

Queue Scope

Geospatial User Interface

“Take a Tour”

Prepared by:
PJM System Planning

The PJM Queue Scope tool (“Queue Scope”) is intended to provide Interconnection Customers and other interested parties (“Users”) with estimates of grid congestion at the given points of interconnection within the PJM footprint. Queue Scope is an informational tool and is not intended to be a substitute for actual interconnection studies conducted by PJM as part of the PJM interconnection process. Queue Scope results are not reflective of current PJM system conditions, and may not account for all study assumptions and considerations that would otherwise be considered in the formal interconnection study process. Queue Scope only addresses thermal impacts on the system and it does not include voltage, stability, or short circuit constraints. Queue Scope and the Queue Scope data is provided “as is” and PJM hereby disclaims all warranties, whether express, implied, statutory, or otherwise. PJM specifically disclaims all implied warranties of merchantability, fitness for a particular purpose, title, and non-infringement, and all warranties arising from course of dealing, usage, or trade practice. PJM makes no warranty of any kind that the data, or any products or results of its use, will meet Users or any other person’s requirements, operate without interruption, achieve any intended result, be compatible or work with any software, system or other services or be secure, accurate, complete, free of harmful code, or error free. PJM may also from time to time update, supplement or delete the information, services and/or the resources contained in this website and reserves the right to make such changes without prior notification. In no event will PJM be liable for any reason under any legal or equitable theory, including, but not limited to, breach of contract, tort (including negligence), strict liability, and otherwise, for any (a) consequential, incidental, indirect, exemplary, special, enhanced, or punitive damages, (b) increased costs, diminution in value, or lost business, production, revenues, or profits, (c) loss of goodwill or reputation, (d) use, inability to use, loss, interruption, delay, or recovery of any data or breach of data or system security, or (e) cost of replacement services, in each case regardless of whether User or any other persons were advised of the possibility of such losses or damages or such losses or damages were otherwise foreseeable. At any time, and for any lawful purpose, PJM may monitor, intercept, record and search any communications or data transiting or stored on Queue Scope. At PJM’s sole discretion, PJM may disclose pertinent information to the U.S. Government and its authorized representatives to protect the security of critical infrastructure and key resources, ensure information security, or to comply with any applicable law, regulation, legal process, or enforceable governmental request. Users expressly consent to the terms and conditions contained in this Disclaimer Notice. Users have no reasonable expectation of privacy regarding communications or data transiting or stored on Queue Scope. Unauthorized use of Queue Scope may be subject to criminal prosecution or civil proceedings.

Official Tool Name: **Queue Scope Geospatial UI**

DESCRIPTION: The screening tool enables users to evaluate placement of future generators even before formally entering the PJM interconnection process. The tool screens potential points of interconnection (POI) on the PJM system by assessing grid impacts based on the amount of MW injection or withdrawal at a given POI.

Tool Functionality

Capabilities

- Provides the ability to assess Injection and Withdrawal applications
- Leverages results from PJM TARA Generator Deliverability analysis
- Provides facility loading impacts and headroom (MW) by POI
- Provides map overlays for transmission facility loading, transmission lines, new service requests and generator deactivations
- 6000+ POI buses available to users within the PJM footprint
- Select between Transmission Planning or Queue/Cycle Study cases

Limitations

- No short circuit, voltage or stability analysis. Thermal overloads are the typical constraint.
- Currently limited to Summer Peak analysis. Future plans to include Light Load & Winter Peak analysis.

DESCRIPTION:

The following workflow covers how a user will generally interact with the Queue Scope application to run the generator POI analysis.

Workflow Overview

- **Disclaimer Notice**

- **User Inputs**

- Case Selection
- "Search By" Feature
- Transmission Owner
- Voltage
- Voltage Level
- Bus Name/Bus Number
- Operating Mode
- Select Buses for Study
- Selected Buses
- Run Study

- **Output Results**

- Evaluation Results
- Export Results

- **Additional Features**

- Navigate to Coordinates
- Pre-Loading Status Filter
- Congestion Overlay
- Transmission Lines
- Generator Deactivations
- New Service Requests

The screenshot shows the Queue Scope application interface. At the top, there is a search bar with filters for Case, Search by, Transmission owner, Voltage level, and Operating mode. Below the search bar is a map of the PJM footprint. A modal window titled "Queue Scope Disclaimer Notice" is open, displaying the following text:

