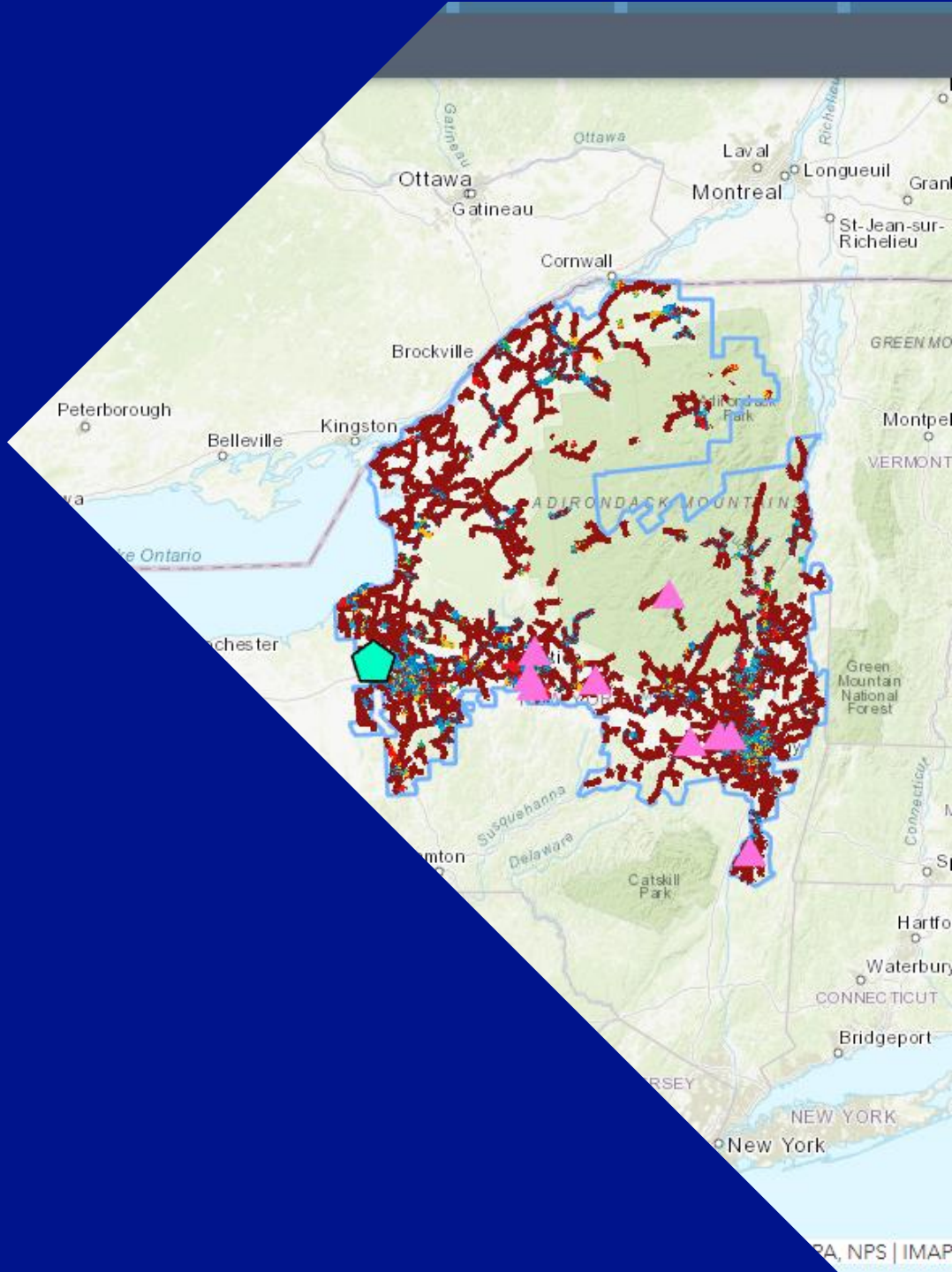
National Grid New York System Data Portal User Guide

April 2025



nationalgrid

Contents page

Contents page

Overview

Click Here to Access the National Grid New York System Data Portal

National Grid has created a collection of maps to help customers, contractors and developers identify potential project sites.

Each map provides the location and specific information for the selected electric distribution lines, and its associated substations within the National Grid electric service territory.

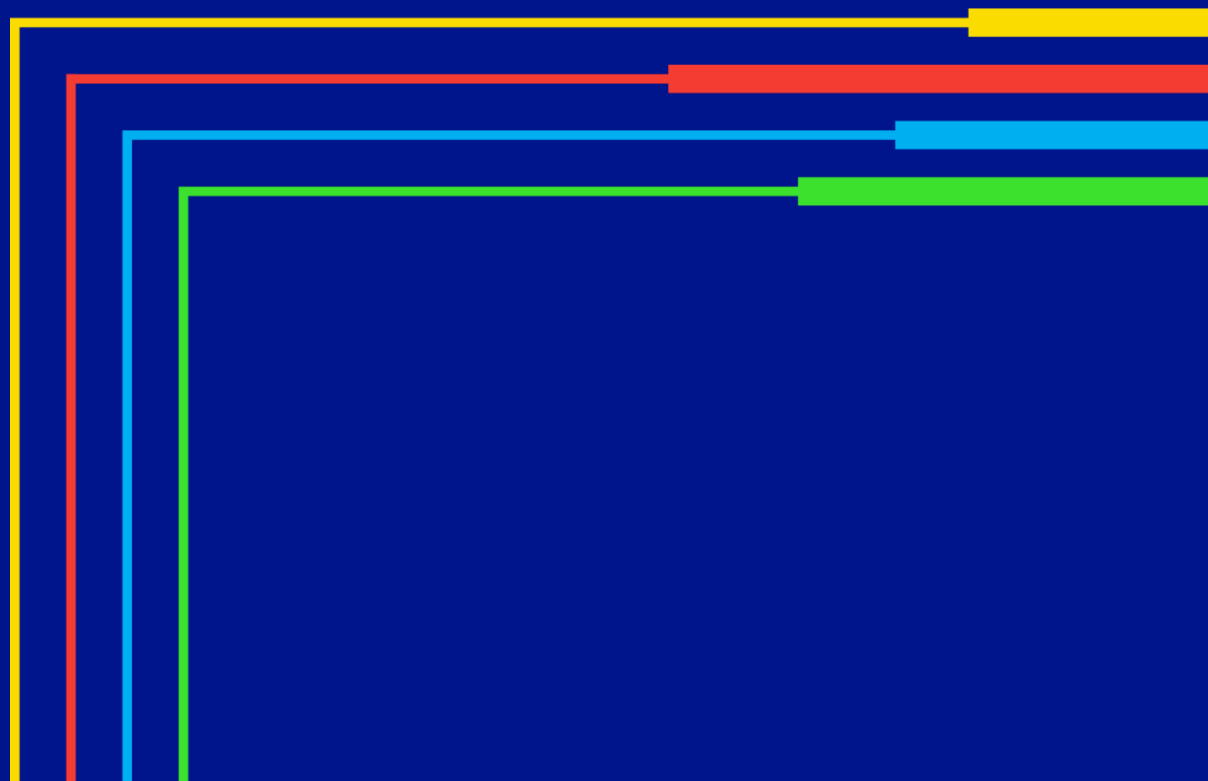
National Grid's electric system is dynamic. System configurations can change for a variety of reasons both planned and unplanned. National Grid will update the contents on a periodic basis so please be aware that the same location may show different information over time.

Please note that the portal and maps are not a guarantee that generators can interconnect at any particular time and place. Several factors drive the ability and cost of interconnecting distributed generation to the electric custom and actual interconnection requirements and costs will be determined following detailed studies. These studies will consider your specific project location, operating characteristic and timing. Additionally, environmental and other required permits are independent of our interconnection process and may limit the suitability of a particular site.

Detailed information on this process can be found at: (nCAP) Customer Application Portal

01

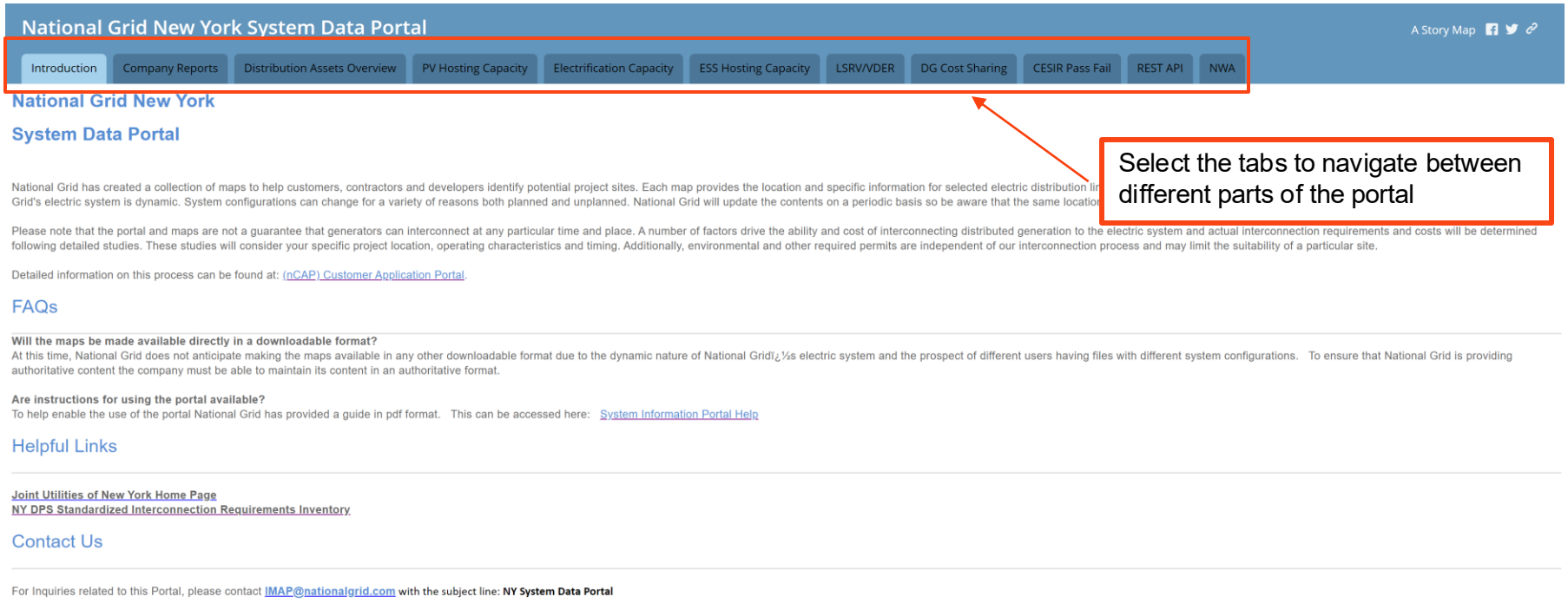
Navigation



nationalgrid

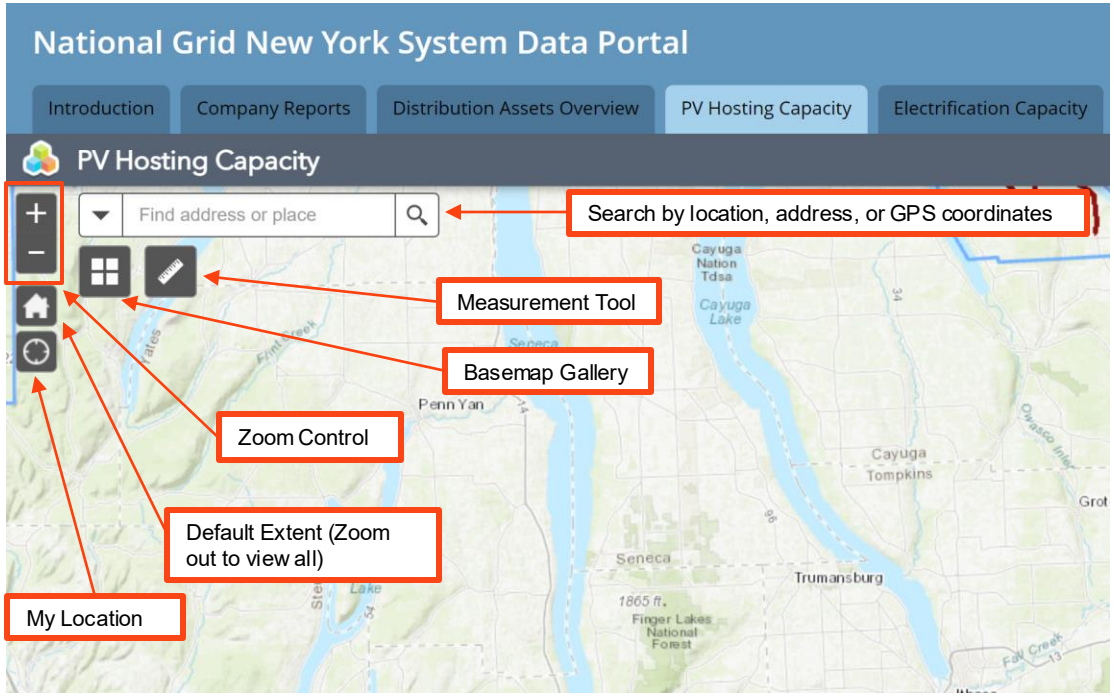
Navigation - Tabs

- **The National Grid New York System Data Portal is organized into defined tabs with each tab containing specific information tailored to a certain aspect of the National Grid New York electric power system.**



Navigation – Portal Map

- **The Distribution Assets Overview, Hosting Capacity, and LSRV/VDER tabs have displays built on an ESRI based mapping system.**
- These tabs have similar functionalities regarding navigation and display features.
- Several navigation icons are shown on the upper left-hand corner of the map.



Navigation – Display Controls

Below explain what each display control is used for:

- **Search Bar:** Type in an address, location, place, or set of GPS coordinates to automatically bring the desired location into view

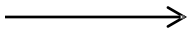
- **Zoom In/Out:** Press “+” to incrementally zoom in and “-” to incrementally zoom out from the current view extent

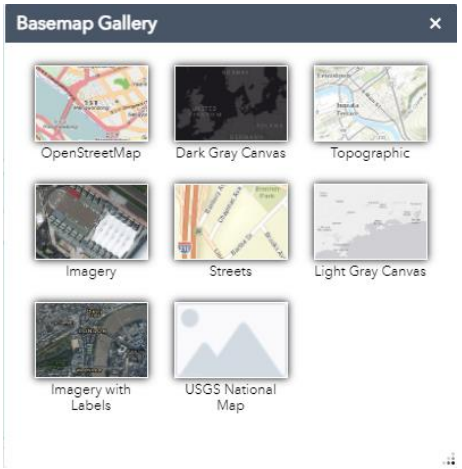
- **Default Extent:** Press this button to automatically zoom back to the default view extent (the entire map of the National Grid New York Service Territory)

- **My Location:** Automatically zoom to the user’s current location (if the user’s browser is set up to detect the user’s current location)

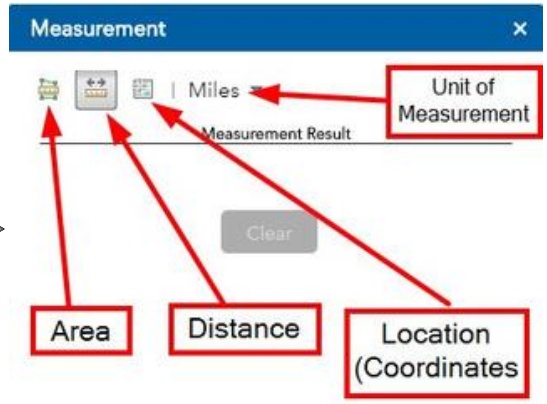
Navigation – Display Controls

Below explains what each display control is used for:





– **Basemap Gallery:** Choose from a list of basemaps to display as the background on the ESRI map

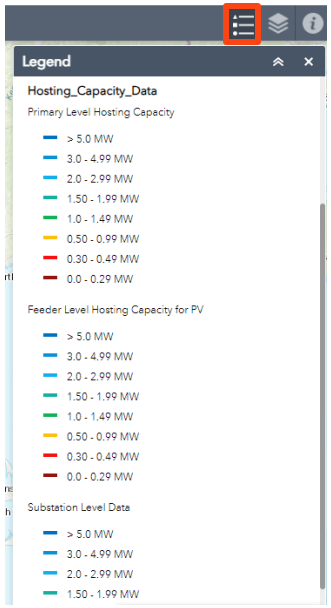


– **Measurement Tool: Use this tool to make various measurements**

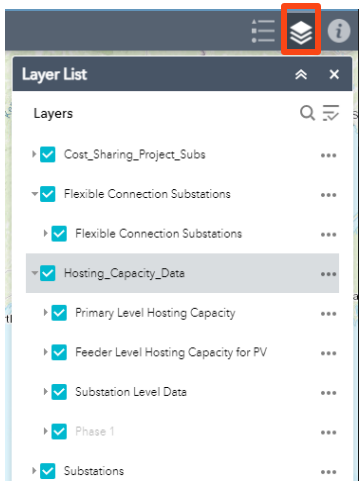
- Area: use mouse to click perimeter of area to measure (double click to close the shape)
- Distance: use mouse to place markers and measure straight line distance (double click to terminate the trail)
- Location: Hover mouse or click to drop a marker and display the latitude and longitude of the point

Navigation – Map Layer Display

- **The upper right-hand corner of the map displays two icons that detail the map display:**
  - First is the Legend icon which details the meanings of the colors shown in the map. Each map has a thin blue line that outlines National Grid's New York service territory. Below is the legend that is seen on the PV Hosting Capacity Map



  - The second icon in the upper right-hand corner is the Layer List. The Layer List defines the various info that is stored in the layers on the ESRI map. Information can be hidden or brought to the front of the view by selecting/un-selecting these layers.
  - Also, the dropdown shows how the layers on the map stack. So, if you de-select "Substation Level Data" you would not see much change unless you have the other two selections turned off.



Navigation – Map Layers

Each tab will have a set of layers that can be seen in the Layer List. These layers represent a specific type of data or information relevant to the tab. One can interact with these layers to customize their view by selecting/de-selecting the layer.

One layer that is seen on each map is the National Grid Service Territory layer that is selected by default. Some areas may not be fed by National Grid but rather NYSEG, Central Hudson, and/or other utilities, so this is a rough outline of where National Grid's assets are located within New York State. This, along with a few other layers such as Sub-T lines, and Substations are all sourced from our Geographic Information System (GIS).

