_id=89127A31C2CB40568CB4EE85FD962F44&_z=z

Upcoming Changes: latest information about upcoming changes to PJM's websites and tools
https://www.pjm.com/markets-and-operations/etools/upcoming-changes

Tech Change Forum: attend monthly meetings to get latest details and provide feedback
https://www.pjm.com/committees-and-groups/forums/tech-change-forum

Tech Change Community: find answers, initiate discussions and collaborate with other users
https://www.pjm.com/markets-and-operations/etools/tech-change-community.aspx