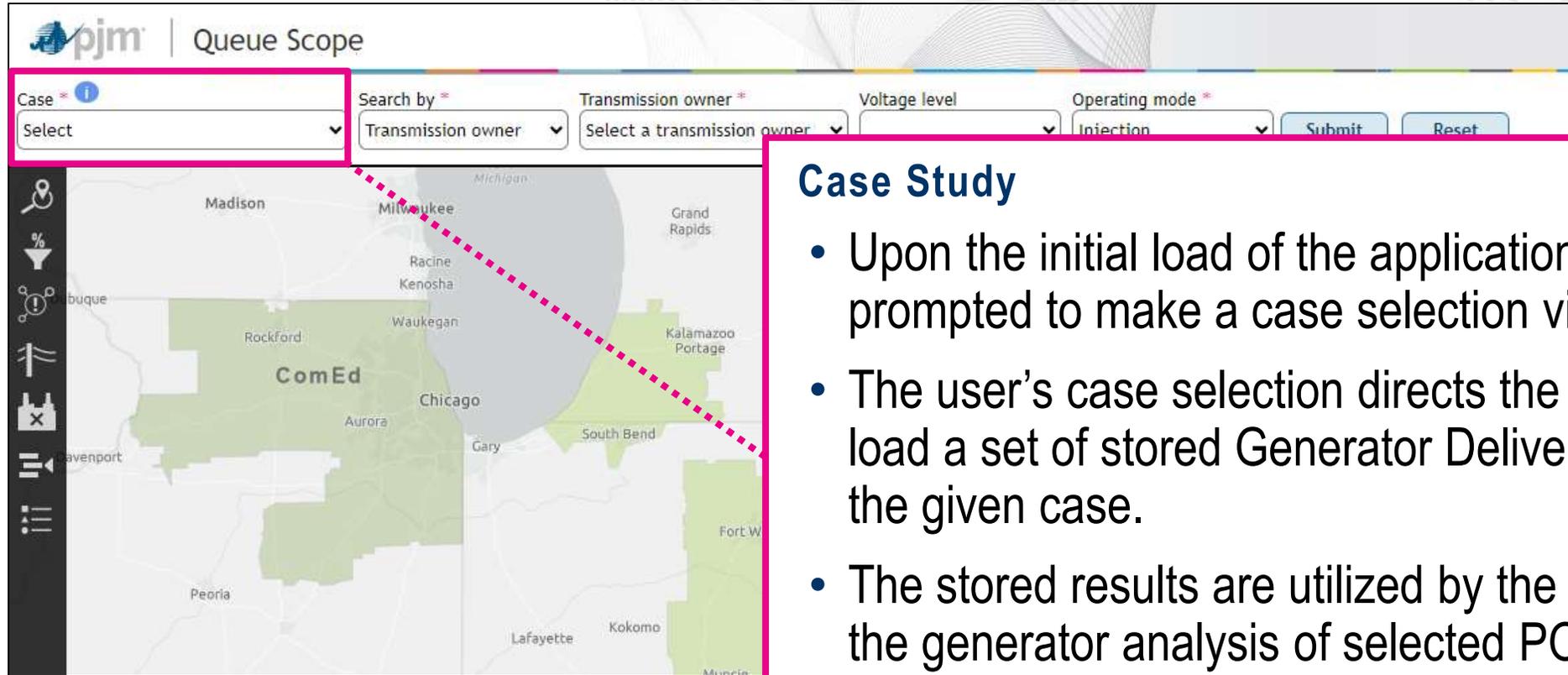
Queue Scope Disclaimer Notice

The PJM Queue Scope tool ("Queue Scope") is intended to provide Interconnection Customers and other interested parties ("Users") with estimates of grid congestion at the given points of interconnection within the PJM footprint. Queue Scope is an informational tool and is not intended to be a substitute for actual interconnection studies conducted by PJM as part of the PJM interconnection process. Queue Scope results are not reflective of current PJM system conditions, and may not account for all study assumptions and considerations that would otherwise be considered in the formal interconnection study process. Queue Scope only addresses thermal impacts on the system and it does not include voltage, stability, or short circuit constraints. Queue Scope and the Queue Scope data is provided "as is" and PJM hereby disclaims all warranties, whether express, implied, statutory, or otherwise. PJM specifically disclaims all implied warranties of merchantability, fitness for a particular purpose, title, and non-infringement, and all warranties arising from course of dealing, usage, or trade practice. PJM makes no warranty of any kind that the data, or any products or results of its use, will meet Users or any other person's requirements, operate without interruption, achieve any intended result, be compatible or work with any software, system or other services or be secure, accurate, complete, free of harmful code, or error free. PJM may also from time to time update, supplement or delete the information, services and/or the resources contained in this website and reserves the right to make such changes without prior notification. In no event will PJM be liable for any reason under any legal or equitable theory, including, but not limited to, breach of contract, tort (including negligence), strict liability, and otherwise, for any (a) consequential, incidental, indirect, exemplary, special, enhanced, or punitive damages, (b) increased costs, diminution in value, or lost business, production, revenues, or profits, (c) loss of goodwill or reputation, (d) use, inability to use, loss, interruption, delay, or recovery of any data or breach of data or system security, or (e) cost of replacement services, in each case regardless of whether User or any other persons were advised of the possibility of such losses or damages or such losses or damages were otherwise foreseeable. At any time, and for any lawful purpose, PJM may monitor, intercept, record and search any communications or data transiting or stored on Queue Scope. At PJM's sole discretion, PJM may disclose pertinent information to the U.S. Government and its authorized representatives to protect the security of critical infrastructure and key resources, ensure information security, or to comply with any applicable law, regulation, legal process, or enforceable governmental request. Users expressly consent to the terms and conditions contained in this Disclaimer Notice. Users have no reasonable expectation of privacy regarding communications or data transiting or stored on Queue Scope. Unauthorized use of Queue Scope may be subject to criminal prosecution or civil proceedings.

At the bottom of the disclaimer notice, there are two buttons: "Disagree" and "Agree".

Disclaimer Notice

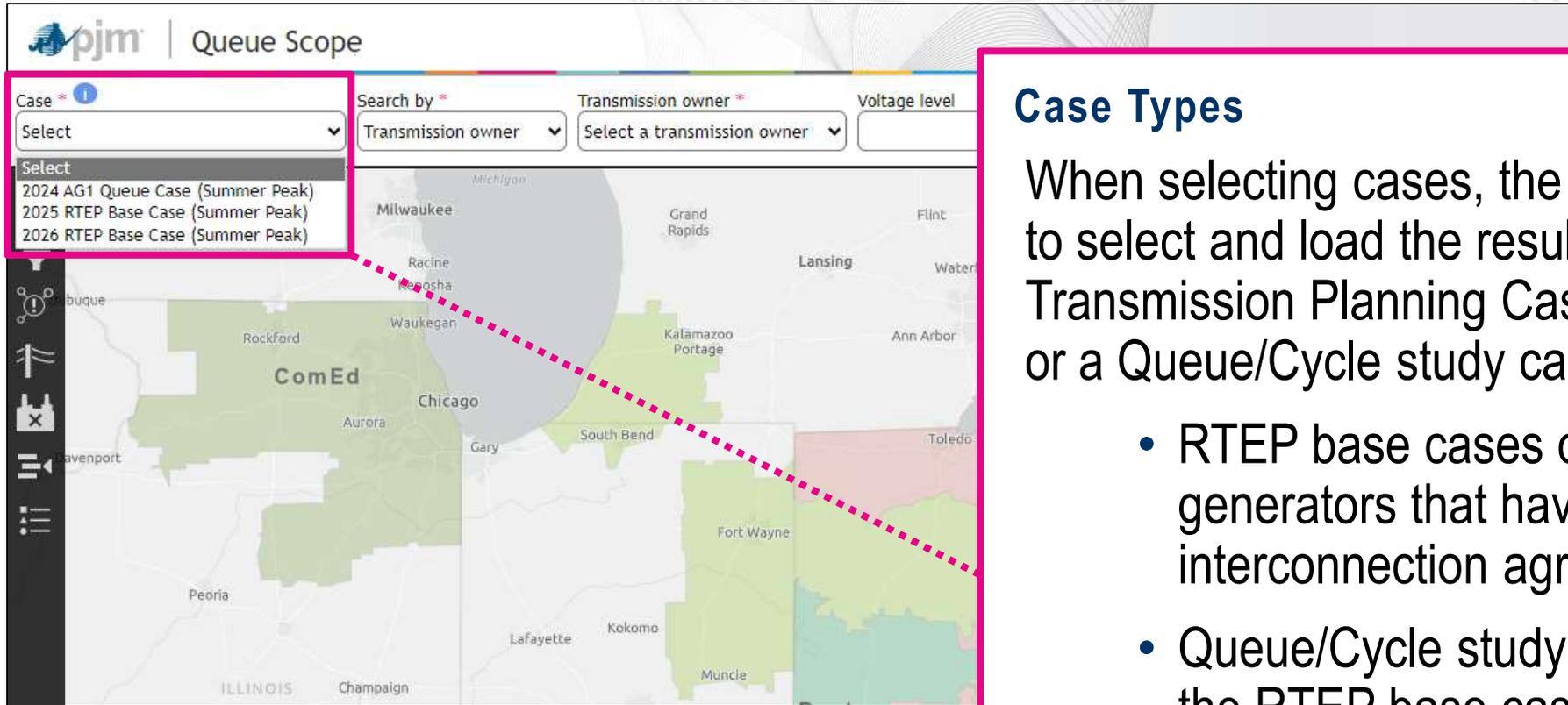
Upon opening the application, the user is required to read and agree to the disclaimer notice loading the full application and performing the screening analysis.



Case Study

- Upon the initial load of the application, the user is prompted to make a case selection via a drop down.
- The user's case selection directs the application to load a set of stored Generator Deliverability results for the given case.
- The stored results are utilized by the application for the generator analysis of selected POI(s).

Note: Once the user selects a case, provides the desired generator input parameters, and selects the desired POI buses, all of the inputs and selections made within the application will be reset if a different case is then loaded.



Queue Scope

Case * 1
 Select
 2024 AG1 Queue Case (Summer Peak)
 2025 RTEP Base Case (Summer Peak)
 2026 RTEP Base Case (Summer Peak)

Search by *
 Transmission owner
 Transmission owner *
 Select a transmission owner

Voltage level

Map showing regional areas including ComEd, Chicago, and various cities like Milwaukee, Grand Rapids, and Ann Arbor.