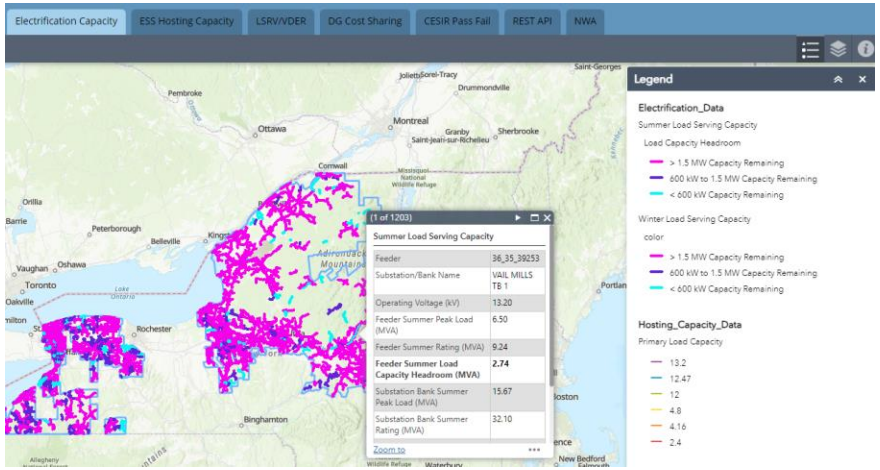
Other layers are unique to the specific map, some examples are:

- Environmental Justice Locations (seen as the PE_JA_NY layer)
- Electrification Data
- National Grid Feeders by Phase
- Substations and Sub-Transmission Lines
- Hosting Capacity Data

Navigation – Map Layer (Hosting Capacity and Electrification)

These layers are based on the data gathered and calculated by National Grid.

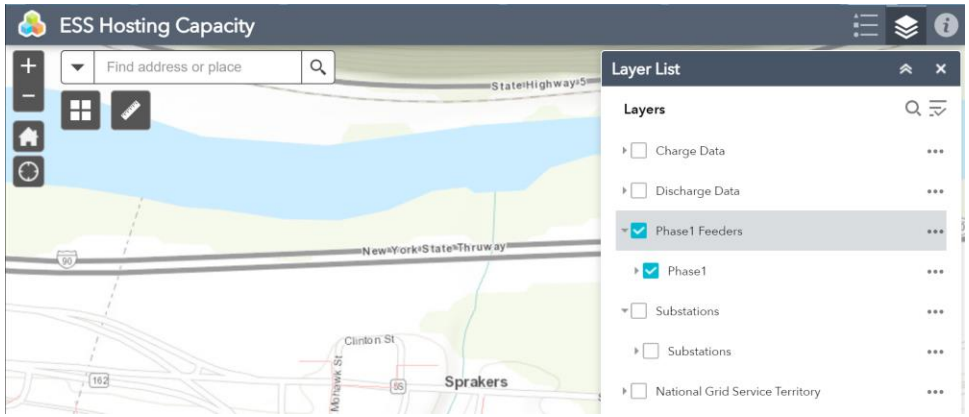
- **PV Hosting Capacity:** Applicable hosting capacity data for each feeder, substation, and 3-phase line (primary level), which is then represented on the PV Hosting Capacity Map.
- **ESS Hosting Capacity:** Similar to the PV Hosting Capacity layer, except that there are two sets of data to represent the hosting capacity metrics applicable to an ESS's mode of operation (charge and discharge). Both layers are related to the same assets and will therefore appear "stacked" on the map, and toggling the layer must be used to ensure the desired layer is visible.
- **Electrification Map:** Contains feeder and substation rating, peak load, and headroom for both the summer and winter season. Also contains a sub-layer to show voltage per 3-phase line.

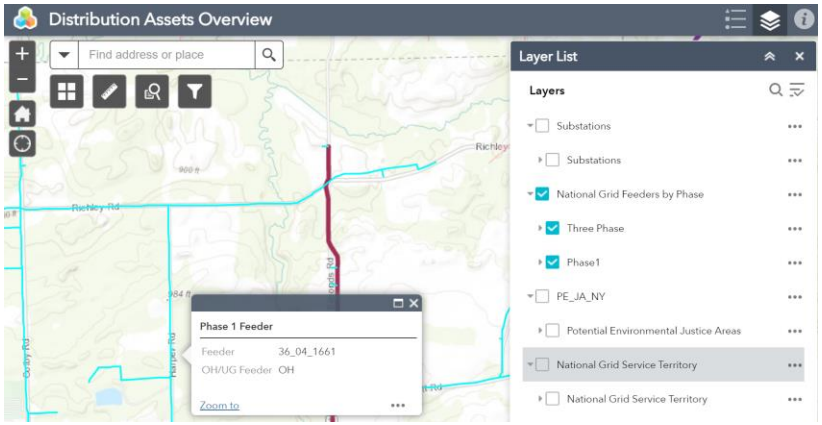


Navigation – Map Layers (Feeder Phase Layers)

All maps contain layers that visually represent circuits as lines on the map. These layers are typically separated into layers based on the phasing of the line(s) and can vary based on level of granularity (entire circuit vs. Per line)

- **PV/ESS Hosting Capacity & Electrification Capacity layers:** These layers visually represent 3-phase lines and are color coded based on capacity values.
- **Phase 1 layers**: These layers exist on all maps other than the LSRV/VDER map and are used to visually represent non-3-phase lines and what circuit they are a part of.
- **Distribution Assets Overview Three Phase and LSRV/VDER Feeders layers:** These layer visually represent 3-phase lines on a circuit that are randomly colored.





Navigation – Map Layer (Environmental Justice Locations)

There is a layer for the Environmental Justice Locations. These show as larger shaded areas to encompass the location.

An Environmental Justice Location is defined as:

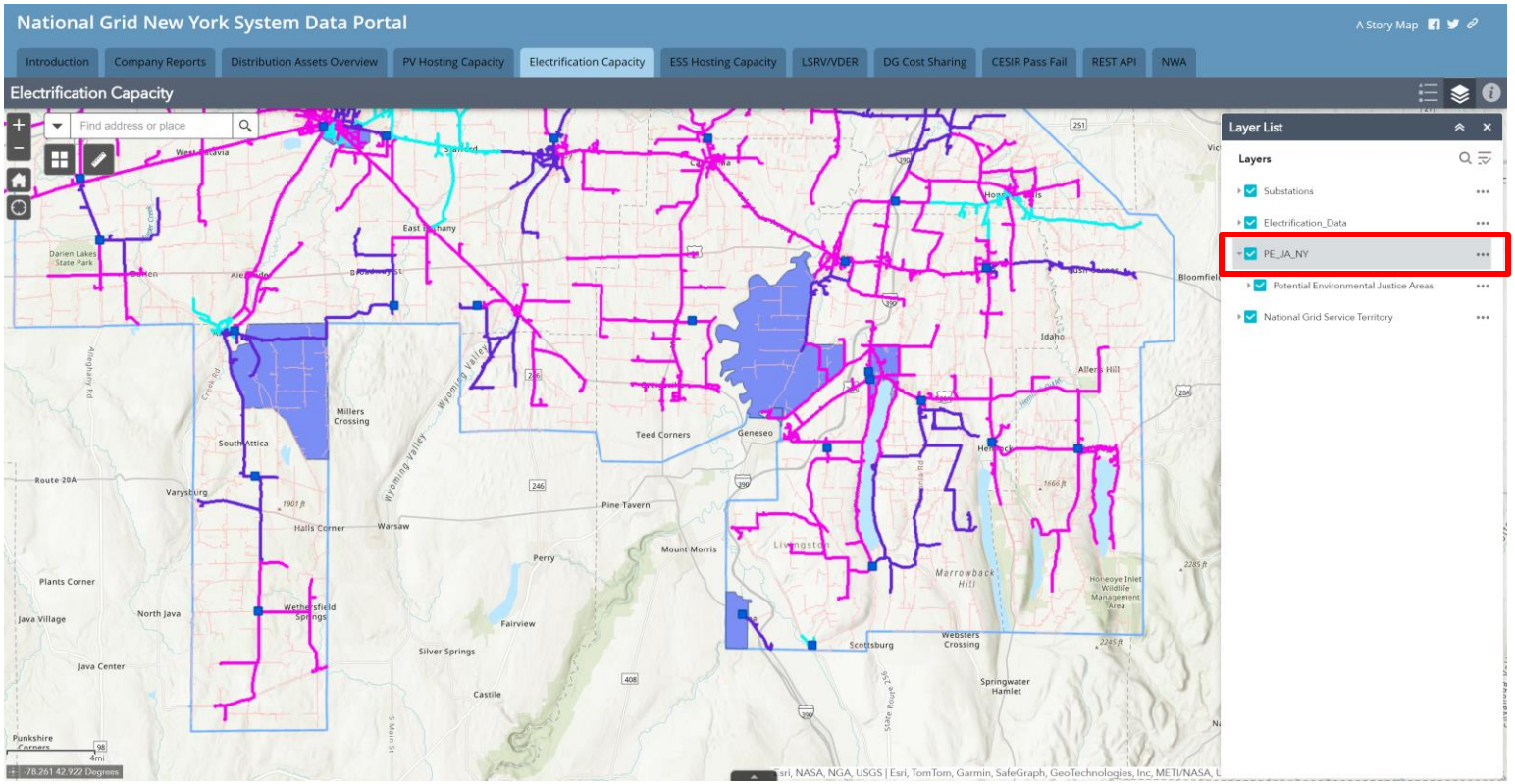
1. At least 52.42% of the population in an urban area reported themselves to be members of minority groups; or
2. At least 26.28% of the population in a rural area reported themselves to be members of minority groups; or
3. At least 22.82% of the population in an urban or rural area had household incomes below the federal poverty level.

See the link for more information: Click Here to view the Department of Environmental Conservations definitions for a Potential Environmental Justice Location (PEJAs)

Navigation – Map Layer (Environmental Justice Locations)

These locations are defaulted on for any map the layer is available for and can be seen in the example image below.

For other maps, toggle the Layer List as shown prior and select the PE_JA_NY layer then zoom in to see the shaded areas.

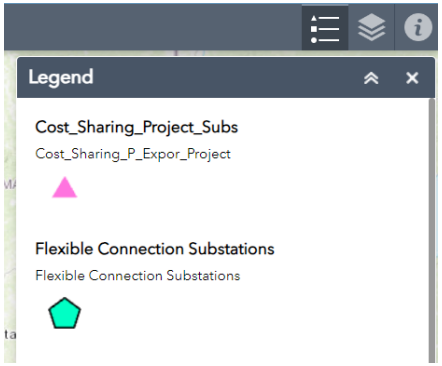


Navigation – Map Layer (Cost Sharing Projects and Flexible Connection Substations)

The PV Hosting Capacity map contains two additional layers applicable to specific substations:

1. Cost Sharing Projects

- These symbols represent substations where utility-initiated upgrades (found in the Capital Investment Plan) or market-initiated upgrades (triggered by Distributed Generation Projects) exist that meet the following criteria:
  - Construction of the project will take longer than 24 months
  - Construction will not start for greater than 18 month
- On the map, these appear as pink triangles



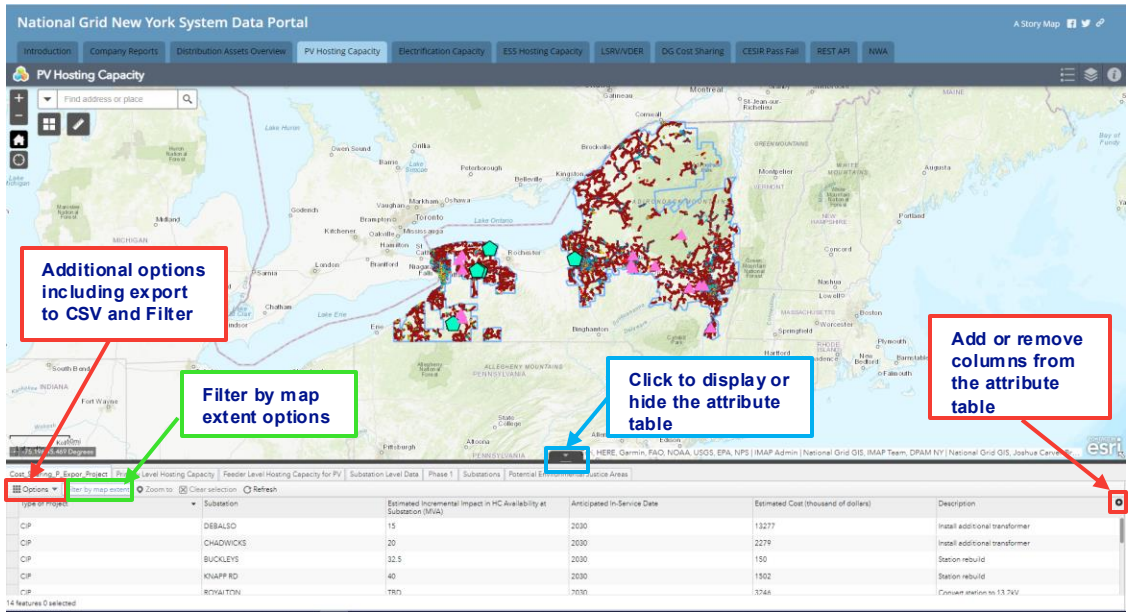
2. Flexible Connection Substations

- These symbols represent substations where the Company is currently considering flexible interconnection as a solution that can be used to support interconnection of DG.
- On the map these appear as teal pentagons

Navigation – Attribute Table

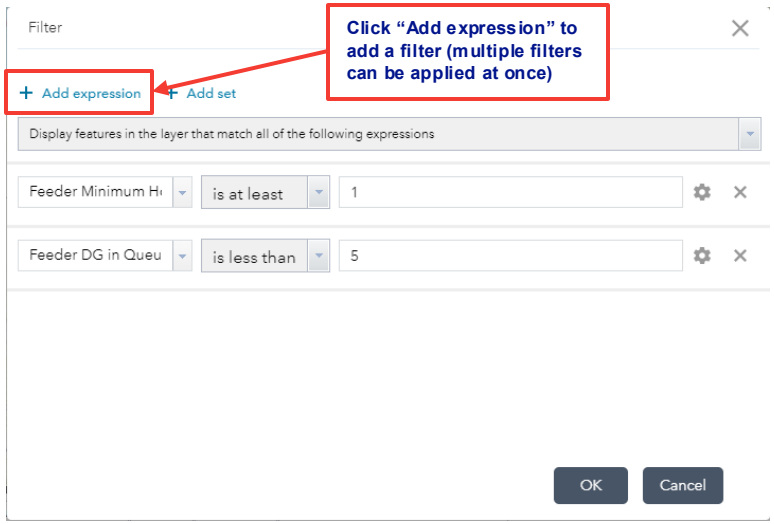
Another important feature of the ESRI based map tabs is the attribute table which stores all pop-up information on the map in tabular form.

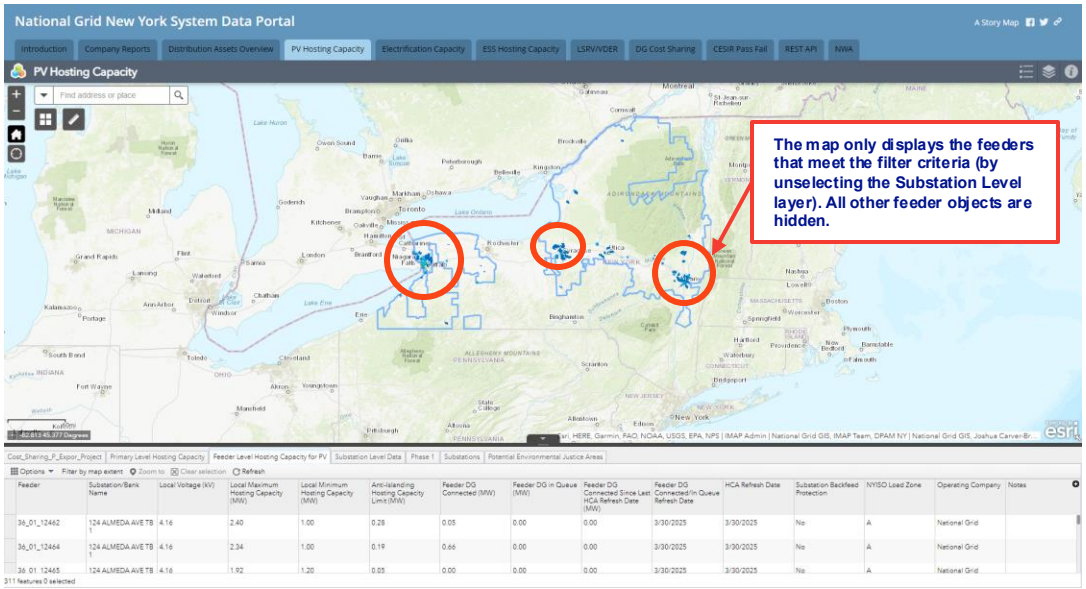
- Double-clicking on a line item in the attribute table will automatically zoom the map to that object.
- Columns can be added or removed from the table. The “Filter by Map Extent” option can also be selected so that the contents of the attribute table automatically update based on the objects contained in the current map view.
- For example, if the map was zoomed in on the city of Albany, only objects geographically located in Albany would show up in the attribute table.



Navigation – Attribute Table

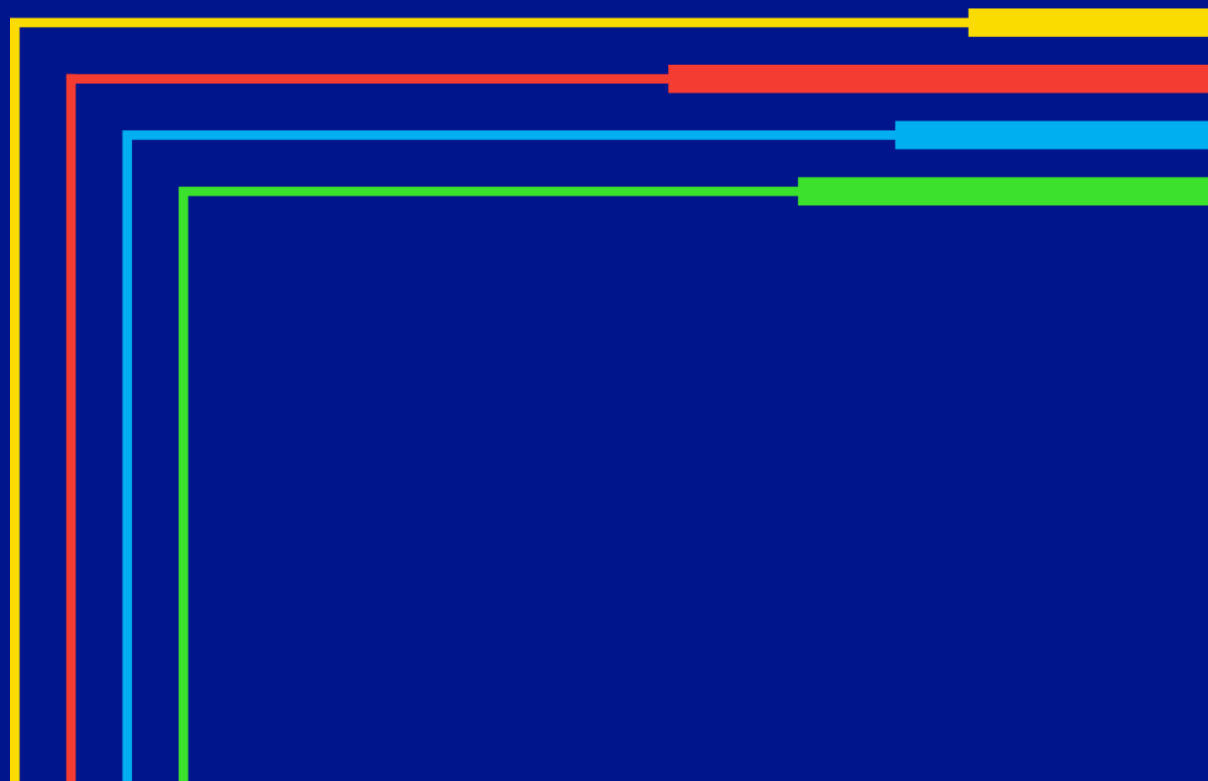
- **The contents of the attribute table can export to CSV format by selecting “Export All to CSV” under the “Options" Menu**
- The contents of the table can also be filtered through the “Options” menu.
  - The attribute table can be filtered by any of the line items contained in the pop-ups on that particular tab and multiple filters can be applied simultaneously.
  - Once the filter is set, the contents of the attribute table will update accordingly as will the objects viewable on the map. In other words, only the objects that meet the criteria of the filter will be displayed on the map (by selecting the appropriate layers).
  - The below example shows a filter applied to the PV Hosting Capacity tab to only display feeders with a minimum hosting capacity of at least 1MW and less than 5MW of DG connected.





02

System Data Portal Tabs

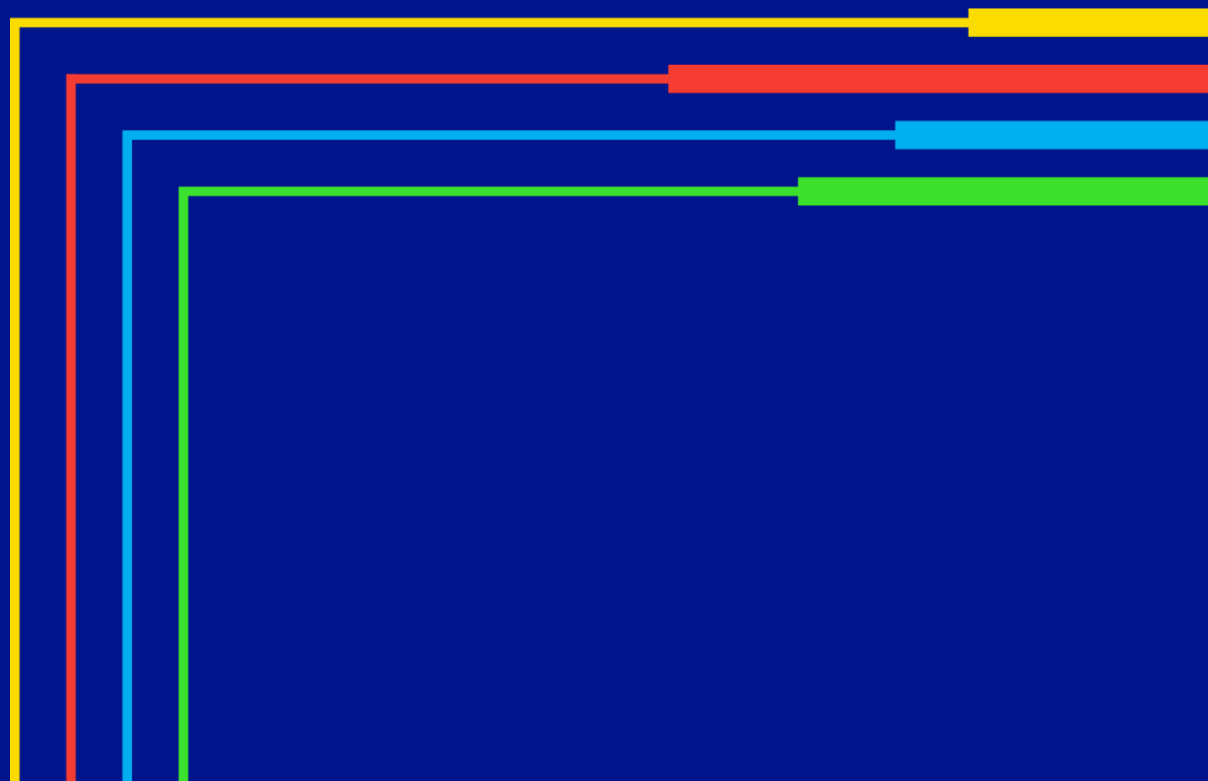


nationalgrid

2.1

Tabs – Introduction and Company Reports Tabs

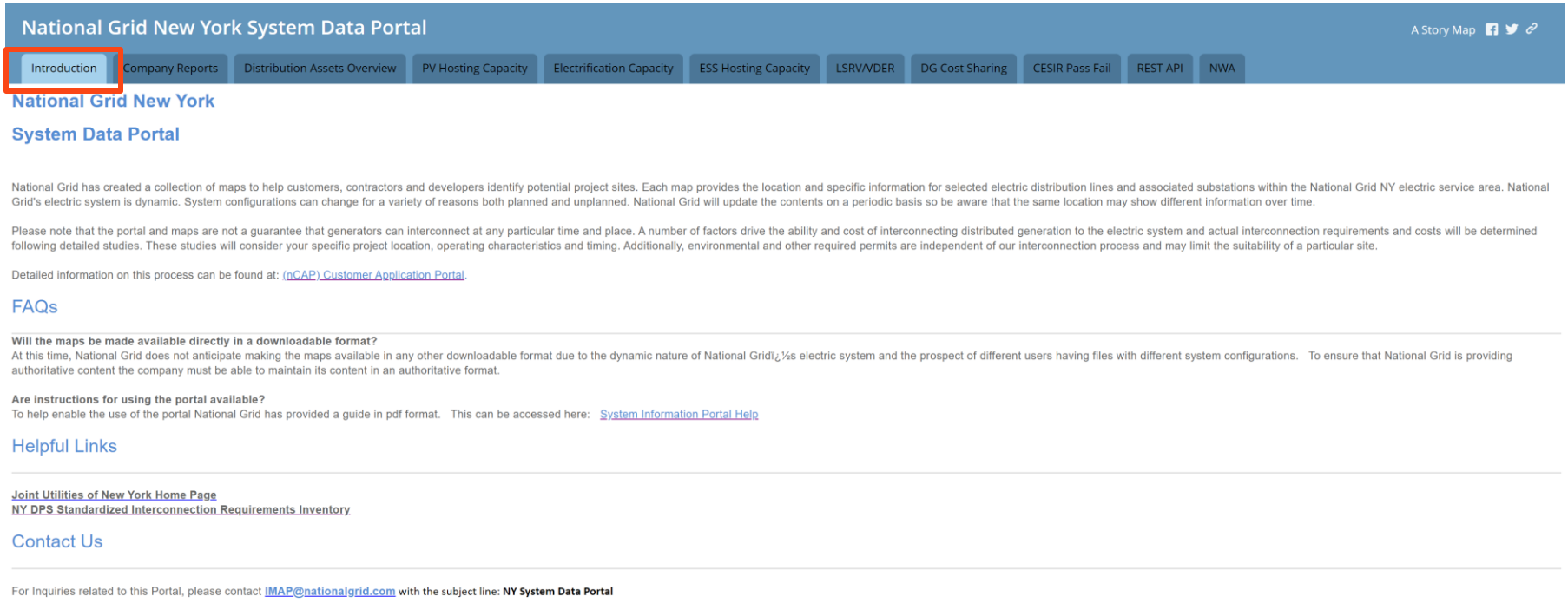
nationalgrid



Tab - Introduction

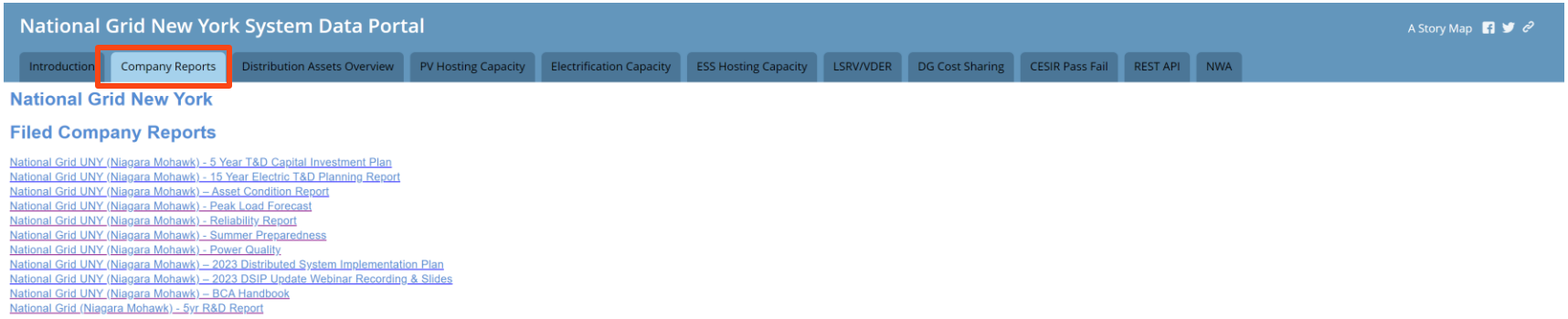
The Introduction Tab provides an overview of the System Data Portal, with FAQs and a link to this User Guide.

Additionally, a link to National Grid's Interconnection Online Application Portal, nCAP, is provided.



Tab – Company Reports

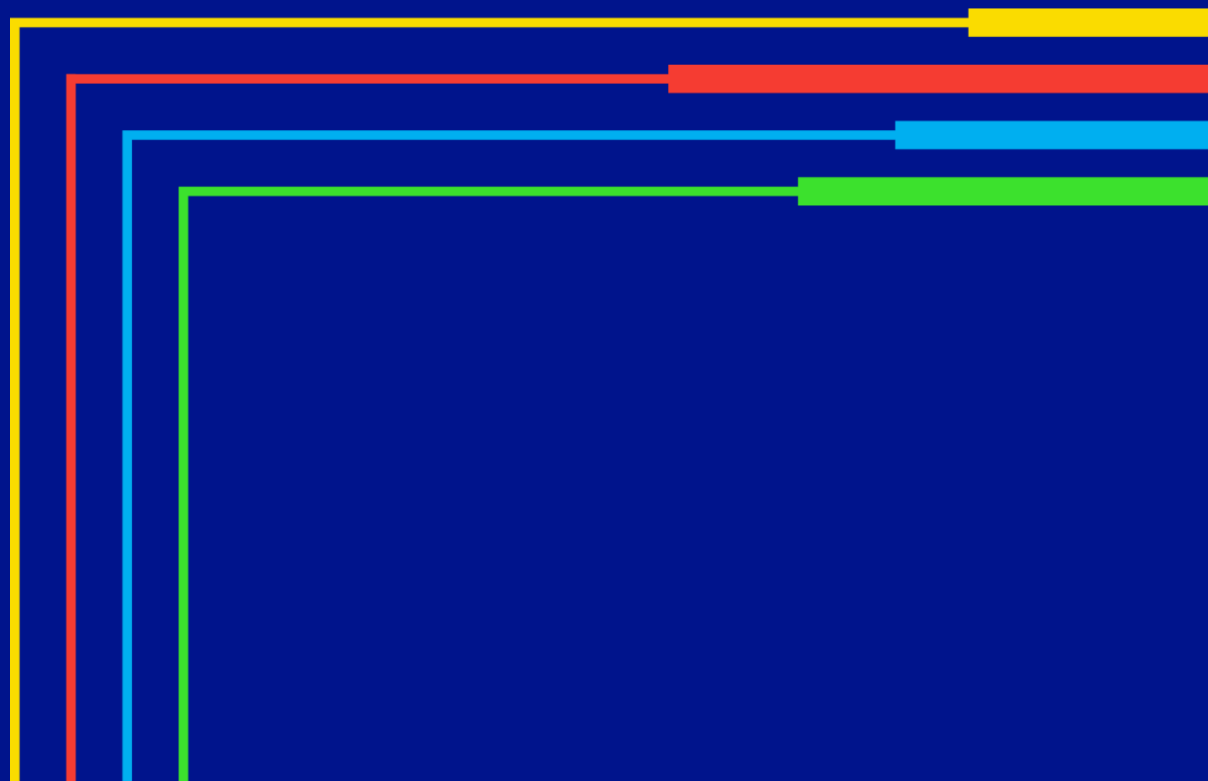
- **The Company Reports Tab includes various regulatory filings and company reports including:**
  - The 5 Year Transmission and Distribution Capital Investment Plan
  - The 15 Year Electric Transmission and Distribution Planning Report
  - Peak Load Forecast
  - Asset Condition Report
  - Reliability Report, Summer Preparedness, Condition Assessment, and Power Quality
  - National Grid's Distributed System Implementation Plan



2.2

Tabs – Distribution Assets Overview Map

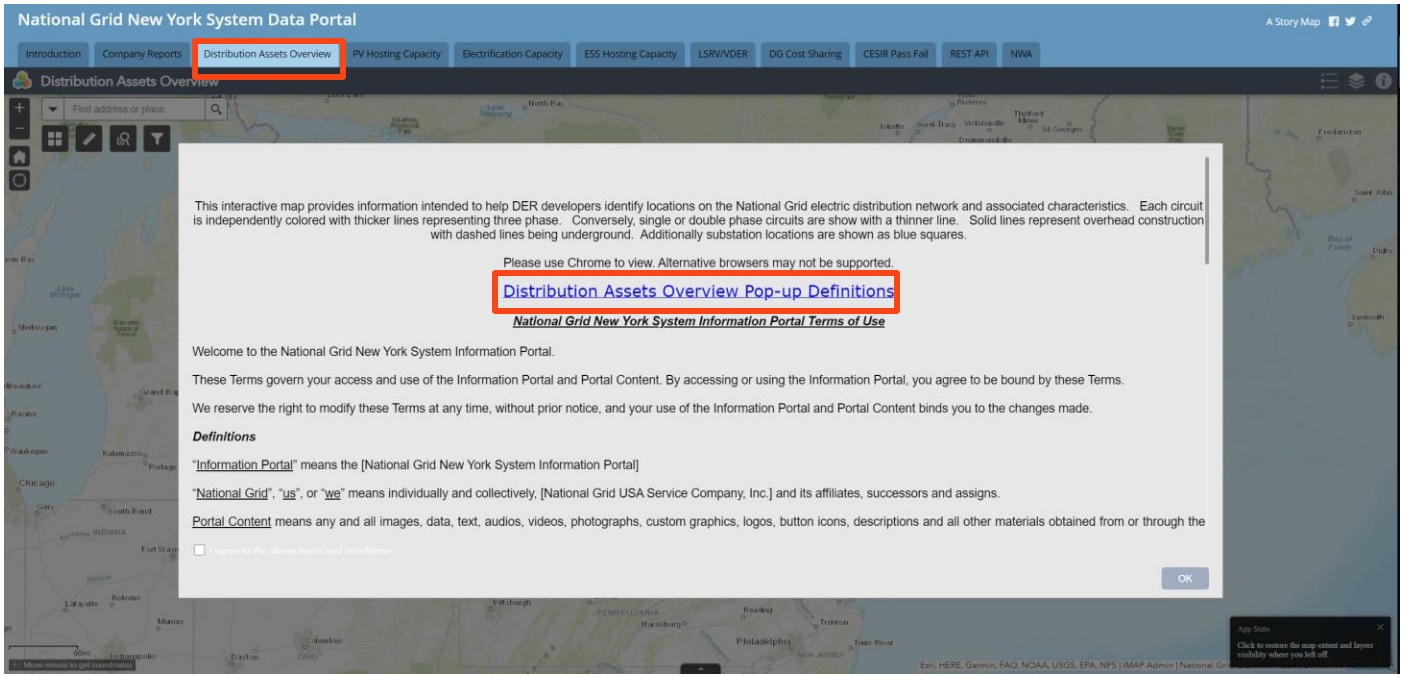
nationalgrid



Tab – Distribution Assets Overview

The Distribution Assets Overview Tab provides planning information for feeders including historical and forecasted loading information. The data on this tab can be used to understand potential system constraints that may impact future interconnections.

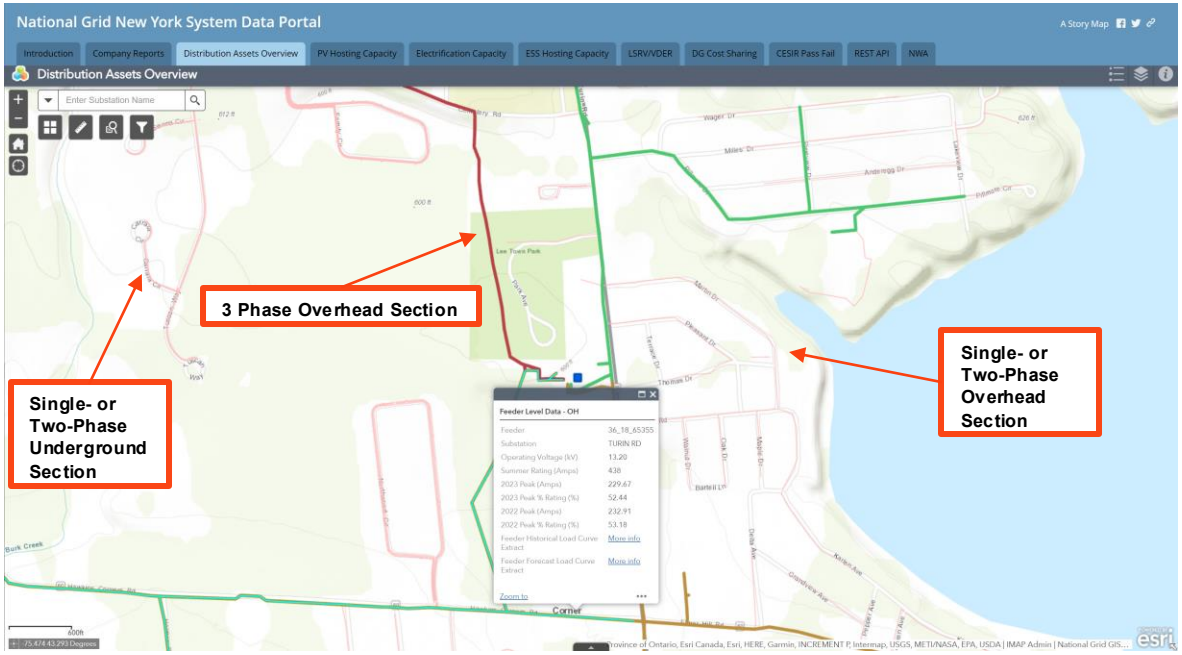
The pop-up that appears when the tab is initially selected contains disclaimer information as well as a link to a PDF with descriptions of each data point found in the pop-ups on the map.