Case Types

When selecting cases, the user has the option to select and load the results from a Transmission Planning Case (RTEP base case) or a Queue/Cycle study case.

- RTEP base cases only include generators that have a fully executed interconnection agreement.
- Queue/Cycle study cases are based on the RTEP base case, plus all active generators under study within the queue/cycle.

Queue Scope

Case * i
Select

Search by *
Transmission owner *
Transmission owner
Bus name/Bus number

Transmission owner *
Select a transmission owner

Voltage level

Operating mode *
Injection

Submit Reset

Map labels: Madison, Racine, Kenosha, Waukegan, Rockford, Chicago, Aurora, Gary, South Bend, Toledo, Fort Wayne, Muncie, Kokomo, Lafayette, Peoria, Champaign, ILLINOIS, Grand Rapids, Lansing, Flint, Waterford, Ann Arbor, Detroit, Chatham, Toledo, Erie, Hamilton, Brantford, St. Catharines, Buffalo.

Search by
After Case Selection, the user has the option to search for POI buses by either selecting a Transmission Owner within PJM, or if known, a Bus Name or Bus Number.

Transmission Owner

- If “Search by Transmission Owner” is selected, the user will then select a desired Transmission Owner area to evaluate POIs.
- Selecting transmission owner pre-filters the available buses that the user can search and select for the generator POI analysis.



Queue Scope

Case * 2025 RTEP Base Case (Summer Peak)

Search by * Transmission owner

Transmission owner * PENELEC

Voltage level

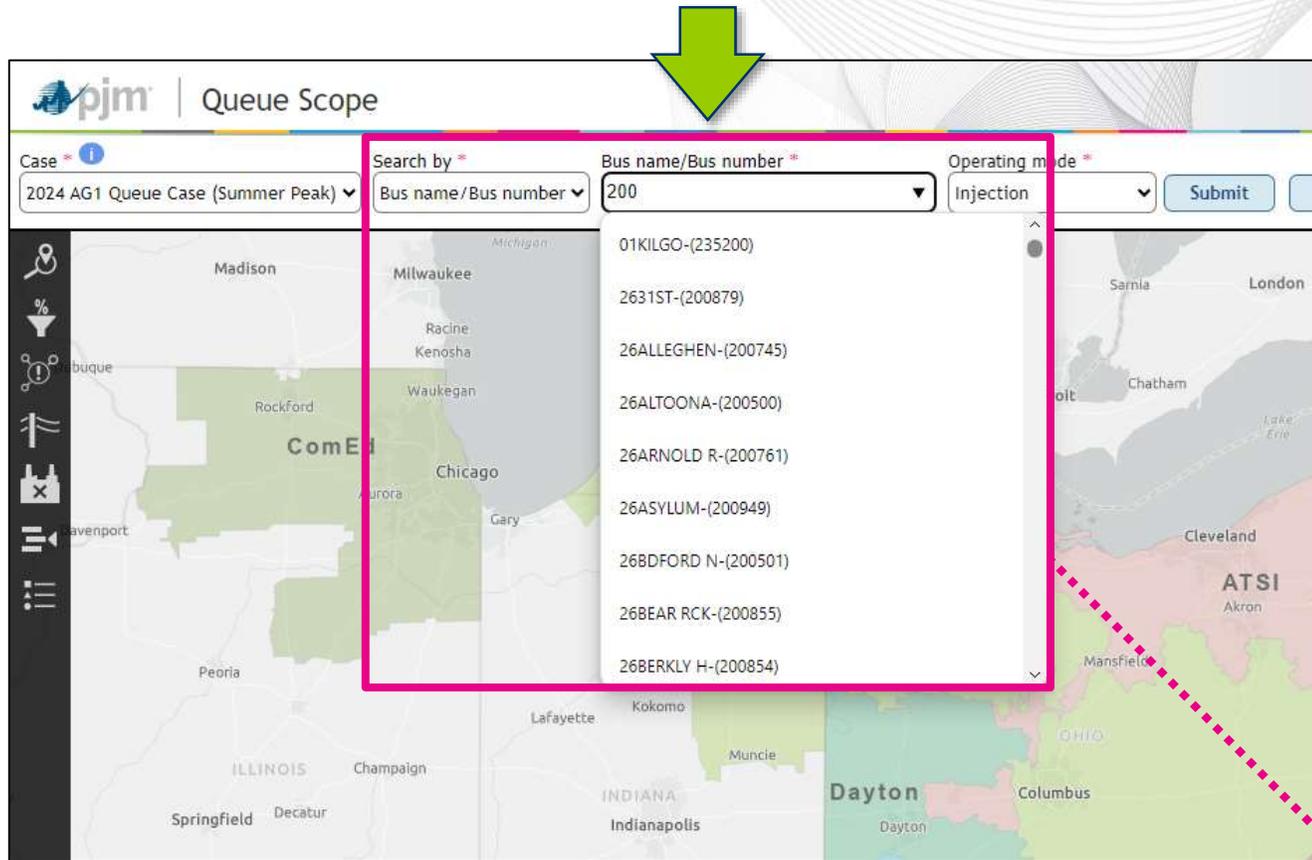
- All
- 115 kV
- 138 kV
- 230 kV
- 345 kV
- 500 kV

Operating mode * Injection

Submit Reset

Voltage Level

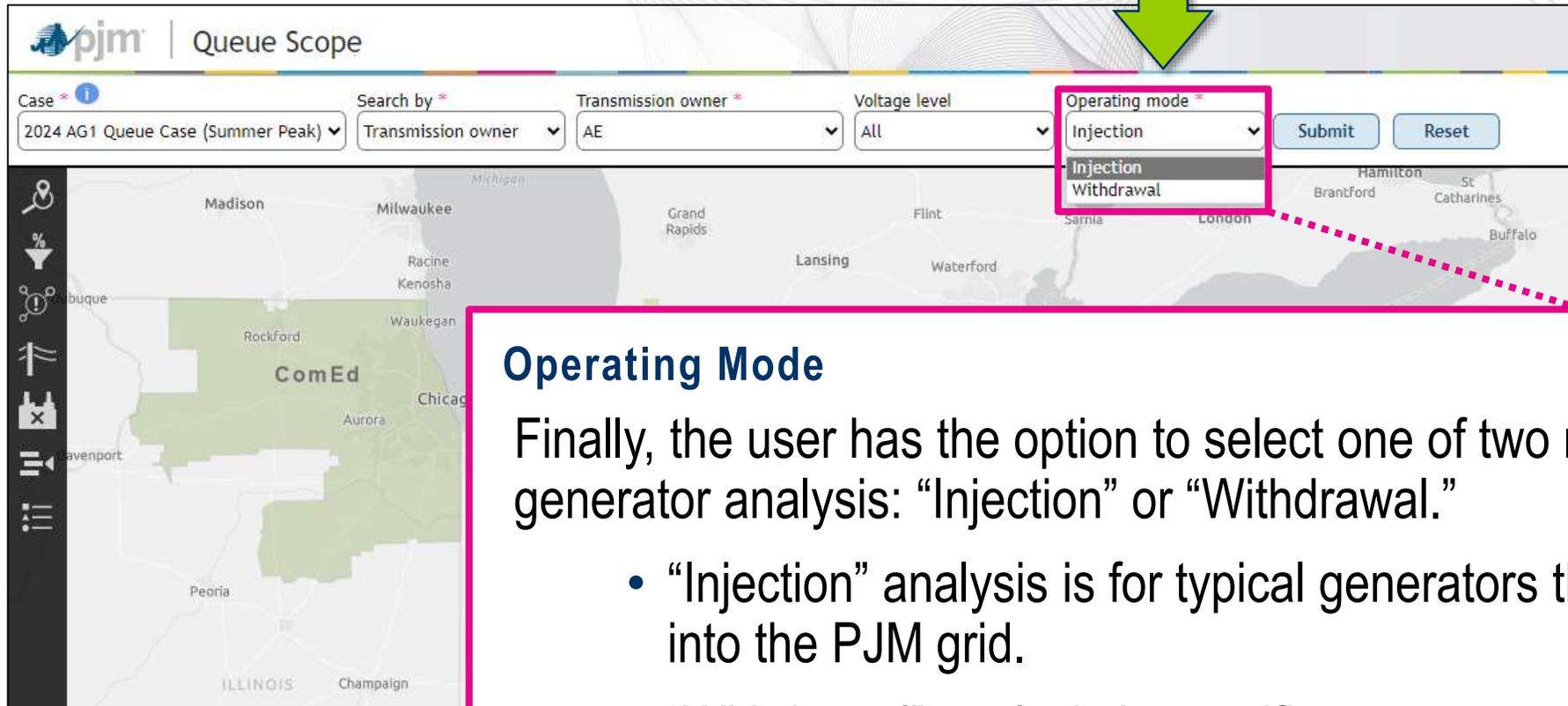
Next, the user has the option to select a specific voltage level in the selected “Transmission Owner” area to further pre-filter the available buses for the generator POI analysis.