Tab – Distribution Assets Overview

Each feeder object is colored randomly based on the feeder's name. On the map:

- Bold lines represent three phase while thin lines represent single and two phase lines.
- Overhead sections are represented by solid lines while underground sections are represented by dashed lines.
- Selecting a feeder will display a pop-up window with information on the selected feeder
  - Line items include peak loading on the feeder from the two previous years.
  - General feeder characteristics are also displayed such as Substation Name, Operating Voltage, and Summer Rating of the feeder

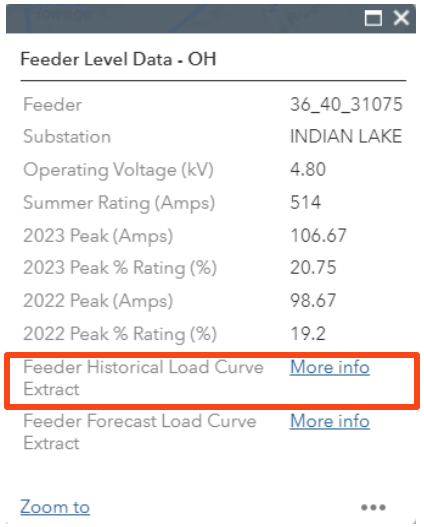


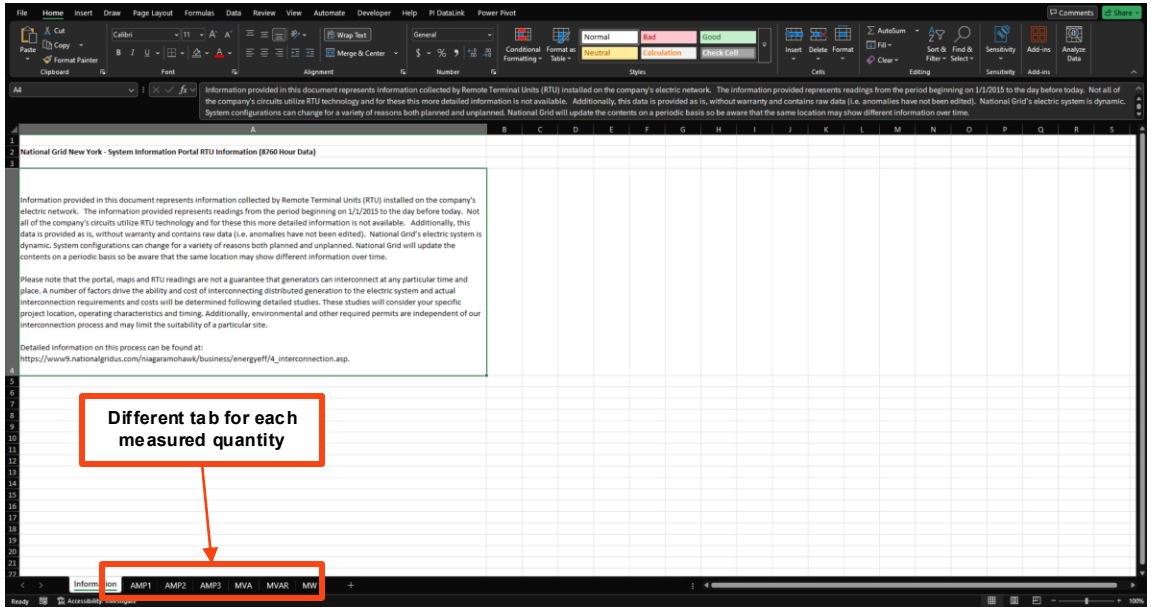
Tab – Distribution Assets Overview

In the pop-up, the final two line items contain links to historical and forecasted feeder loading data.

Historical Feeder Load Curve (if National Grid has communications on this feeder), will be populated with a link to a downloaded excel filing containing raw historical measurements on the feeder.

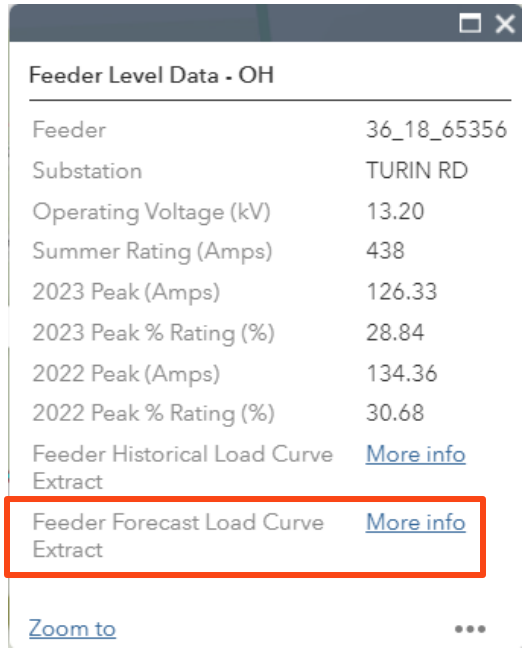
If there are no communications with the selected feeder, meaning there is no data to present, the entry in this line item will read “No additional 8760 information available”. If there is the entry in this line item will be a link titled “More Info” where the downloaded file will contain a disclaimer followed by a separate tab for each measured value (i.e. Amps on Phase A or MW).

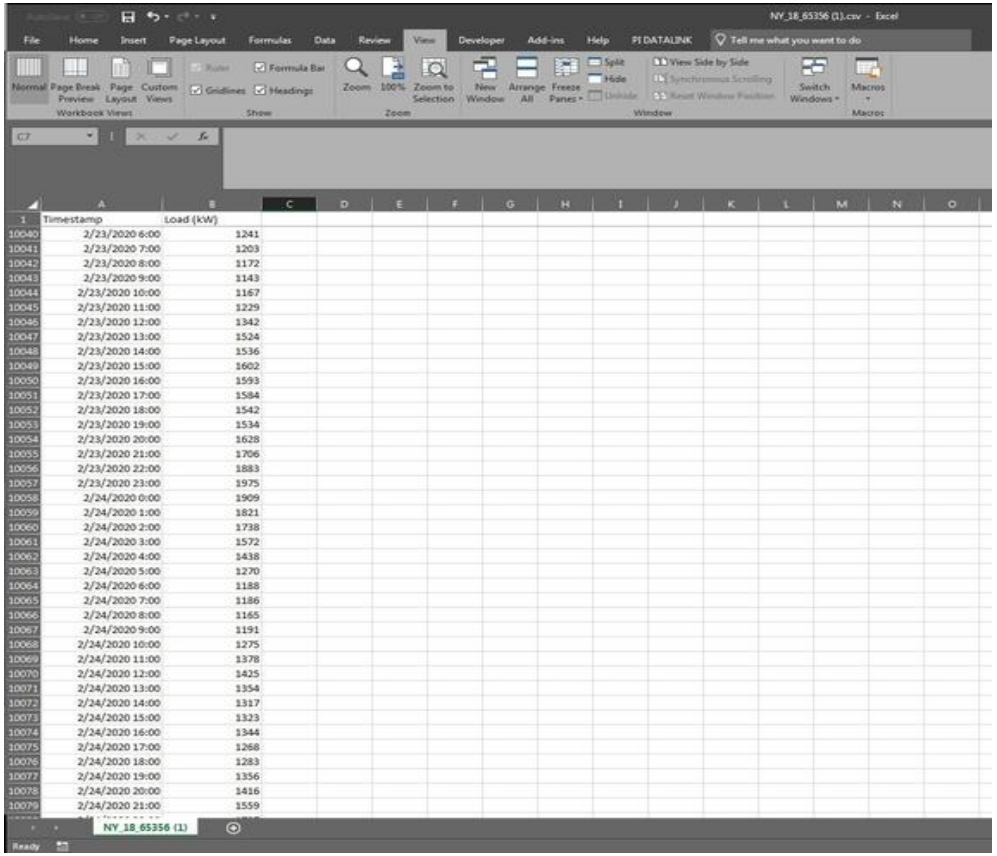




Tab – Distribution Assets Overview

Forecasted Feeder Load Curve – This line item will be populated with a link to a downloadable CSV file containing 5 years of forecasted hourly feeder loading





2.3

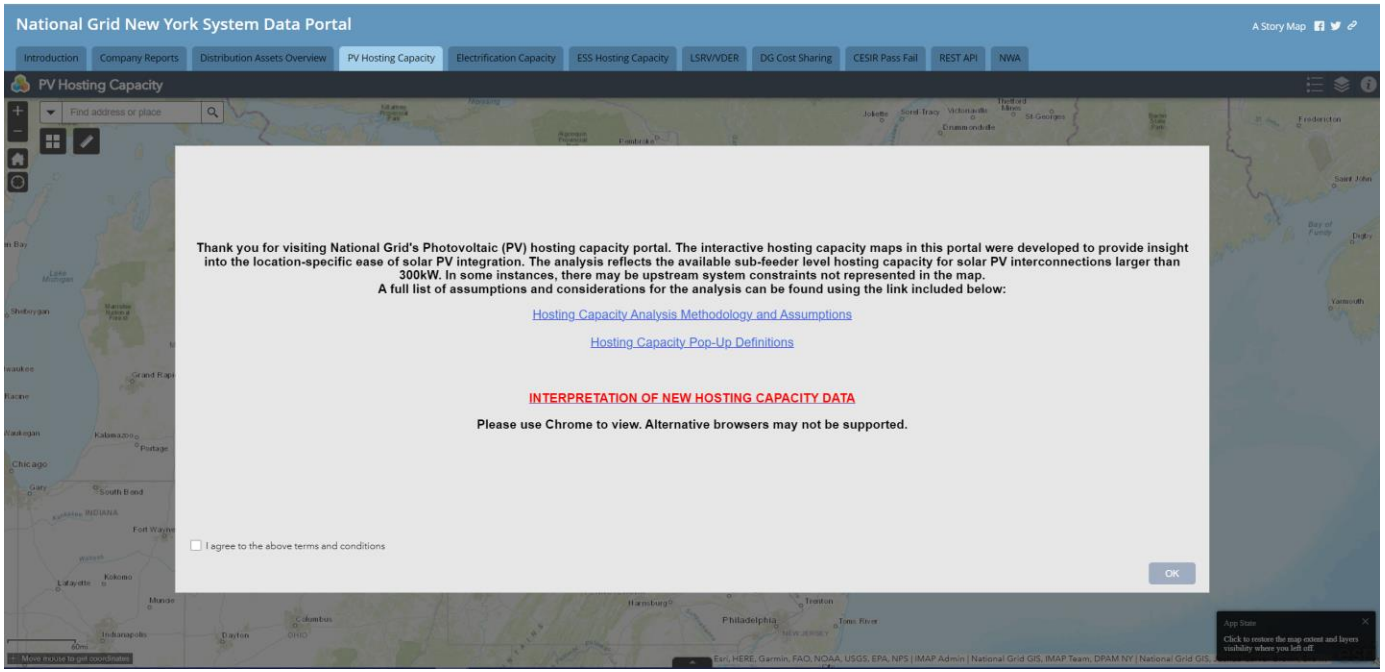
Tabs – PV Hosting Capacity Map

nationalgrid

Tab – PV Hosting Capacity Map

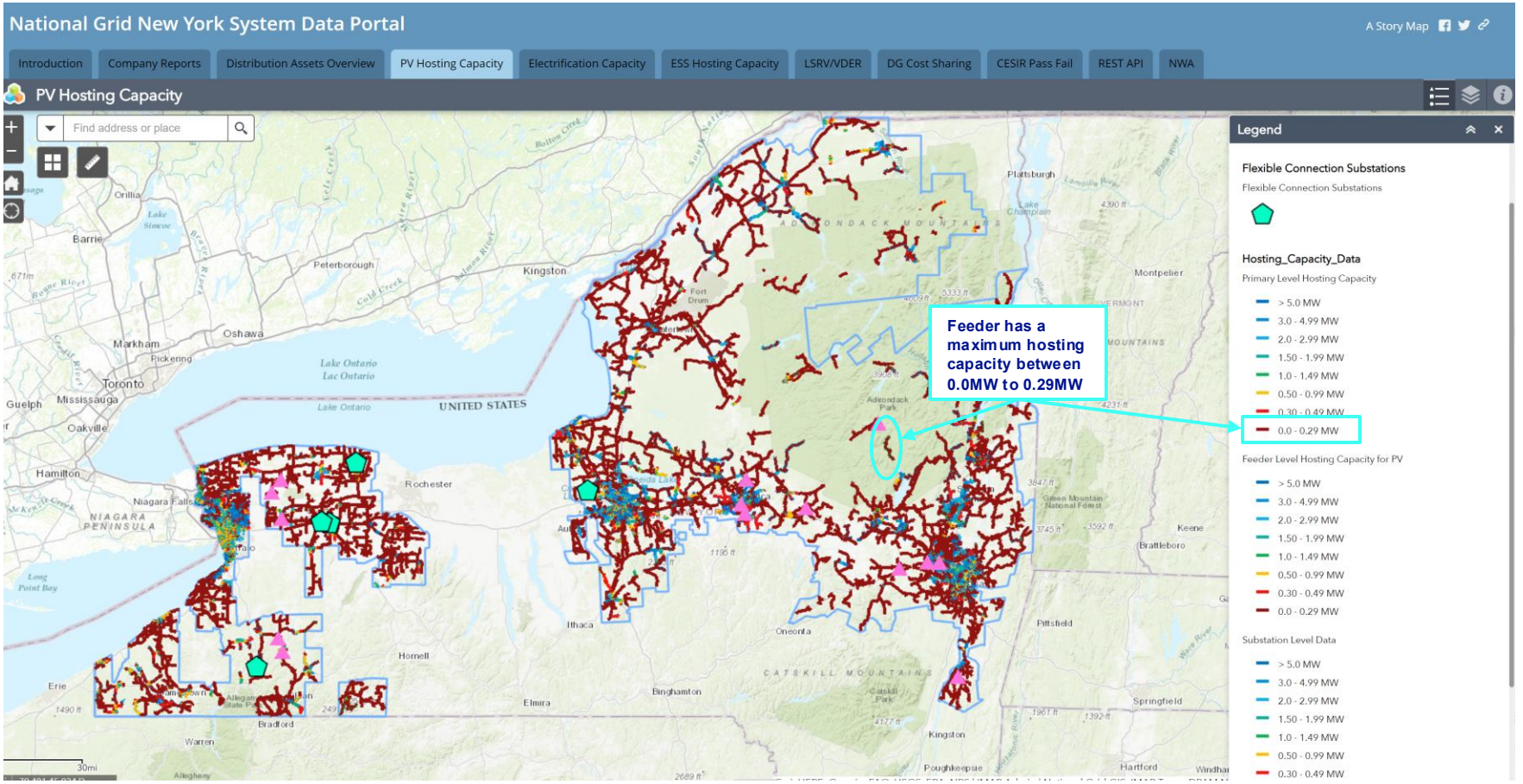
The PV Hosting Capacity Tab shows an estimate of the amount of solar PV that may be accommodated by a feeder without adversely impacting power quality or reliability under current configurations and without infrastructure upgrades.

When the PV Hosting Capacity Tab is selected a screen appears showing links to two PDFs that should be read carefully before going further. This document explains the assumptions and methods used when calculating hosting capacity values and sheds light on how the results should be interpreted.



Tab – PV Hosting Capacity Map

At the default extent level, feeders on the hosting tab are colored according to their maximum hosting capacity value. The range of values which each color symbolizes is shown in the legend

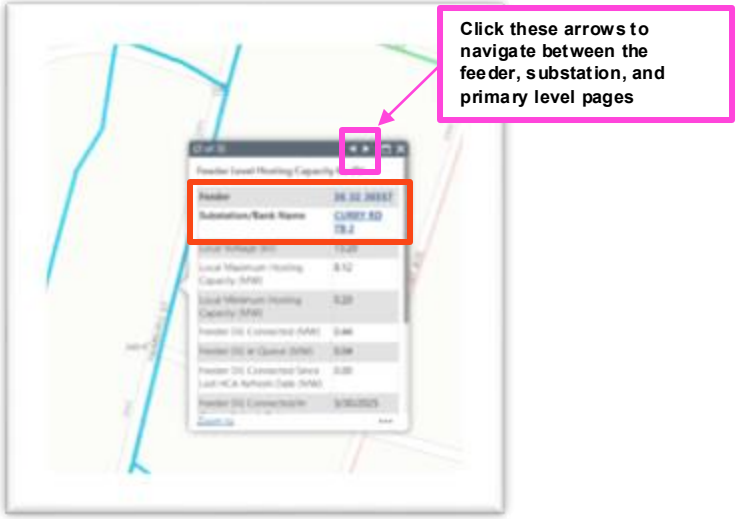


Tab – PV Hosting Capacity Map

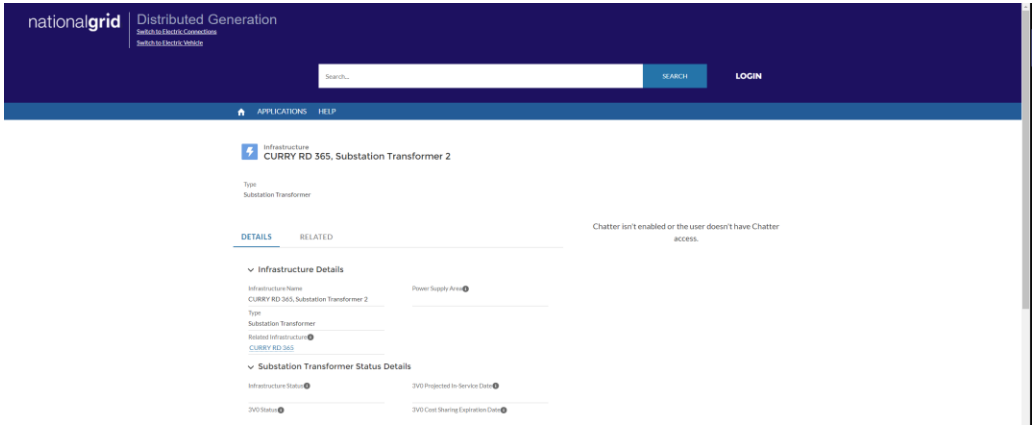
Like the distribution assets overview tab, when a feeder is selected an informative pop-up appears. The pop-up on the Hosting Capacity tab includes three pages: a Feeder Level page, a Substation Level page, and a Primary Level page.

The Feeder Level page includes information such as:

- Operating voltage (feeder voltage at the substation)
- The local minimum and maximum hosting capacity of the 3-phase lines on that feeder
- The DG connected and in queue on the feeder
- The dates the information were last refreshed
- Some general feeder characteristics.