Bus Name/Bus Number

- If “Bus Name/Bus Number” is selected, the user can input a bus name or bus number in the corresponding field, which will then query the available buses in the case dataset.
- For assistance, once the user starts typing in a portion of the bus name/number, a predictive search feature will populate a list of possible matches as the user continues to type.

NOTE: The user can only select a single bus using this search feature.



Queue Scope

Case: 2024 AG1 Queue Case (Summer Peak) | Search by: Transmission owner | Transmission owner: AE | Voltage level: All | Operating mode: Injection

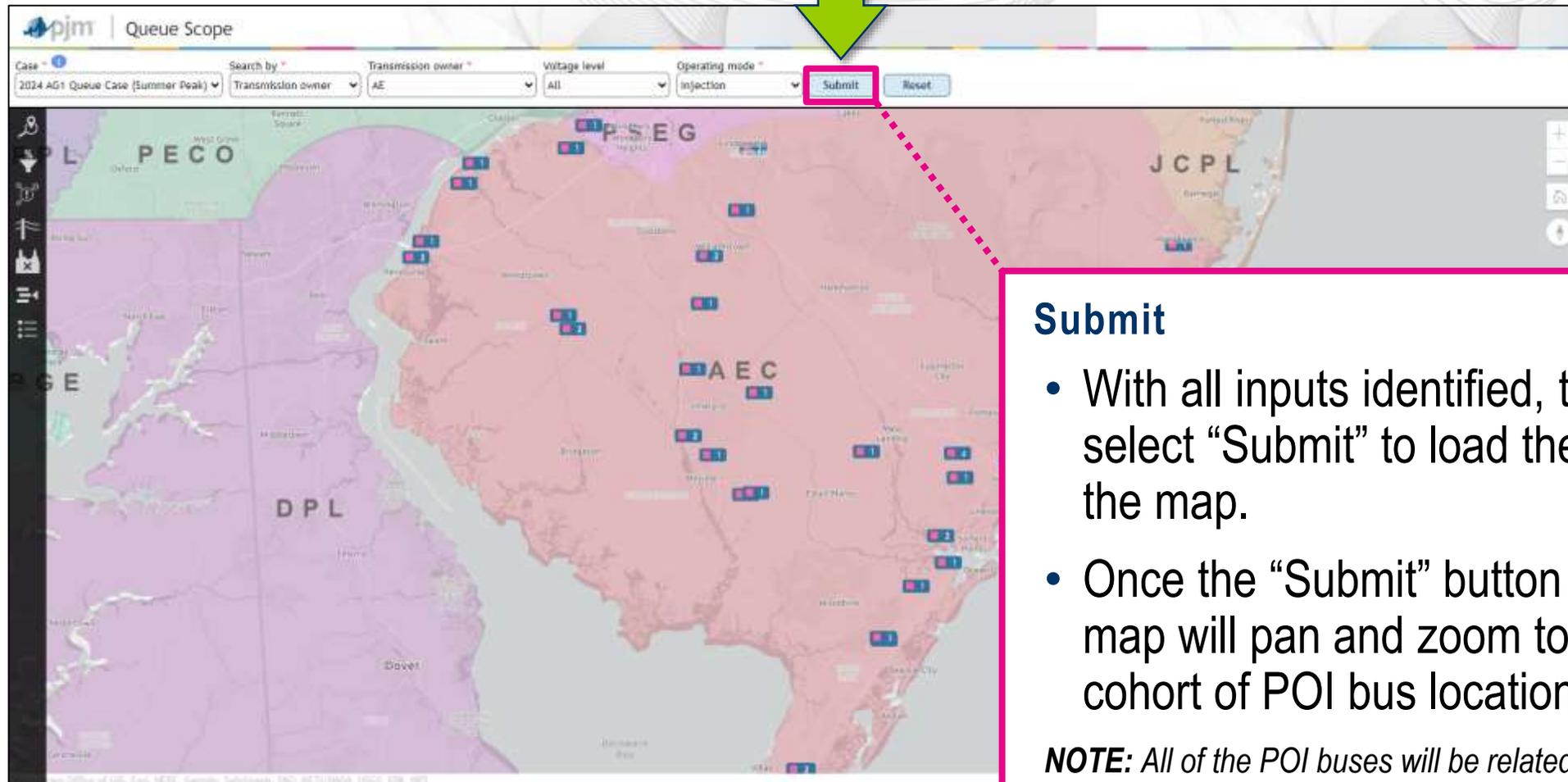
Submit | Reset

Operating mode options: Injection, Withdrawal

Operating Mode

Finally, the user has the option to select one of two modes for the generator analysis: “Injection” or “Withdrawal.”

- “Injection” analysis is for typical generators that are injecting MWs into the PJM grid.
- “Withdrawal” analysis is specific to generators that have a load/withdrawal component and are pulling MWs from the PJM grid (e.g., batteries, pumped hydro, MTX).



Submit

- With all inputs identified, the user must select “Submit” to load the POI buses in the map.
- Once the “Submit” button is selected, the map will pan and zoom to the desired cohort of POI bus locations.

NOTE: All of the POI buses will be related to a location in the map, which in most cases will be an existing substation.

Select Buses to Study

Select buses to add them to the study queue.

<input type="checkbox"/>	Bus Name (Bus #)	Pre-Loading (%)
<input type="checkbox"/>	INDRIV_4 230 KV (232006)	202.9
<input type="checkbox"/>	INDRV_AT20 138 KV (232139)	202.9
<input type="checkbox"/>	INDRV_AT22 138 KV (232140)	202.9

Add

Substation name: INDIANRI
 Transmission owner: DP&L
 Number of buses: 4

Select Buses to Study

After submitting the generator POI analysis, substation symbols with the associated POI buses will be visible in the map.

- The user is able to select any symbol to review the buses at that location and add to a new study for a generator interconnection.

The screenshot shows the Queue Scope application interface. At the top, there are search filters for Case (2024 AG1 Queue Case (Summer Peak)), Search by (Transmission owner), Transmission owner (DP&L), Voltage level (All), and Operating mode (Injection). Below the filters is a map of the PJM region with various utility territories labeled (PENELEC, PPL, PECO, PSEG, JCPL, AEC, APS, E). A 'Select Buses to Study' window is open over the map, showing a table of selected buses. A 'Selected Buses' window is also open, showing a table of the selected buses and a 'Desired MW' input field.

Selected Buses		
Maximum of 25		
<input type="checkbox"/>	Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/>	INDRV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/>	INDRV_AT20 138 KV (232139)	202.9
<input checked="" type="checkbox"/>	INDRV_AT22 138 KV (232140)	202.9
<input checked="" type="checkbox"/>	INDRV2&3 138 KV (232121)	202.9

Selected Buses

Once the “Add” button is selected by the user, a “Selected Buses” window will appear in the user-interface.

NOTE: A maximum of 25 buses may be selected for the study.

The screenshot shows the Queue Scope application interface. At the top, there are filters for Case (2024 AG1 Queue Case (Summer Peak)), Search by (Transmission owner), Transmission owner (DPRL), Voltage level (All), and Operating mode (Injection). Below the filters is a map of the PJM region with various utility territories labeled (PENELEC, PPL, PECO, PSEG, JCPL, A.F.C., APS, etc.). Two windows are overlaid on the map:

- Select Buses to Study:** A window with a table listing buses to be added to the study queue.

<input checked="" type="checkbox"/>	Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/>	INDRV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/>	INDRV_AT20 138 KV (232139)	202.9
- Selected Buses:** A window showing a list of selected buses with a table.

<input checked="" type="checkbox"/>	Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/>	INDRV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/>	INDRV_AT20 138 KV (232139)	202.9
<input checked="" type="checkbox"/>	INDRV_AT22 138 KV (232140)	202.9
<input checked="" type="checkbox"/>	INDRV2&3 138 KV (232121)	202.9

 Below the table is a text input field for "Desired MW" with the value "200" entered. At the bottom right of this window is a "Run Study" button.

Run Study

- In the “Selected Buses” window, users will be able to enter the desired MWs for the generator based on injection or withdrawal and then select the final set of POI buses to include in the study.
- The user can then select “Run Study” to generate evaluation results.

pjm | Queue Scope

Case: 2024 AG1 Queue Case (Summer Peak) | Search by: Transmission owner | Transmission owner: DP&L | Voltage level: All | Operating mode: Injection | Submit Reset

Select Buses to Study

Select buses to add them to the study queue.

Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/> INDRIV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/> INDRV_AT20 138 KV (232139)	202.9
<input checked="" type="checkbox"/> INDRV_AT22 138 KV (232140)	202.9

Selected Buses Maximum of 25

Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/> INDRIV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/> INDRV_AT20 138 KV (232139)	202.9
<input checked="" type="checkbox"/> INDRV_AT22 138 KV (232140)	202.9
<input checked="" type="checkbox"/> INDRV2&3 138 KV (232121)	202.9

Desired MW: 200

Close Run Study

Evaluation Results

INDRIV 4 230 KV (232006) Remove Bus Export

Search in all columns

Transmission Facility	Contingency Type	Available (MW)	DFax	Impact (MW)	Pre-Loading (%)	Post-Loading (%)
232107 TOWNSEND 138 232106 MIDLTNTP 138 1	Tower	0	0.181	36.2	202.87	213.27
227955 CEDAR 230 206302 28OYSTER C 230 1	Breaker	0	0.029	5.8	199.38	200.41
232100 CHURCH 138 232107 TOWNSEND 138 1	Tower	0	0.181	36.2	194.29	204.69
232003 CARTANZA 230 232013 SILVER RUN 230 1	Tower	0	0.358	71.6	186.68	195.74
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Tower	0	0.451	90.2	178.43	191.73
232004 MILF_230 230 232000 STEELE 230 1	Breaker	0	0.352	70.4	178.18	190.96
232106 MIDLTNTP 138 232104 MT PLSNT 138 1	Tower	0	0.181	36.2	177.4	187.80
232004 MILF_230 230 232000 STEELE 230 1	Tower	0	0.323	64.6	174.21	185.96
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Breaker	0	0.613	122.6	165	183.08
232234 TODD 69 0 232233 PRESTON 69 0 1	Breaker	0	0.041	8.2	159.38	168.20

Showing 1 to 10 of 1116 rows

Prev: 1 2 3 4 5 Next

Close

Evaluation Results

Interconnection study evaluation results are generated in a table.

Queue Scope

Case: 2024 AG1 Queue Case (Summer Peak) | Search by: Transmission owner | Transmission owner: DP&L | Voltage level: All | Operating mode: Injection

Select Buses to Study

Bus Name (Bus #)	Pre-Loading (%)
INDRIV 4 230 KV (232006)	202.9
INDRV_AT20 138 KV (232139)	202.9
INDRV_AT22 138 KV (232140)	202.9

Selected Buses (Maximum of 25)

Bus Name (Bus #)	Pre-Loading (%)
INDRIV 4 230 KV (232006)	202.9
INDRV_AT20 138 KV (232139)	202.9
INDRV_AT22 138 KV (232140)	202.9
INDRV2&3 138 KV (232121)	202.9

Evaluation Results

Transmission Facility: INDRIV 4 230 KV (232006) | Contingency Type: All

Transmission Facility	Contingency Type	Available (MW)	DFax	Impact (MW)	Pre-Loading (%)	Post-Loading (%)
232107 TOWNSEND 138 232106 MIDLTNTP 138 1	Tower	0	0.181	36.2	202.97	213.27
227955 CEDAR 230 206302 28OYSTER C 230 1	Breaker	0	0.029	5.8	199.38	200.41
232100 CHURCH 138 232107 TOWNSEND 138 1	Tower	0	0.181	36.2	194.29	204.69
232003 CARTANZA 230 232013 SILVER RUN 230 1	Tower	0	0.358	71.6	186.68	195.74
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Tower	0	0.451	90.2	178.43	191.73
232004 MILF_230 230 232000 STEELE 230 1	Breaker	0	0.352	70.4	178.18	190.96
232106 MIDLTNTP 138 232104 MT PLSNT 138 1	Tower	0	0.181	36.2	177.4	187.80
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232234 TODD 69 0 232233 PRESTON 69 0 1	Breaker	0	0.041	8.2	159.38	168.20

Showing 1 to 10 of 1116 rows

POI Filter & Sorting

Users have the ability to filter and sort the evaluation results by the POI buses in the output.

The screenshot displays the 'Queue Scope' application interface. At the top, there are filters for Case (2024 AG1 Queue Case (Summer Peak)), Search by (Transmission owner), Transmission owner (DP&L), Voltage level (All), and Operating mode (Injection). A map of the region shows various transmission facilities. Two pop-up windows are visible: 'Select Buses to Study' and 'Evaluation Results'. The 'Evaluation Results' window shows a table of transmission facilities with columns for Contingency Type, Available (MW), DFax, Impact (MW), Pre-Loading (%), and Post-Loss (MW). A red dashed box highlights the 'Transmission Facility' column in the table.