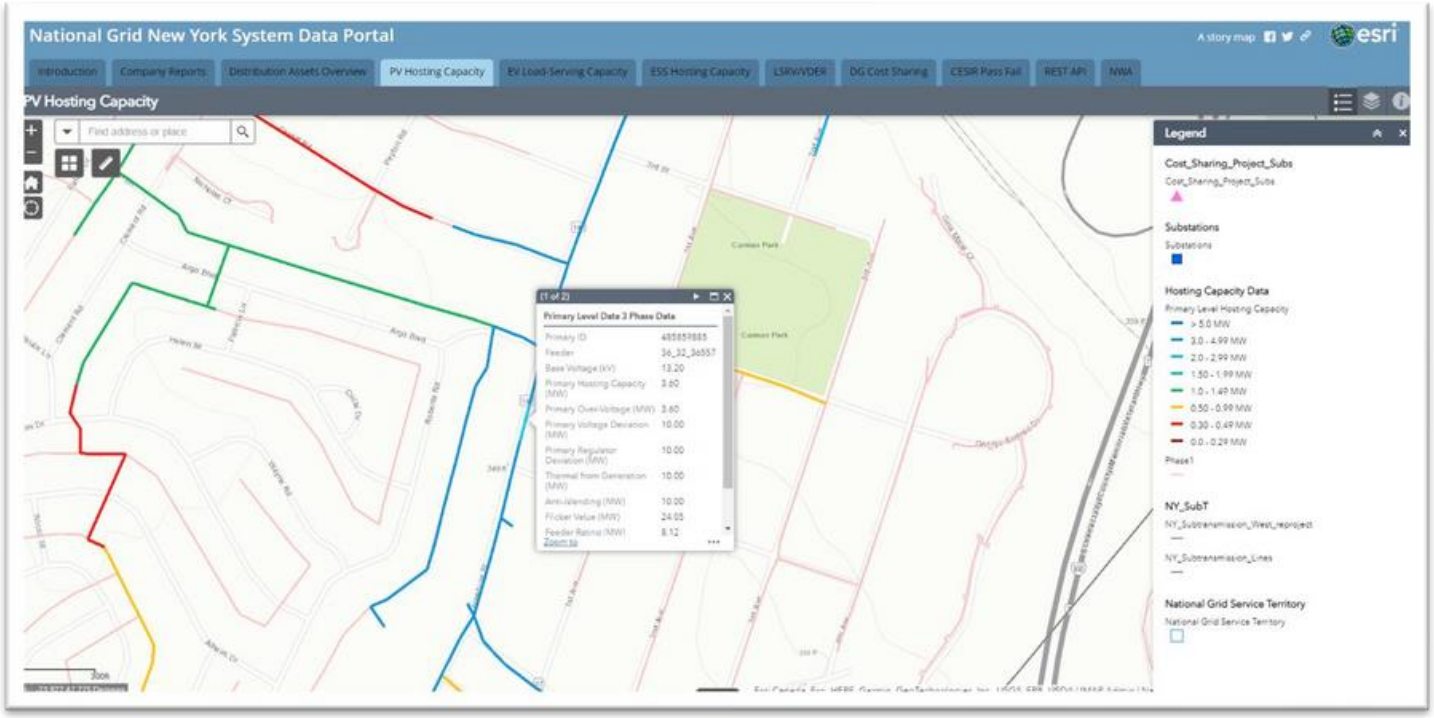


Also, on this page, the Feeder and Substation/Bank Name information are clickable links. By clicking them, you will be navigated to the nCAP portal about this asset and its Distributed Generation information.



Tab – PV Hosting Capacity Map

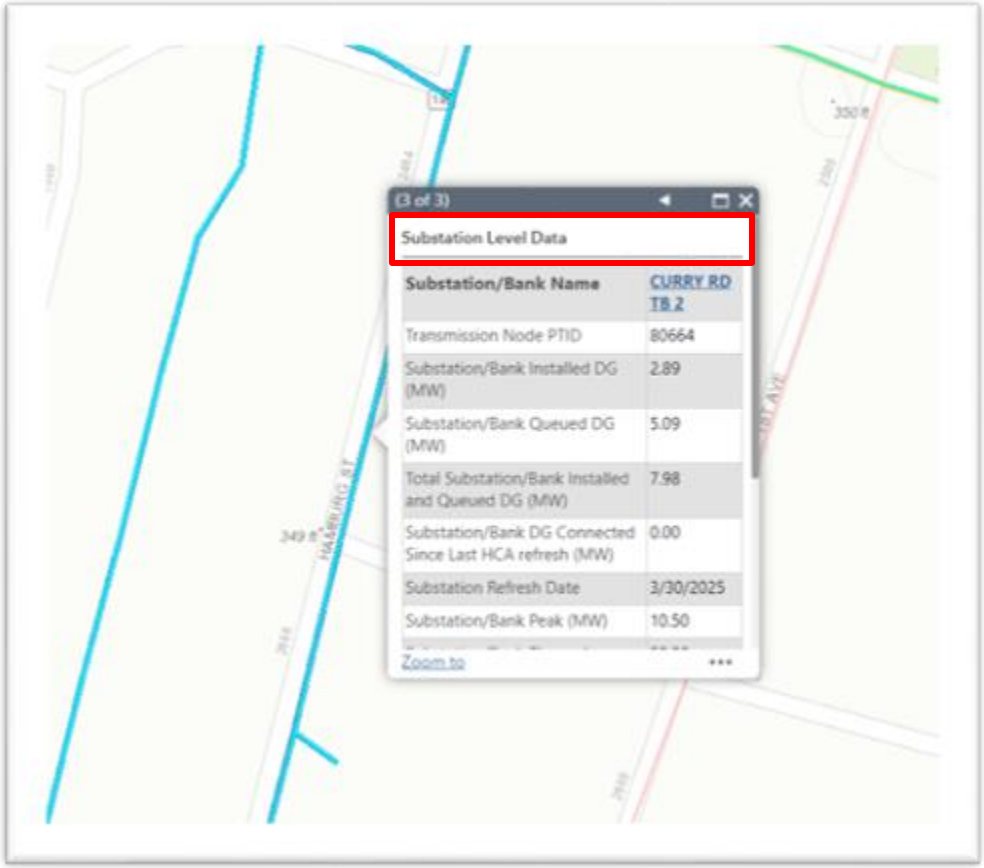
- **Once zoomed in, the primary level analysis appears, and various color groupings are observed across each feeder.**
  - Each grouping is still colored according its maximum hosting capacity; however, the primary level analyses display how hosting capacity changes over the length of a feeder and provide the feeder violation data.
- Three phase sections are shown with a bold line while single- and two-phase sections are shown with a thin pink colored line.



Tab – PV Hosting Capacity Map

The Substation Level page includes information such as:

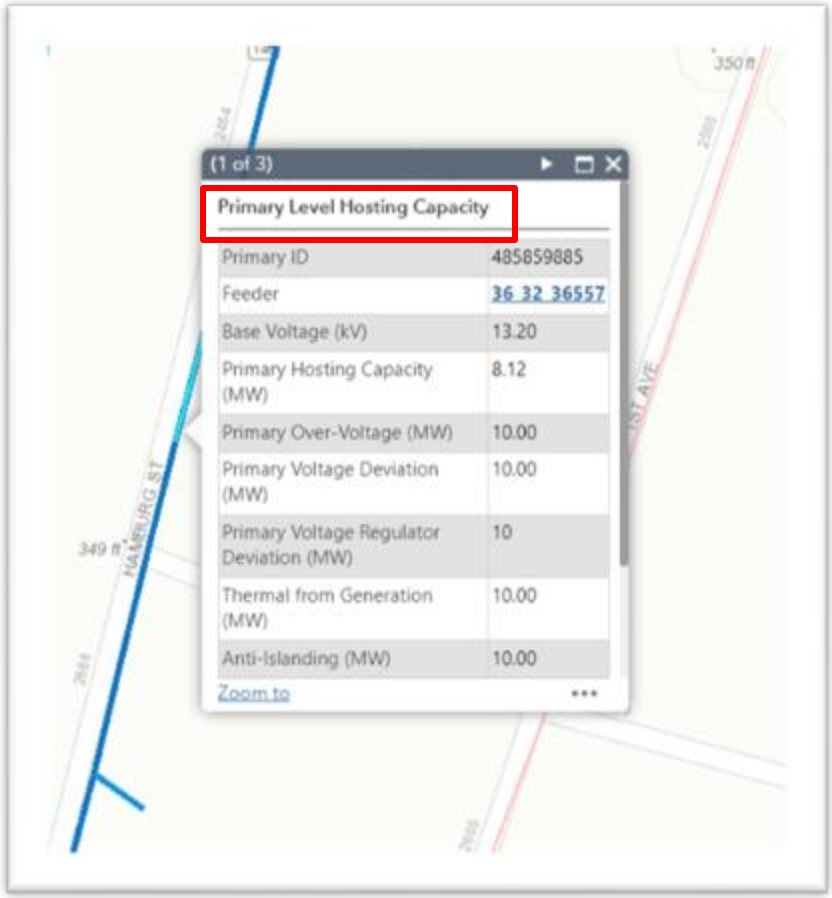
- Substation Bank/Name (which is a clickable links to the nCAP portal for the asset)
- Transmission Node PTID
- DG connected, in queue at the substation bank level, and the sum of these two rows
- Amount connected since last map refresh
- Last refresh date
- Previous year's peak at the substation bank
- Some general substation characteristics



Tab – PV Hosting Capacity Map

The Primary Level page includes information for that line such as:

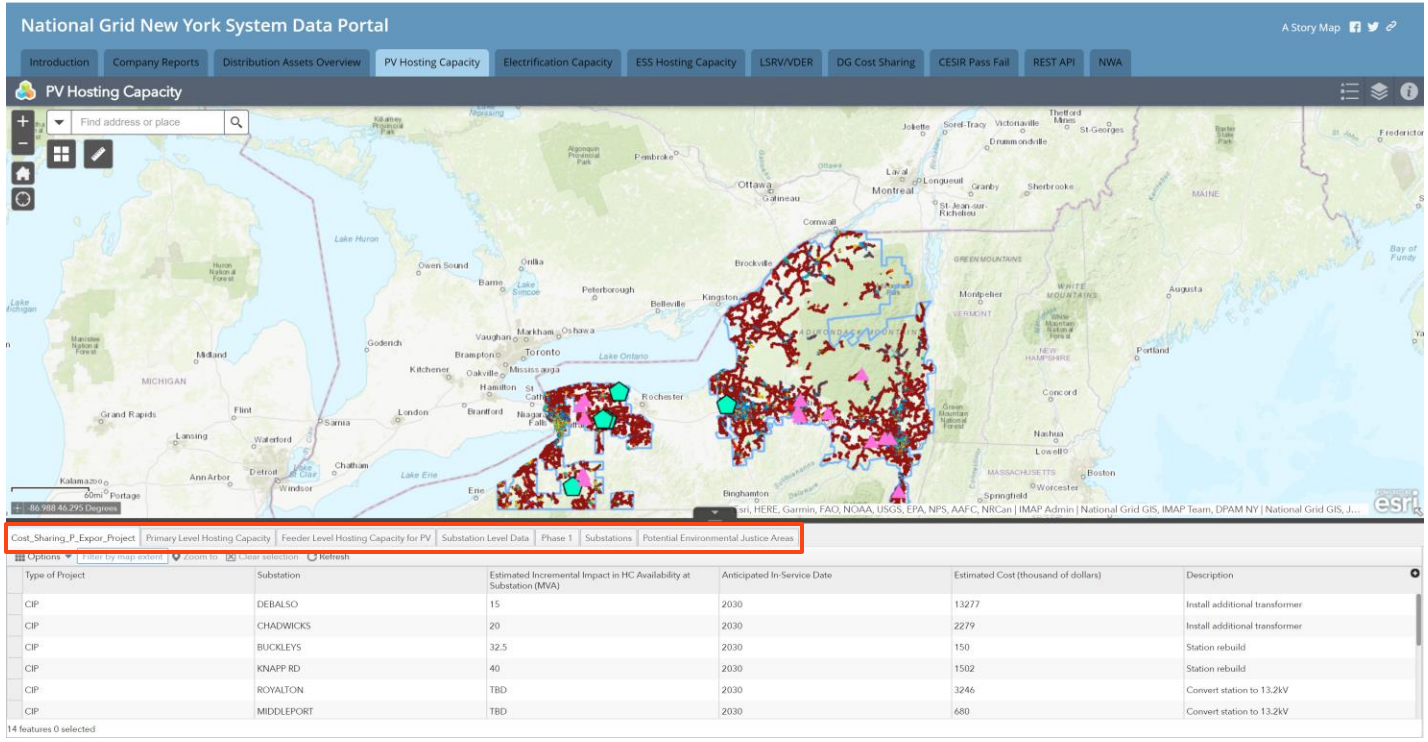
- The primary line id
- The feeder the line is on (which is a clickable link the nCAP portal for the asset)
- Base Voltage (voltage at that line)
- Primary Hosting Capacity (minimum of all values below)
- Primary Over-Voltage
- Primary Voltage, and Regulator, Deviation
- Thermal from Generation
- Anti-Islanding
- Flicker Value
- The latest Feeder Rating and Substation Bank rating



Tab – PV Hosting Capacity Map

- **The attribute table on the hosting capacity page has one tab for the feeder level data, one tab for the substation level data, and one tab for the primary level data.**

- As shown previously, the Hosting Capacity tab is a good place to apply filters to identify the feeders that meet a specified set of criteria (Attribute Table: Options →Filter).

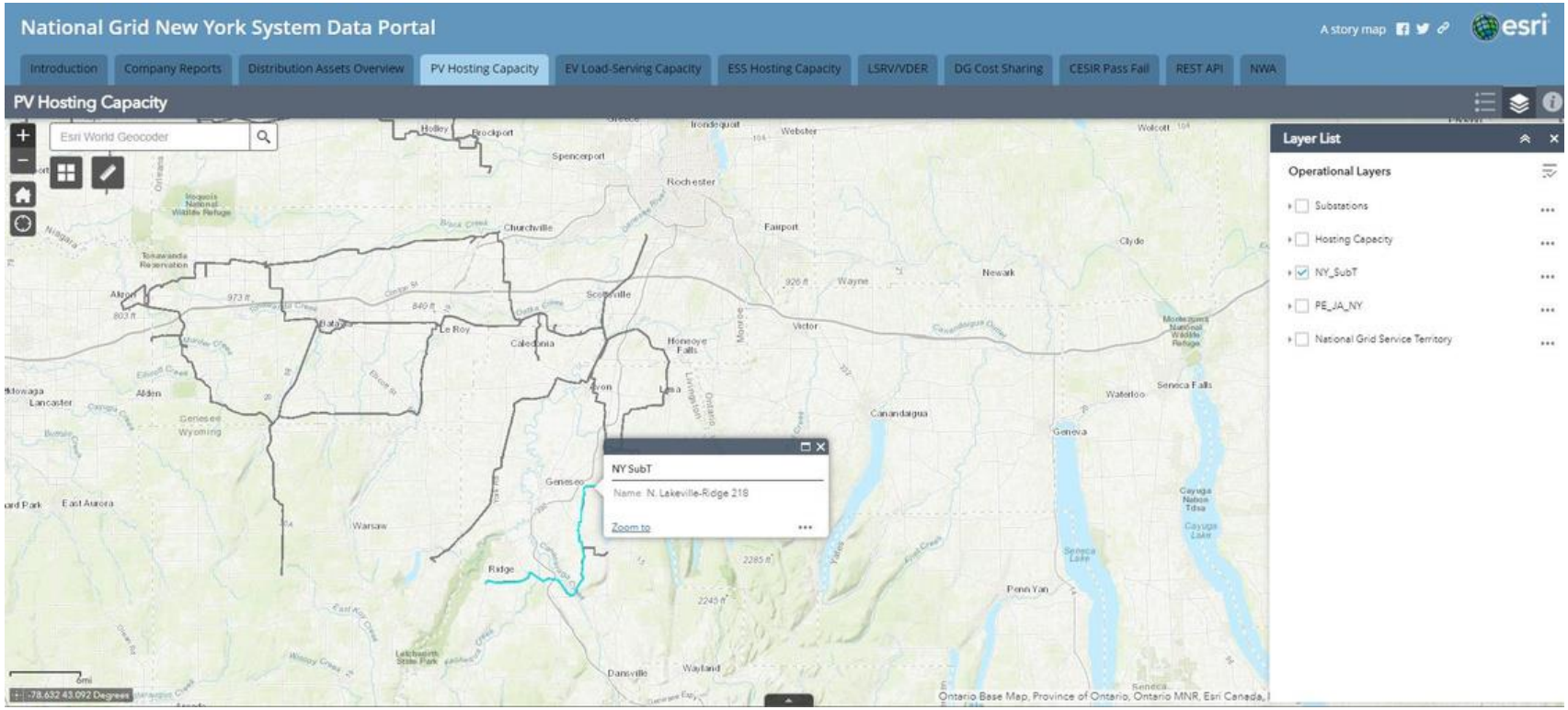


Tab – PV Hosting Capacity Map

The location of DG cost sharing projects at substations is provided on the map. It shows the location of the project and provides details on the project.

Tab – PV Hosting Capacity Map

The location and name of National Grid's Sub-transmission lines has been added to the PV Hosting Capacity map. It can be viewed as a layer by itself or with all the other PV HCA data by toggling the desired layers.



2.4

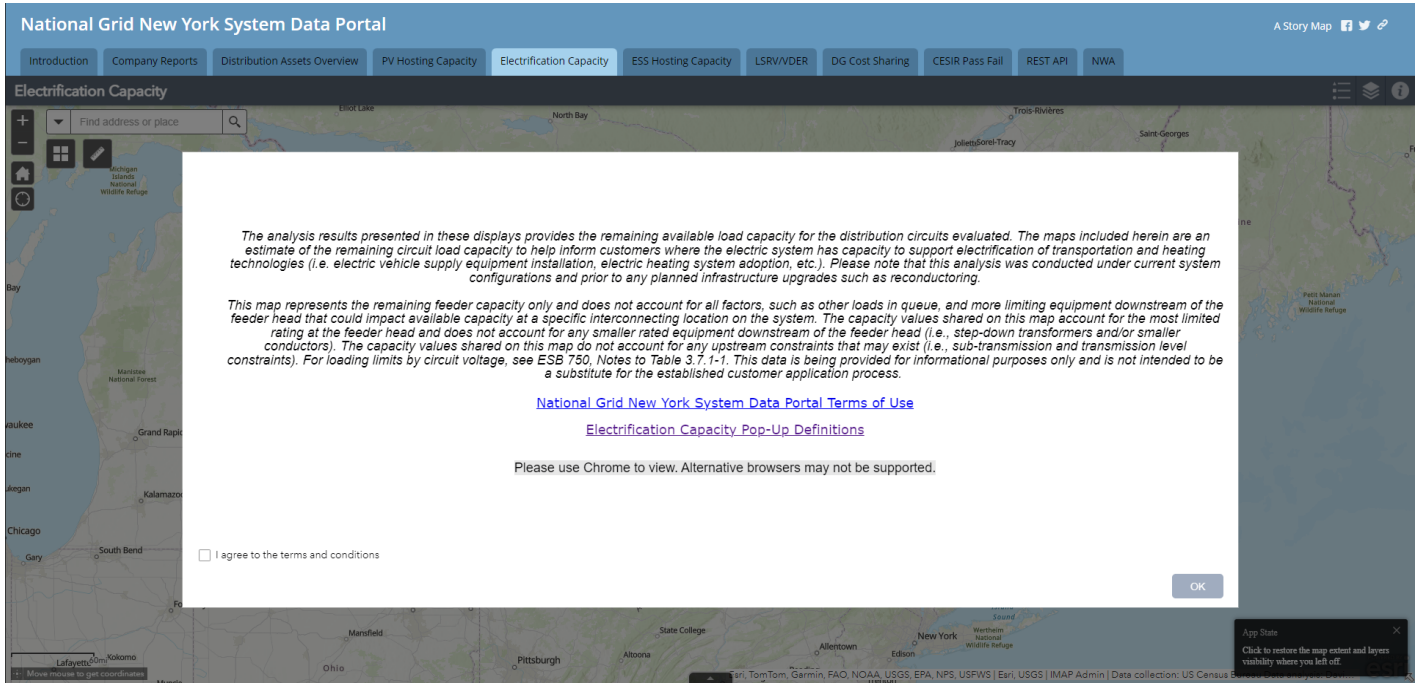
Tabs – Electrification Capacity Map

nationalgrid

Tab – Electrification Capacity

When the Electrification Capacity Tab is selected a screen appears showing links to two PDFs that should be read carefully before going further:

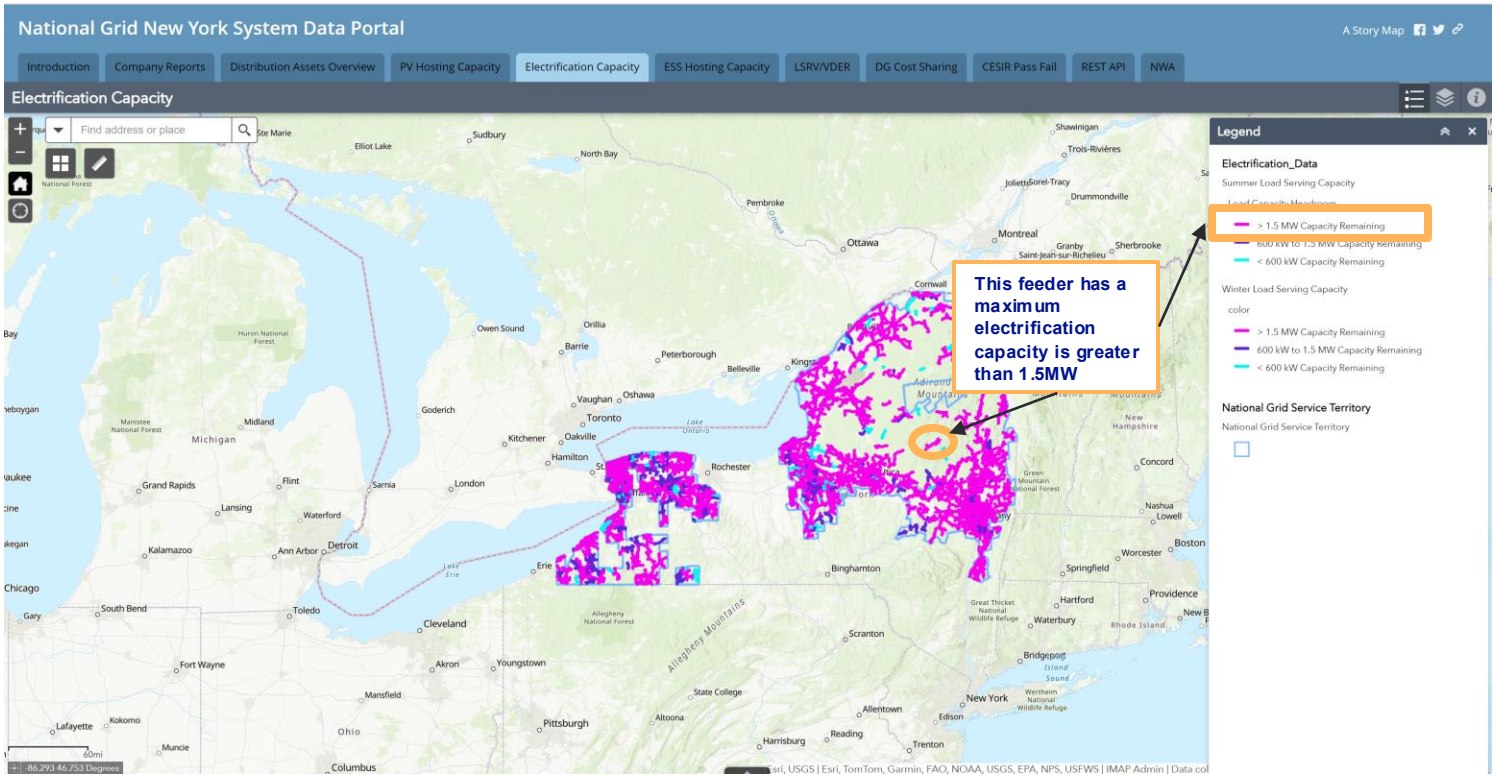
- National Grid New York System Information Portal Terms of Use: This document explains the terms of use you agree upon to use the Electrification Capacity Tab.
- Electrification Capacity Pop-Up Definitions: This document provides detailed explanations of each line item in the pop-ups displayed on this tab.



Tab – Electrification Capacity

The Electrification Capacity details an estimate of how much capacity is available to electrify transportation and heating technologies.

The map is colored based on the remaining MW capacity for a specific feeder, substation, or primary line voltage.

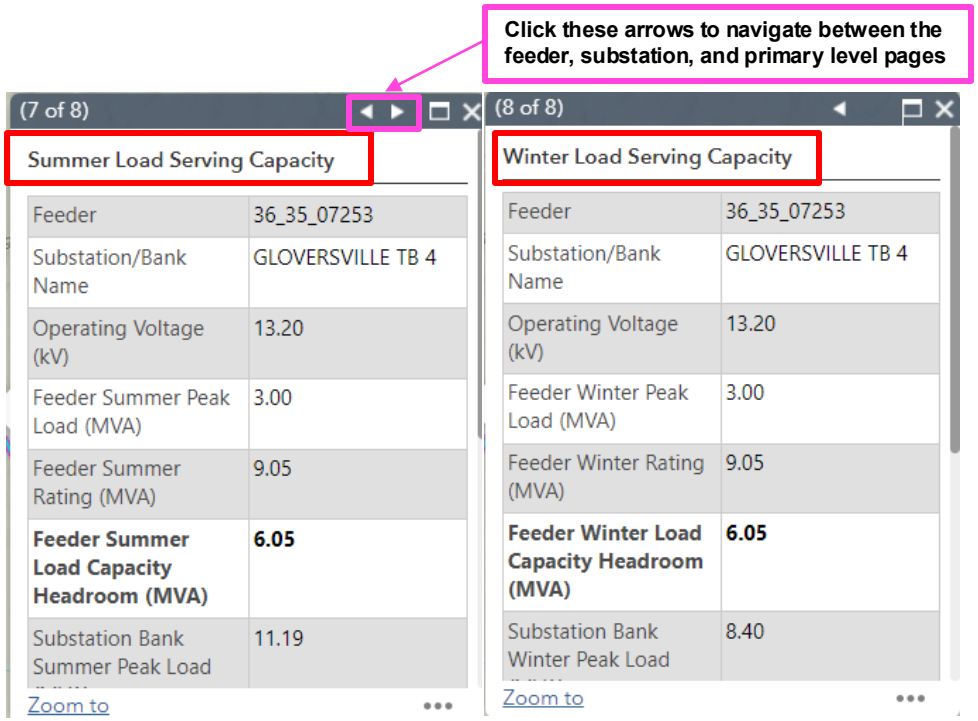


Tab – Electrification Capacity

Within the Electrification Capacity Map, there are 3 different types of pop-up windows: Summer Load Serving Capacity, Winter Load Serving Capacity, and Primary Load Capacity.

Summer and Winter Load Serving contain the same information such as in one window for the feeder and substation selected:

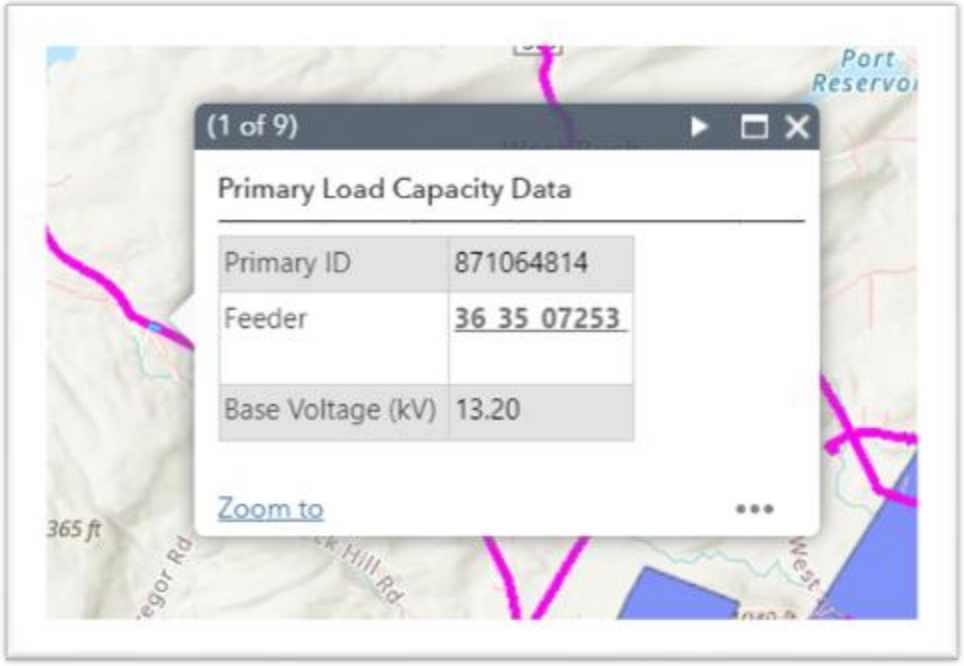
- Feeder
- Substation Bank Name
- Operating Voltage
- Peak Load
- Rating
- Load Capacity Headroom
- Refresh Date
- Notes (If any)



Tab – Electrification Capacity

The Primary Load Capacity popup window contains the following:

- Primary ID
- Feeder (which is a clickable link the nCAP portal for the asset)
- Base Voltage



2.5

Tabs – ESS Hosting Capacity Map

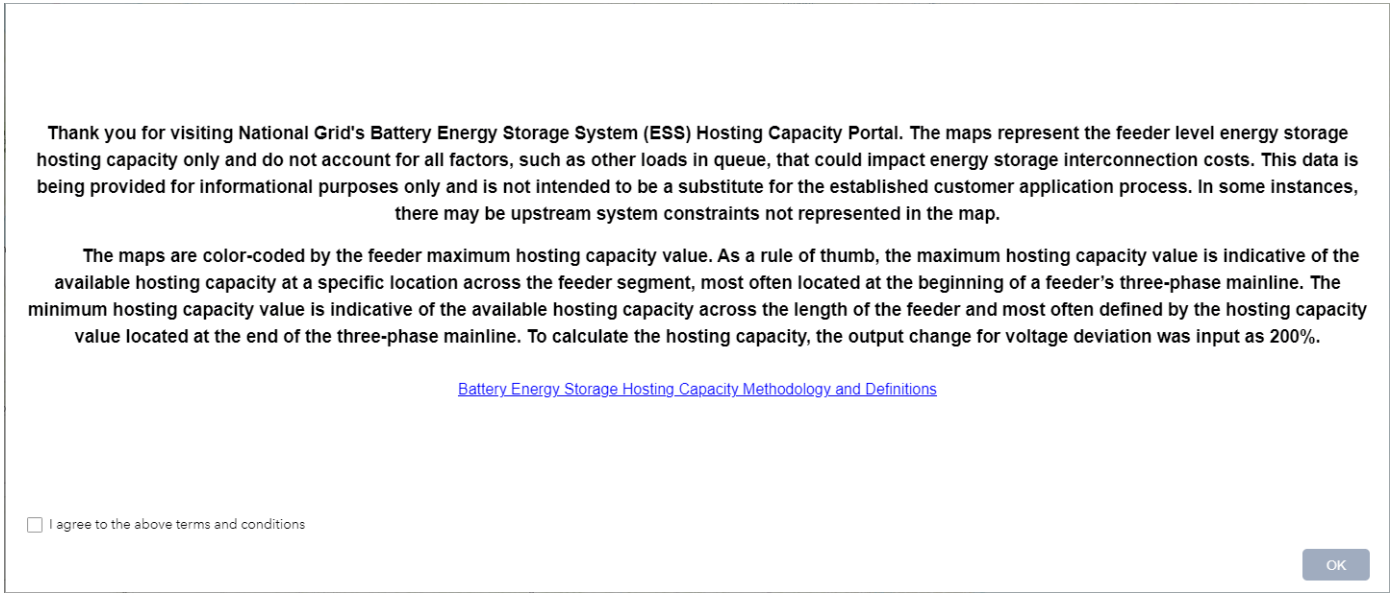
nationalgrid

Tab – ESS Hosting Capacity

The Energy Storage Hosting Capacity Tab shows an estimate of the amount of Energy Storage System that may be accommodated by a feeder without adversely impacting power quality or reliability under current configurations and without infrastructure upgrades.

Similar to the other maps, a screen appears showing the legal disclaimer to one PDFs that should be read carefully before going further:

- **The ESS Hosting Capacity Analysis Methodology and Assumptions:** This document explains the assumptions and methods used in calculating the hosting capacity values and sheds light on how the results should be interpreted



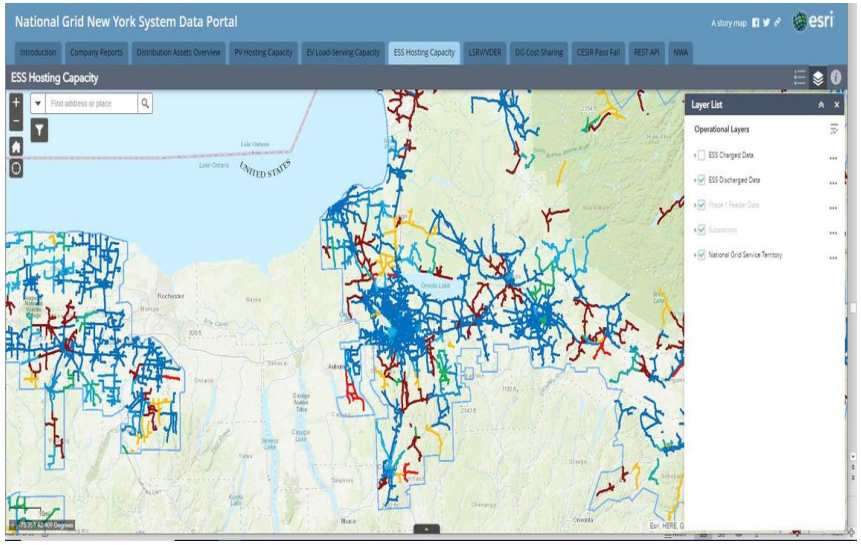
Tab – ESS Hosting Capacity

The ESS Hosting Capacity has two layers.

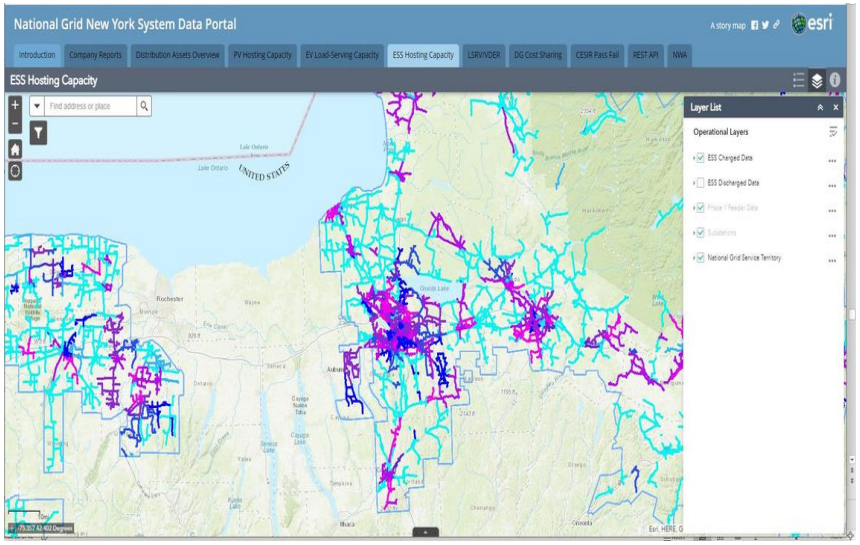
1. **Discharging** (or exporting power onto the grid)
2. **Charging** (or using the Grid to *charge* an Energy Storage system)

Both layers have the data mapped for the feeder's ESS HCA max while the minimum is provided in the feeder popup

Discharge Layer View



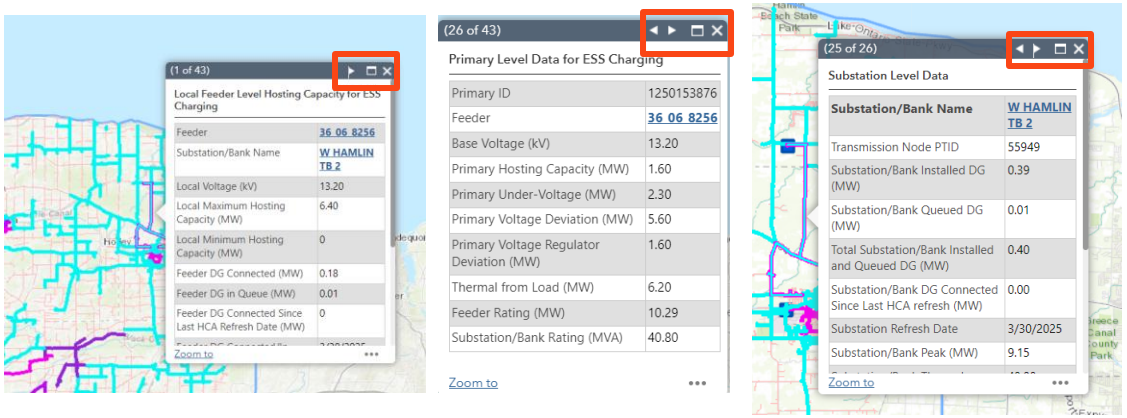
Charging Layer View



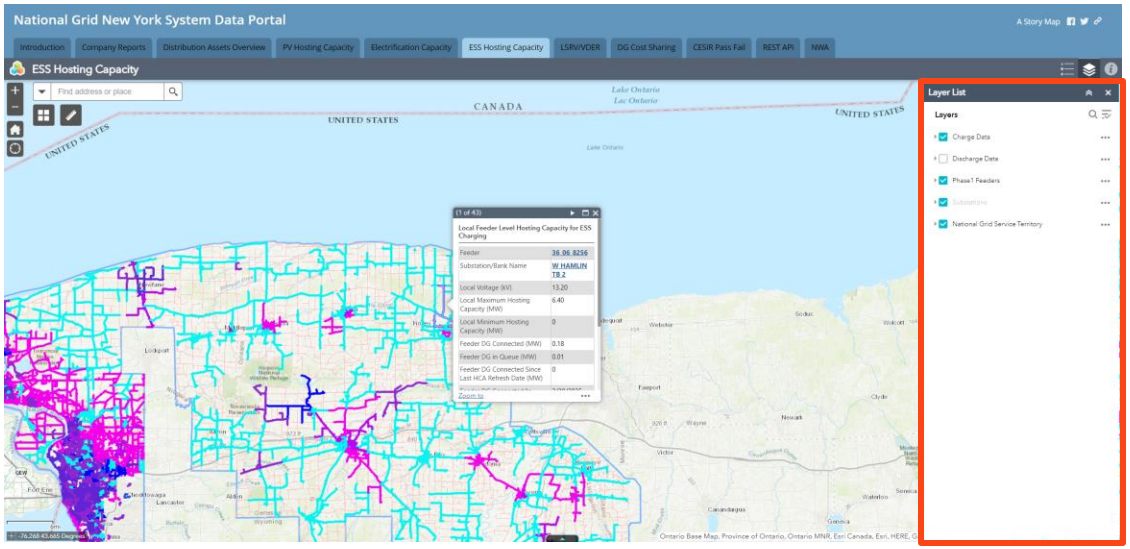
Tab – ESS Hosting Capacity

To view a feeder popup, its substation level data, and primary, you can do the following:

Zoom in, select the feeder, use the arrows to cycle through the different popups like what is shown here.