Transmission Facility	Contingency Type	Available (MW)	DFax	Impact (MW)	Pre-Loading (%)	Post-Loss (MW)
232107 TOWNSEND 138 232106 MIDLTNTP 138 1	Tower	0	0.181	36.2	202.87	213.27
227955 CEDAR 230 206302 28OYSTER C 230 1	Breaker	0	0.029	5.8	199.38	200.41
232100 CHURCH 138 232107 TOWNSEND 138 1	Tower	0	0.181	36.2	194.29	204.69
232003 CARTANZA 230 232013 SILVER RUN 230 1	Tower	0	0.358	71.6	186.68	195.74
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Tower	0	0.491	98.2	176.43	191.73
232004 MILF_230 230 232000 STEELE 230 1	Breaker	0	0.352	70.4	176.18	190.66
232106 MIDLTNTP 138 232104 MT PLSNT 138 1	Tower	0	0.181	36.2	177.4	187.80
232004 MILF_230 230 232000 STEELE 230 1	Tower	0	0.323	64.6	174.21	185.96
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Breaker	0	0.613	122.6	165	183.08
232234 TODD 69 0 232233 PRESTON 69 0 1	Breaker	0	0.041	8.2	159.38	168.20

Transmission Facility

Users also have the ability to filter and sort the evaluation results by the name of the transmission facilities.

The screenshot displays the PJM Queue Scope interface. At the top, there are filters for Case (2024 AG1 Queue Case (Summer Peak)), Search by (Transmission owner), Transmission owner (DP&L), Voltage level (All), and Operating mode (Injection). A map shows the study area with various transmission facilities marked. A 'Select Buses to Study' dialog is open, showing a list of buses with their names and pre-loading percentages. The 'Evaluation Results' table is the central focus, showing a list of transmission facilities with columns for Contingency Type, Available (MW), DFax, Impact (MW), Pre-Loading (%), and Post-Loading. A callout box highlights the 'Contingency Type' column, which includes a dropdown menu set to 'All' and a list of contingency types: Tower, Breaker, Tower, Tower, Tower, Breaker, Tower, Tower, Breaker, Breaker, and Breaker.

Transmission Facility	Contingency Type	Available (MW)	DFax	Impact (MW)	Pre-Loading (%)	Post-Loading
232107 TOWNSEND 138 232106 MIDLTNTP 138 1	Tower	0	0.181	36.2	202.87	213.27
227955 CEDAR 230 206302 280YSTER C 230 1	Breaker	0	0.029	5.8	199.38	200.41
232100 CHURCH 138 232107 TOWNSEND 138 1	Tower	0	0.181	36.2	194.29	204.69
232003 CARTANZA 230 232013 SILVER RUN 230 1	Tower	0	0.358	71.6	186.68	195.74
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Tower	0	0.451	90.2	178.43	191.73
232004 MILF_230 230 232000 STEELE 230 1	Breaker	0	0.352	70.3	178.18	190.96
232106 MIDLTNTP 138 232104 MT PLSNT 138 1	Tower	0	0.181	36.2	174.4	187.80
232004 MILF_230 230 232000 STEELE 230 1	Tower	0	0.323	64.6	174.21	185.96
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Breaker	0	0.613	122.6	165	183.06
232234 TODD 69 0 232233 PRESTON 69 0 1	Breaker	0	0.041	8.2	159.38	168.20

Contingency Type

Users also have the ability to filter and sort the evaluation results by Contingency Type (i.e., Tower, Breaker, etc.)

The screenshot displays the Queue Scope application interface. At the top, there are filters for Case (2024 AG1 Queue Case (Summer Peak)), Search by (Transmission owner), Transmission owner (DP&L), Voltage level (All), and Operating mode (Injection). A map of the region shows various transmission facilities and buses. A 'Select Buses to Study' dialog is open, showing a list of buses with checkboxes and pre-loading percentages. An 'Evaluation Results' dialog is also open, showing a table of results for a selected bus (INDRIV 4 230 KV (232006)). The table includes columns for Transmission Facility, Contingency Type, Available (MW), DFax, Impact (MW), Pre-Loading (%), and Post-Loading (%). A callout box highlights the table controls (minimize, maximize, close) in the top right corner of the table.

Selected Buses (Maximum of 25)

<input type="checkbox"/>	Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/>	INDRIV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/>	INDRV_AT20 138 KV (232139)	202.9
<input checked="" type="checkbox"/>	INDRV_AT22 138 KV (232140)	202.9
<input checked="" type="checkbox"/>	INDRV2&3 138 KV (232121)	202.9

Evaluation Results

INDRIV 4 230 KV (232006) [Remove Bus]

Search in all columns

Transmission Facility	Contingency Type	Available (MW)	DFax	Impact (MW)	Pre-Loading (%)	Post-Loading (%)
232107 TOWNSEND 138 232106 MIDLTNTP 138 1	Tower	0	0.181	36.2	202.87	213.27
227955 CEDAR 230 206302 28OYSTER C 230 1	Breaker	0	0.029	5.8	199.38	200.41
232100 CHURCH 138 232107 TOWNSEND 138 1	Tower	0	0.181	36.2	194.29	204.69
232003 CARTANZA 230 232013 SILVER RUN 230 1	Tower	0	0.358	71.6	186.68	195.74
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Tower	0	0.451	90.2	178.43	191.73
232004 MILF_230 230 232000 STEELE 230 1	Breaker	0	0.352	70.4	178.18	190.96
232106 MIDLTNTP 138 232104 MT PLSNT 138 1	Tower	0	0.181	36.2	177.4	187.80
232004 MILF_230 230 232000 STEELE 230 1	Tower	0	0.323	64.6	174.21	185.96
232002 CEDAR CK 230 232013 SILVER RUN 230 1	Breaker	0	0.613	122.6	165	183.08
232234 TODD 69 0 232233 PRESTON 69 0 1	Breaker	0	0.041	8.2	159.38	168.20

Showing 1 to 10 of 1116 rows

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Table Controls: [Minimize] [Maximize] [Close]

Table Controls
 Finally, users can minimize, expand, dock or close the evaluation results on demand to support additional browsing and analysis.

The screenshot shows the Queue Scope application interface. At the top, there are filters for Case (2024 AG1 Queue Case (Summer Peak)), Search by (Transmission owner), Transmission owner (DP&L), Voltage level (All), and Operating mode (Injection). Below these are 'Submit' and 'Reset' buttons. A map of the PJM region is displayed in the background, with several buses marked with red and blue icons. In the foreground, there are three main panels:

- Select Buses to Study:** A dialog box with a table of buses to be added to the study queue.

Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/> INDRIV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/> INDRV_AT20 138 KV (232139)	202.9
<input checked="" type="checkbox"/> INDRV_AT22 138 KV (232140)	202.9
- Selected Buses:** A panel on the right showing a list of selected buses.

Bus Name (Bus #)	Pre-Loading (%)
<input checked="" type="checkbox"/> INDRIV 4 230 KV (232006)	202.9
<input checked="" type="checkbox"/> INDRV_AT20 138 KV (232139)	202.9
<input checked="" type="checkbox"/> INDRV_AT22 138 KV (232140)	202.9
<input checked="" type="checkbox"/> INDRV2&3 138 KV (232121)	202.9
- Evaluation Results:** A panel at the bottom showing a dropdown menu with 'INDRIV 4 230 KV (232006)' selected, a 'Remove Bus' button, and a search field. Below this is a table of bus IDs (232107, 227955, 232100, 232003, 232002, 232004, 232106, 232004, 232002, 232234, 232234) and a 'Showing' indicator.