To toggle between the layers, go to the layer list and select which mode you wish to view.

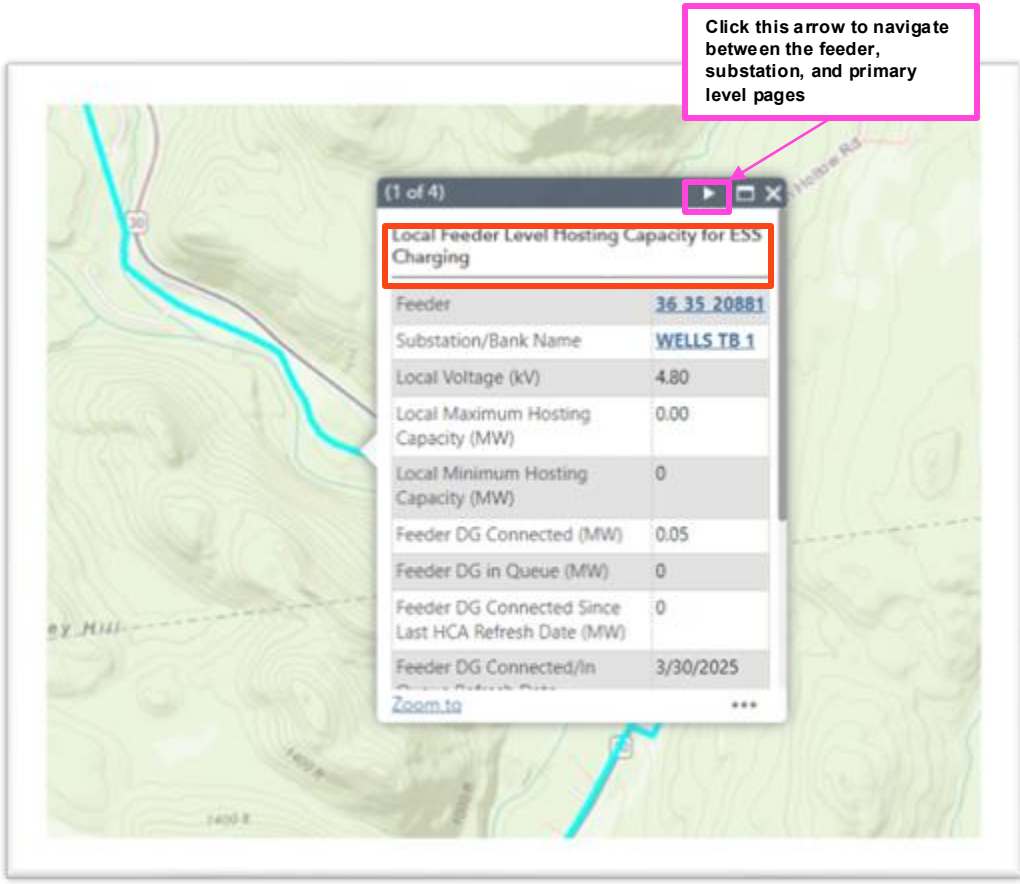


Tab – ESS Hosting Capacity

Below explains what the ESS Feeder Level Hosting Capacity pop-ups detail.

The Feeder Level page includes information such as:

- Feeder and Substation Bank/Name (which are clickable links to the nCAP portal for the asset)
- Local voltage (circuit voltage at substation)
- The local minimum and maximum hosting capacity of the circuit
- The DG connected and in queue on the feeder
- The dates the information were last refreshed
- Some general feeder characteristics.



Tab – ESS Hosting Capacity

Below explains what Substation Level Data pop-ups detail.

The Substation Level page includes information such as:

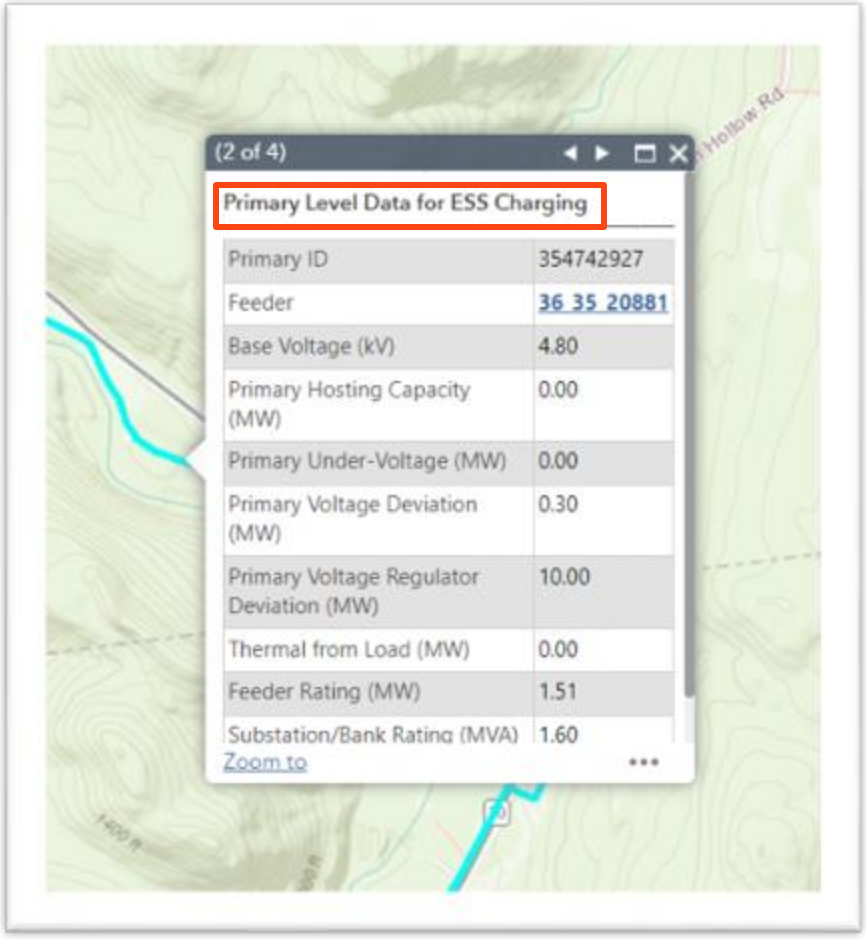
- Substation Bank/Name (which is a clickable links to the nCAP portal for the asset)
- Transmission Node PTID
- DG connected, in queue at the substation bank level, and the sum of these two rows
- Amount connected since last map refresh
- Last refresh date
- Previous year's peak at the substation bank
- Some general substation characteristics

Tab – ESS Hosting Capacity

Below explains what the Primary Level Data pop-ups detail.

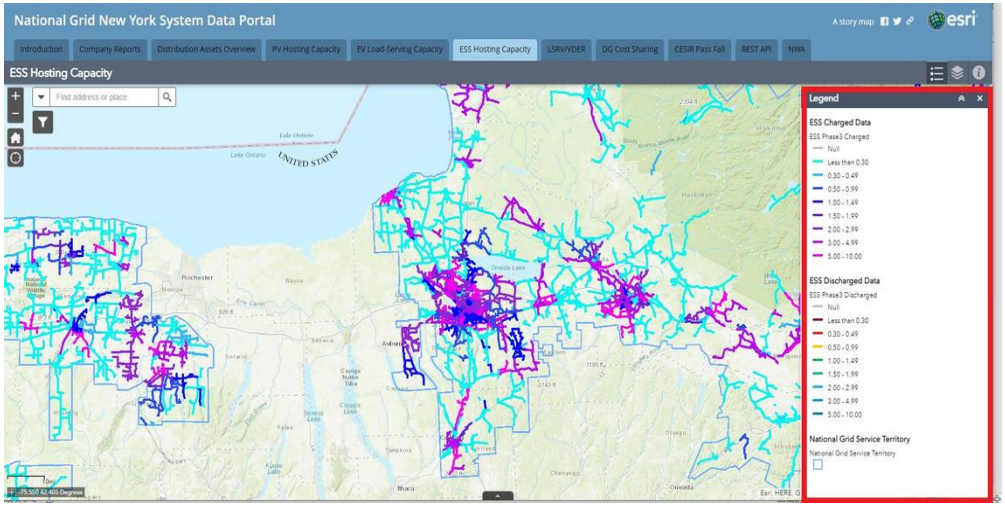
The Primary Level page includes information for that line such as:

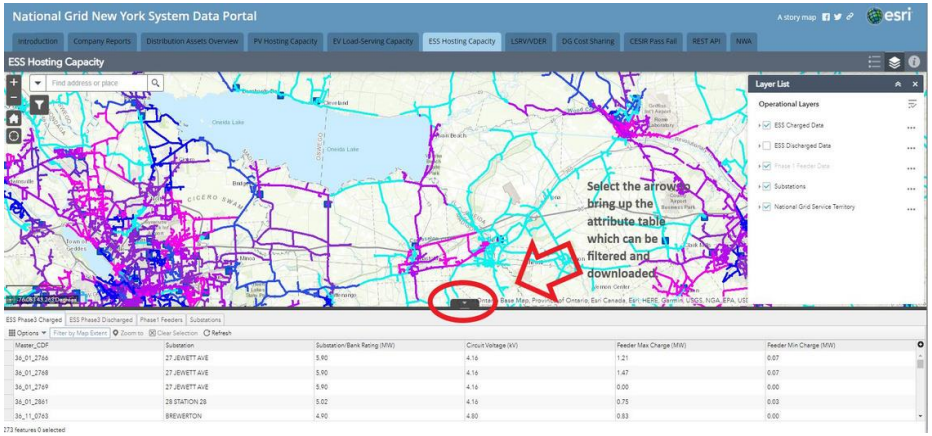
- The primary line id
- The feeder the line is on (which is a clickable link the nCAP portal for the asset)
- Base Voltage
- Primary Hosting Capacity (minimum of values below)
- Primary Over-Voltage
- Primary Voltage, and Regulator, Deviation
- Thermal from Generation
- Anti-Islanding
- Flicker Value
- The latest Feeder Rating and Substation Bank rating



Tab – ESS Hosting Capacity

Different color schemes were selected to differentiate between the modes of operation





The data can also be filtered and downloaded as a CSV from the attribute table

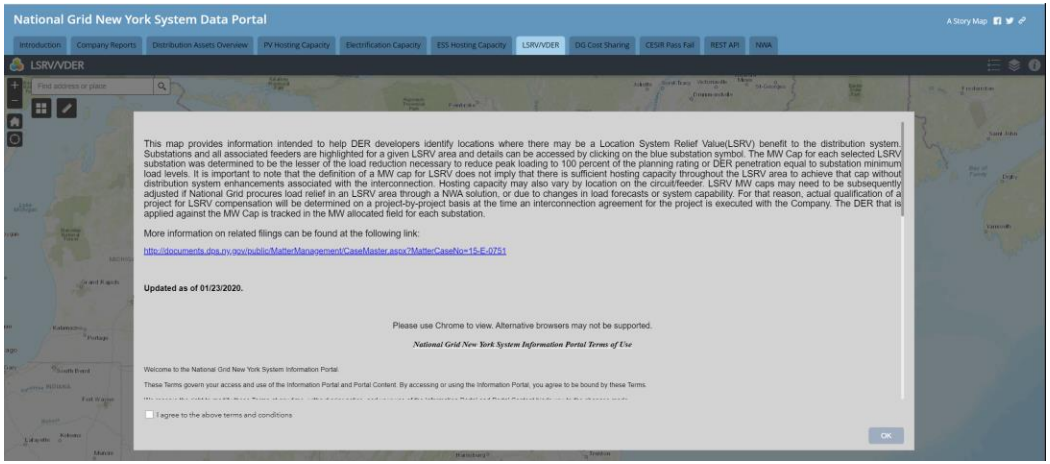
2.6

Tabs – LSRV/VDER Map

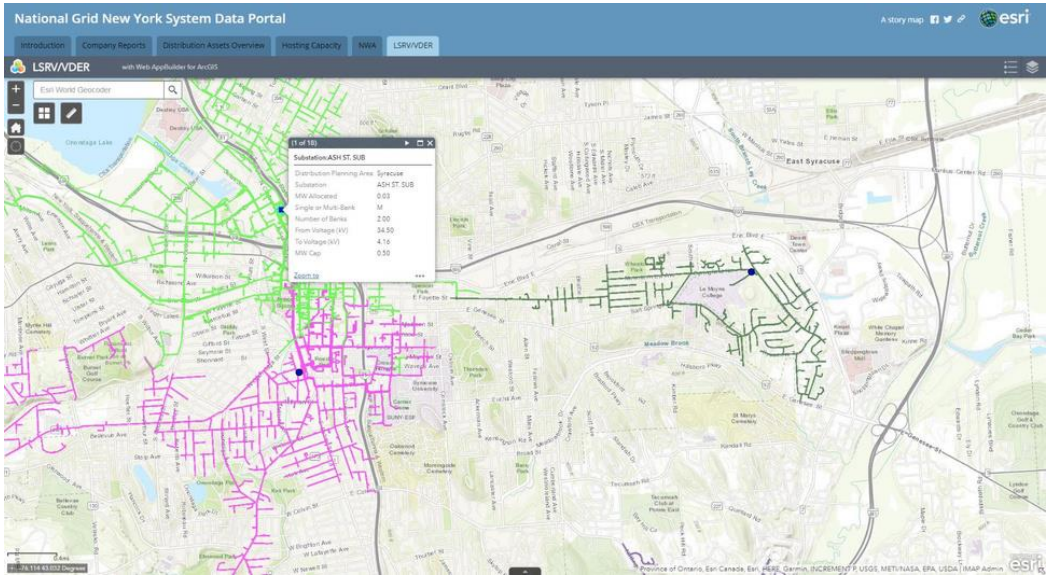
nationalgrid

Tab – LSRV/VDER

The LSRV/VDER map indicates the substations on which Location System Relief Value (LSRV) compensation is available as part of the VDER Value Stack compensation. As with all map pages, a disclaimer page first appears including important information such as methodology used in the analysis, the last update date, and a link to related regulatory filings.

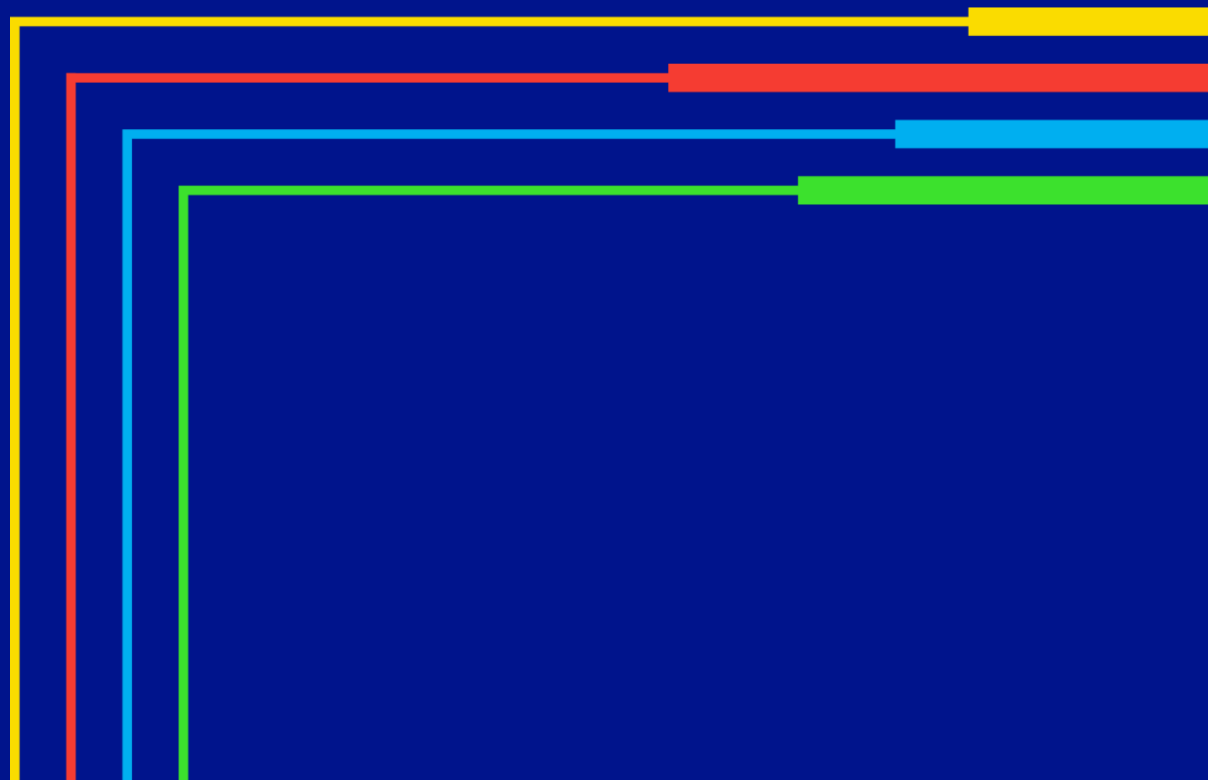


- On the map, substations and all associated feeders are highlighted for a given LSRV area and details can be accessed by clicking on the blue substation symbols.
- The LSRV pop-up contains the substation name, the distribution planning area of the station, the MW allocated, and the MW cap.