The 'Export' button in the Evaluation Results panel is highlighted with a red box and a red dashed line pointing to the text box below.

Evaluation Results

- For further analysis, users can export the results to an Excel file (.xls).
- The exported file contains a separate sheet for each POI bus evaluation.

NOTE: Users will be required to re-acknowledge the application disclaimer before the download begins.

Navigate to Coordinates

- This feature allows users to pan and zoom to a specific location within the PJM footprint using a decimal degree latitude/longitude format.
- Once the user pans and zooms to a location, the user will be able to select the applicable transmission owner area to view and select POI buses in the local vicinity of the entered coordinate location.

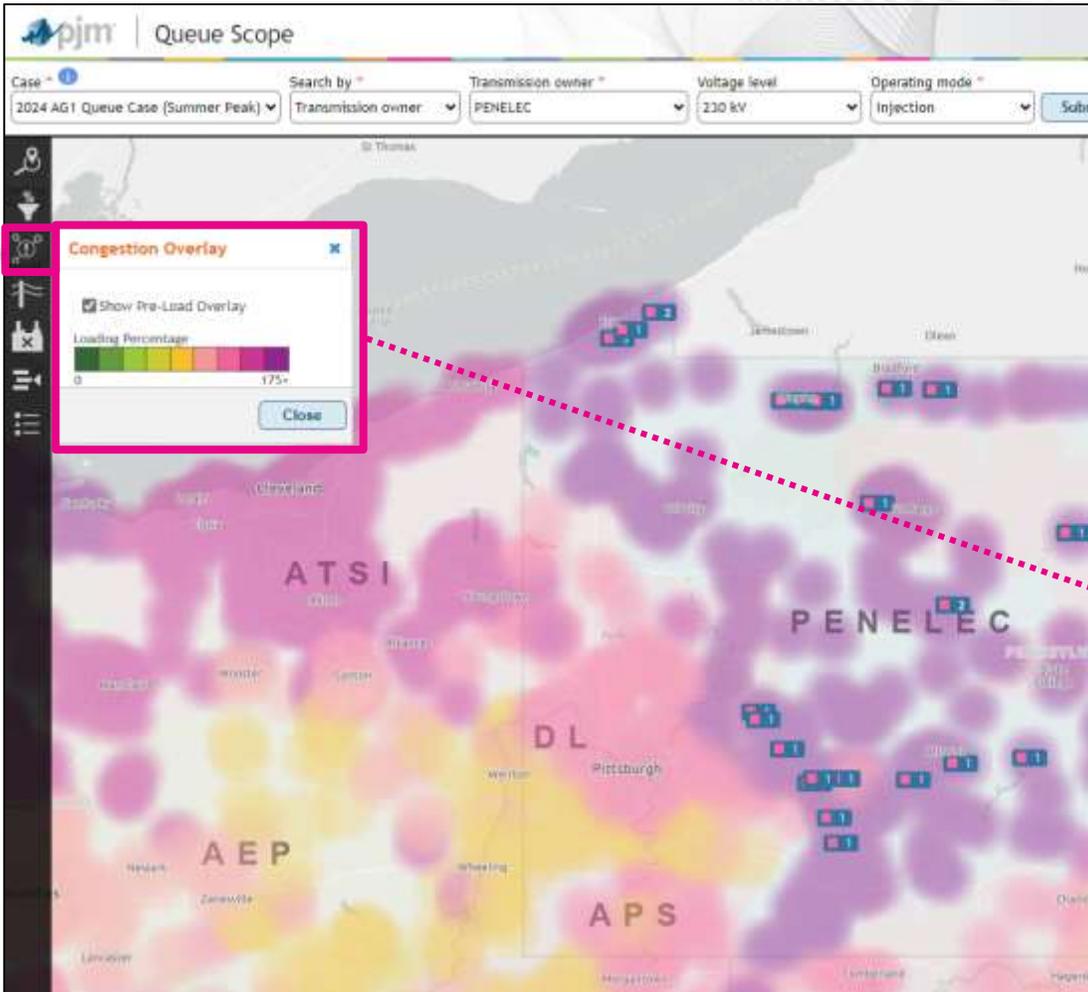
The screenshot shows the PJM Queue Scope interface. At the top, there are search filters for Case, Search by, Transmission owner, Voltage level, and Operating mode. Below these is a map of the Midwest region. A green arrow points to the Pre-Loading Status Filter dialog box, which is highlighted with a pink border. The dialog box contains the following options:

- Status
 - 100%+
 - 90-100%
 - 0-90%
- Custom
 - From: 0 %
 - To: 100 %

Buttons for 'Reset' and 'Close' are located at the bottom of the dialog box.

Pre-Loading Status Filter

- This feature provides the user with a combined legend and filter for substation/POI bus pre-loading (%) and the corresponding color.
- The filtering capability allows users to filter substation/POI bus symbols based on three pre-loading (%) ranges or via the use of a custom defined loading range.



Congestion Overlay

- The overlay provides the user with the ability to visualize the facility loading at each substation/POI bus across the entire PJM footprint based on the selected case dataset.
- This visualization (often referred to as a heat map) can provide an indication on available transmission headroom across the PJM footprint and also give an indication on the severity of facility thermal loading based on generator impacts within a study.
- This overlay is not related to the market-based definition of grid congestion based on energy prices, etc. This overlay is only based on transmission facility loading.

Note: Due to the volume of POI buses in the case dataset (6k+), it may take 5–10 seconds or more until the overlay is rendered and visible to the users. This is due to the processing time required for the size of the dataset and rendering within the web based application. Once the overlay is rendered, it can be toggled OFF and ON without a noticeable delay in processing.

Case ⁱ Search by * Transmission owner * Voltage level Operating mode *

Select Transmission owner Select a transmission owner Injection Submit Reset

kV Filter

<input checked="" type="checkbox"/> All	<input checked="" type="checkbox"/> 230
<input checked="" type="checkbox"/> 69	<input checked="" type="checkbox"/> 345
<input checked="" type="checkbox"/> 115	<input checked="" type="checkbox"/> 500
<input checked="" type="checkbox"/> 120	<input checked="" type="checkbox"/> 765
<input checked="" type="checkbox"/> 138	<input checked="" type="checkbox"/> HVDC
<input checked="" type="checkbox"/> 161	

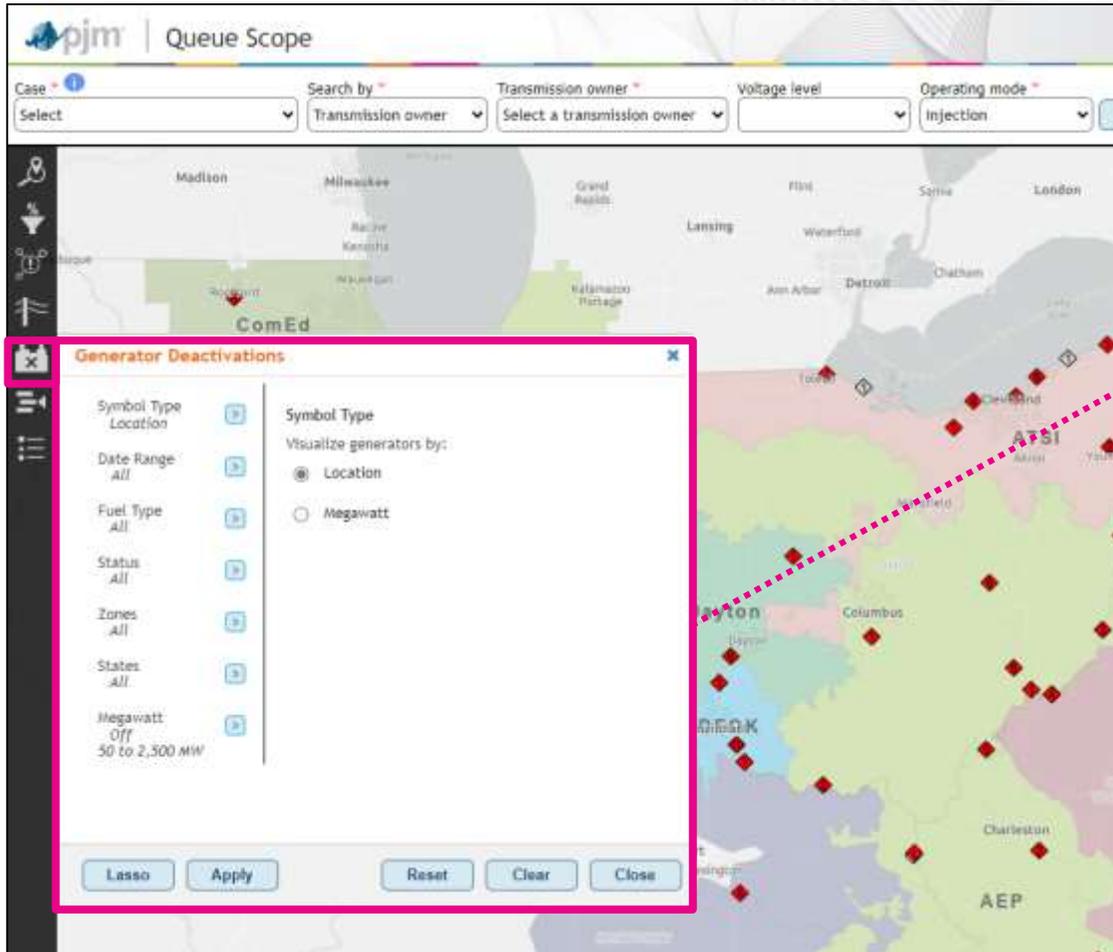
Close

Transmission Lines

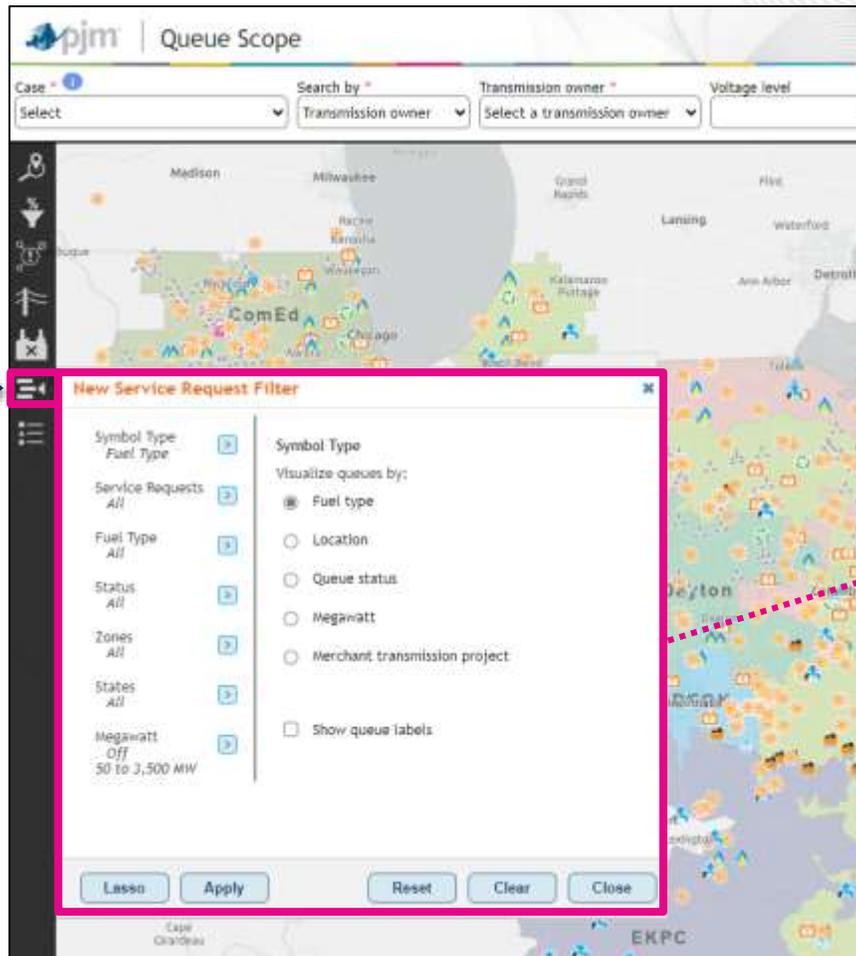
- The kV (i.e., Transmission Lines) filter allows users to load a layer of all the transmission lines within the PJM footprint.
- The filtering option allows users to filter by voltage class and provides an overview on the corresponding line coloring by voltage class.

Generator Deactivation Filter

- This filter will allow users to display future deactivations, deactivated generators and withdrawn deactivations while using the geospatial application to assess potential generator impacts at various points of interconnection.
- As shown below, there are various filtering options based on date of the request/event, fuel type, status, location and size.
- A legend is also available at the bottom of the left-hand navigation menu, which provides an overview on all of the generator deactivation symbols and coloring.



The screenshot shows the 'Queue Scope' application interface. At the top, there are search and filter options for 'Case', 'Transmission owner', 'Voltage level', and 'Operating mode'. Below this is a map of the Midwest region with various cities and utility areas labeled. A 'Generator Deactivations' filter panel is overlaid on the map, containing several dropdown menus for filtering by Date Range, Fuel Type, Status, Zones, States, and Megawatt. The 'Visualize generators by:' section has two radio buttons: 'Location' (selected) and 'Megawatt'. At the bottom of the panel are buttons for 'Lasso', 'Apply', 'Reset', 'Clear', and 'Close'. A green arrow points to the filter panel from the left.



New Service Request Filter

- The New Service Request filter will allow users to display all types of projects that ever entered the queue/cycle study process within PJM. This includes all projects with statuses such as “Active,” “Withdrawn,” “Deactivated,” “Engineering & Procurement,” “Under Construction,” etc. Users will have the ability to see past and present projects proposed across the PJM system to help assist with the POI assessment process.
- This also allows users to review existing projects near any potential POIs and further review any posted system impact studies on PJM.com. Much like the generator deactivations filter, there are various filtering options based on the request name, fuel type, status, location and size.
- A legend is also available at the bottom of the left-hand navigation menu, which provides an overview on all of the queue/cycle project symbols based on fuel type and queue/cycle status.
- The filtering option allows users to filter by voltage class and provides an overview on the corresponding line coloring by voltage class.