2.7

Tabs – DG Cost Sharing

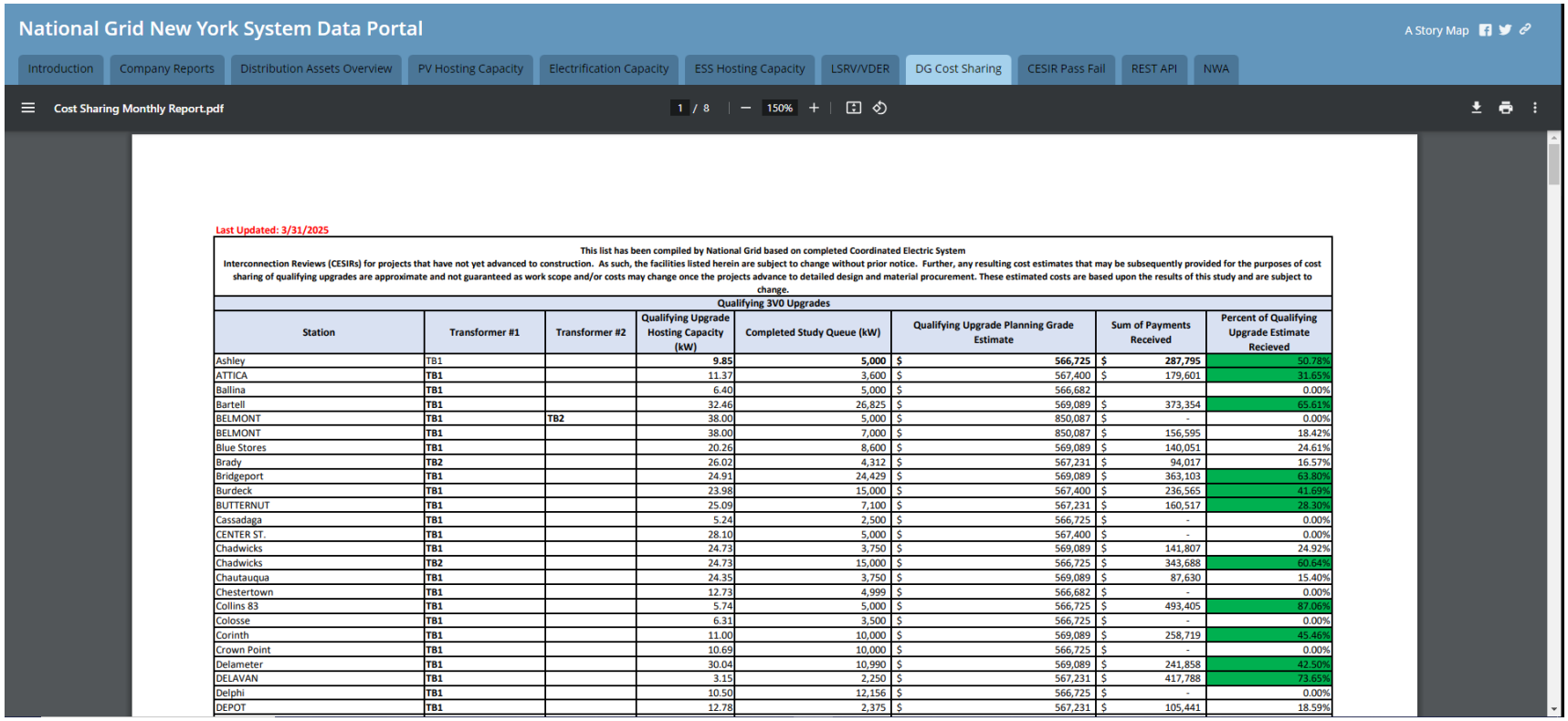


nationalgrid

Tab – DG Cost Sharing

The information provided on this tab identifies "Qualifying Upgrades" per DG cost sharing order (Case 20-E-0543).

These upgrades have been identified in a completed CESIR but may not have advanced to construction.



Last Updated: 3/31/2025

This list has been compiled by National Grid based on completed Coordinated Electric System Interconnection Reviews (CESIRs) for projects that have not yet advanced to construction. As such, the facilities listed herein are subject to change without prior notice. Further, any resulting cost estimates that may be subsequently provided for the purposes of cost sharing of qualifying upgrades are approximate and not guaranteed as work scope and/or costs may change once the projects advance to detailed design and material procurement. These estimated costs are based upon the results of this study and are subject to change.

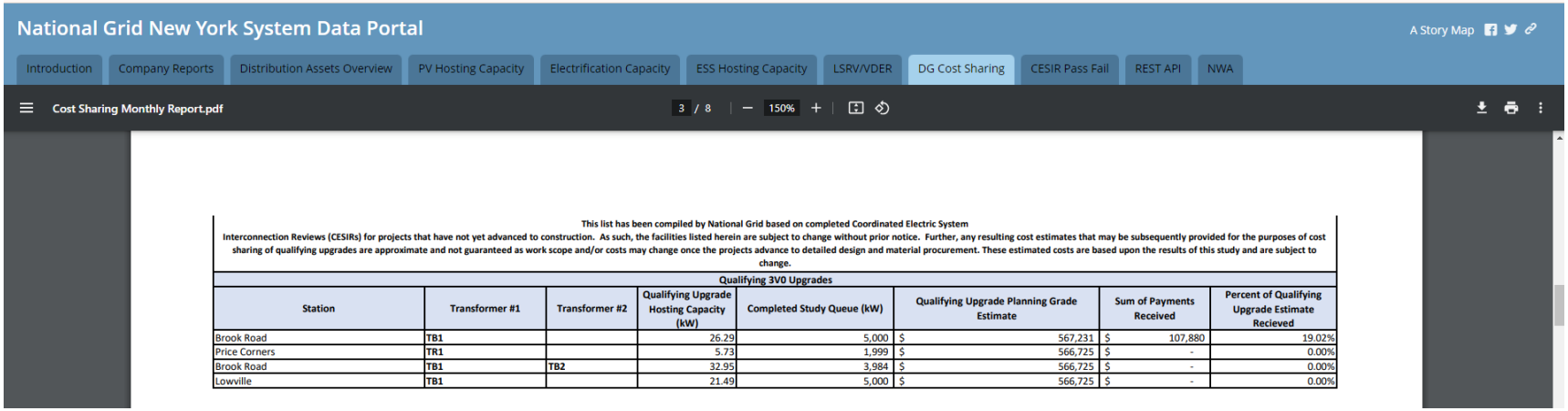
Qualifying 3V0 Upgrades

Station	Transformer #1	Transformer #2	Qualifying Upgrade Hosting Capacity (kW)	Completed Study Queue (kW)	Qualifying Upgrade Planning Grade Estimate	Sum of Payments Received	Percent of Qualifying Upgrade Estimate Recieved
Ashley	TB1		**9.85**	**5,000**	**$ 566,725**	**$ 287,795**	50.78%
ATTICA	**TB1**		11.37	3,600	$ 567,400	$ 179,601	31.65%
Ballina	**TB1**		6.40	5,000	$ 566,682		0.00%
Bartell	**TB1**		32.46	26,825	$ 569,089	$ 373,354	65.61%
BELMONT	**TB1**	**TB2**	38.00	5,000	$ 850,087	$ -	0.00%
BELMONT	**TB1**		38.00	7,000	$ 850,087	$ 156,595	18.42%
Blue Stores	**TB1**		20.26	8,600	$ 569,089	$ 140,051	24.61%
Brady	**TB2**		26.02	4,312	$ 567,231	$ 94,017	16.57%
Bridgeport	**TB1**		24.91	24,429	$ 569,089	$ 363,103	63.80%
Burdeck	**TB1**		23.98	15,000	$ 567,400	$ 236,565	41.69%
BUTTERNUT	**TB1**		25.09	7,100	$ 567,231	$ 160,517	28.30%
Cassadaga	**TB1**		5.24	2,500	$ 566,725	$ -	0.00%
CENTER ST.	**TB1**		28.10	5,000	$ 567,400	$ -	0.00%
Chadwicks	**TB1**		24.73	3,750	$ 569,089	$ 141,807	24.92%
Chadwicks	**TB2**		24.73	15,000	$ 566,725	$ 343,688	60.64%
Chautauqua	**TB1**		24.35	3,750	$ 569,089	$ 87,630	15.40%
Chestertown	**TB1**		12.73	4,999	$ 566,682	$ -	0.00%
Collins 83	**TB1**		5.74	5,000	$ 566,725	$ 493,405	87.06%
Colosse	**TB1**		6.31	3,500	$ 566,725	$ -	0.00%
Corinth	**TB1**		11.00	10,000	$ 569,089	$ 258,719	45.46%
Crown Point	**TB1**		10.69	10,000	$ 566,725	$ -	0.00%
Delameter	**TB1**		30.04	10,990	$ 569,089	$ 241,858	42.50%
DELAVAN	**TB1**		3.15	2,250	$ 567,231	$ 417,788	73.65%
Delphi	**TB1**		10.50	12,156	$ 566,725	$ -	0.00%
DEPOT	**TB1**		12.78	2,375	$ 567,231	$ 105,441	18.59%

Tab – DG Cost Sharing

Each upgrade has an estimated cost associated with them. Each cost is broken down into:

- Station Name
- Transformer (1 and 2 if there is an upgrades needed to multiple substation transformers),
- Amount of Hosting Capacity the upgrade needs to handle
- The completed study's kw
- Estimated upgrade costs
- Total payment received
- Percent payments received



This list has been compiled by National Grid based on completed Coordinated Electric System Interconnection Reviews (CESIRs) for projects that have not yet advanced to construction. As such, the facilities listed herein are subject to change without prior notice. Further, any resulting cost estimates that may be subsequently provided for the purposes of cost sharing of qualifying upgrades are approximate and not guaranteed as work scope and/or costs may change once the projects advance to detailed design and material procurement. These estimated costs are based upon the results of this study and are subject to change.

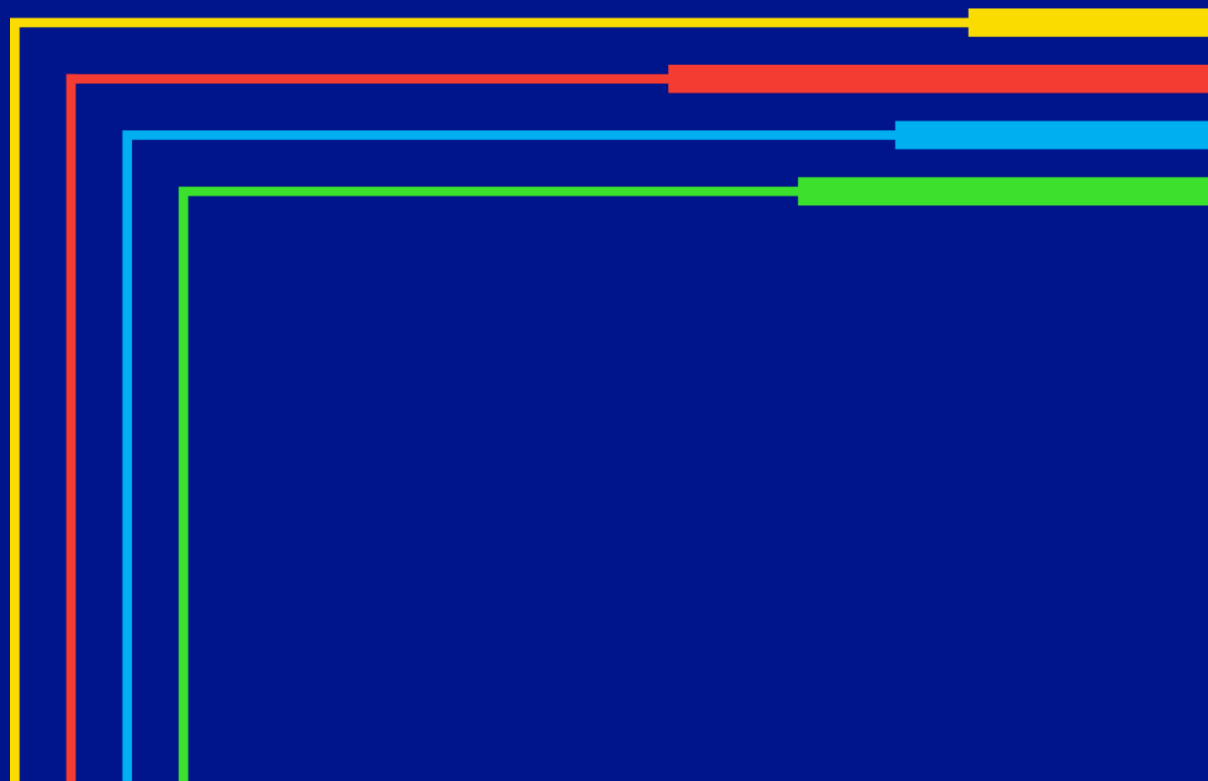
Qualifying 3V0 Upgrades

Station	Transformer #1	Transformer #2	Qualifying Upgrade Hosting Capacity (kW)	Completed Study Queue (kW)	Qualifying Upgrade Planning Grade Estimate	Sum of Payments Received	Percent of Qualifying Upgrade Estimate Recieved
Brook Road	TB1		26.29	5,000	$ 567,231	$ 107,880	19.02%
Price Corners	TR1		5.73	1,999	$ 566,725	$ -	0.00%
Brook Road	TB1	TB2	32.95	3,984	$ 566,725	$ -	0.00%
Lowville	TB1		21.49	5,000	$ 566,725	$ -	0.00%

2.8

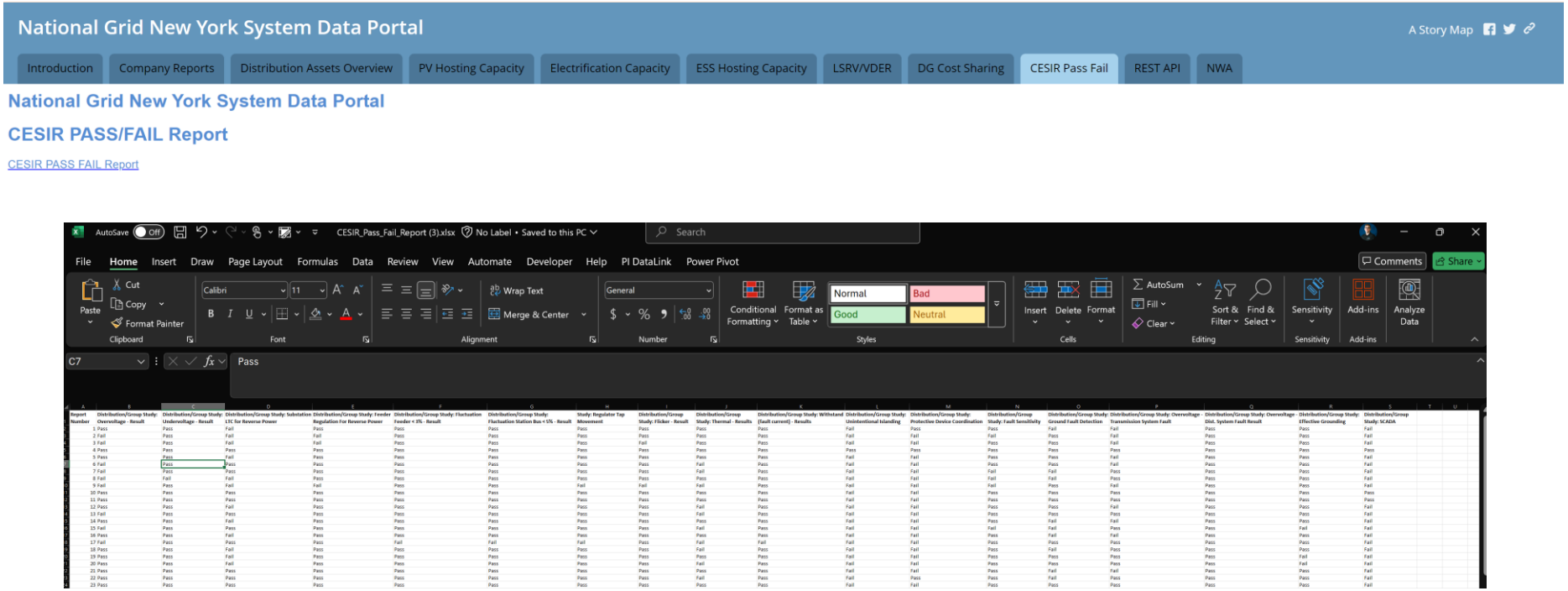
Tabs – CESIR Past Fail

nationalgrid



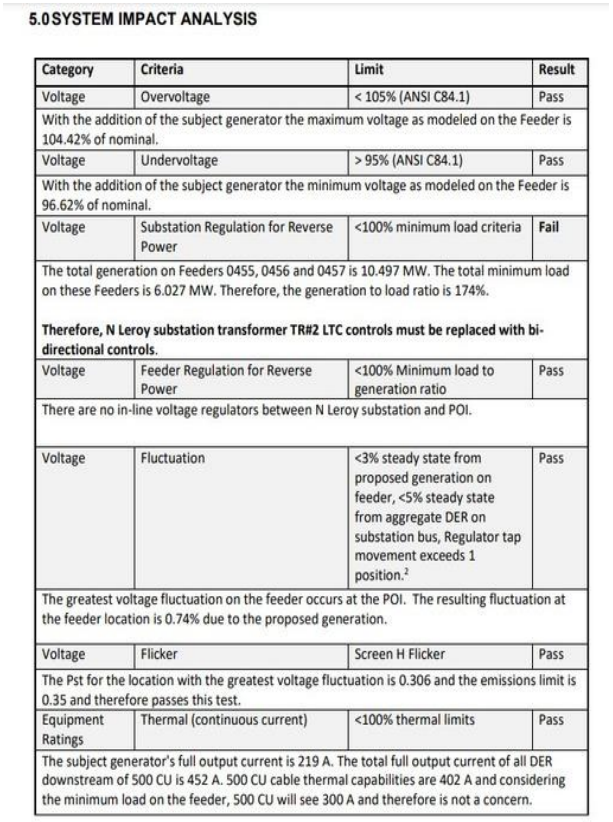
Tab – CESIR Pass Fail

A tab is provided with a downloadable excel file to view a list of results from the System Impact Analysis of CESIRs that have been performed. Each row corresponds to a single CESIR and the specific Pass/Fail results of the 18 CESIR criteria evaluated as part of the analysis.



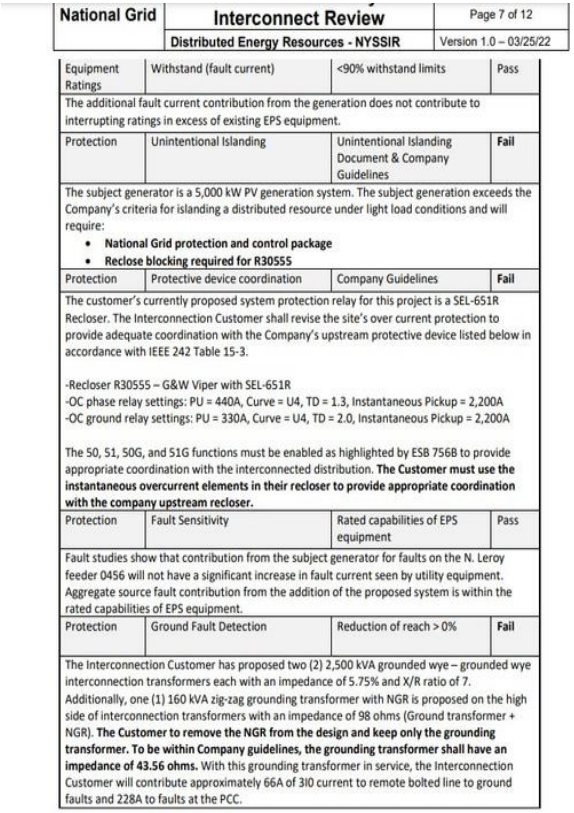
Tab – CESIR Pass Fail

Below is an example excerpt from the System Impact Analysis of a CESIR. Each criteria's Pass/Fail result are the values shared in the CESIR Pass Fail report.

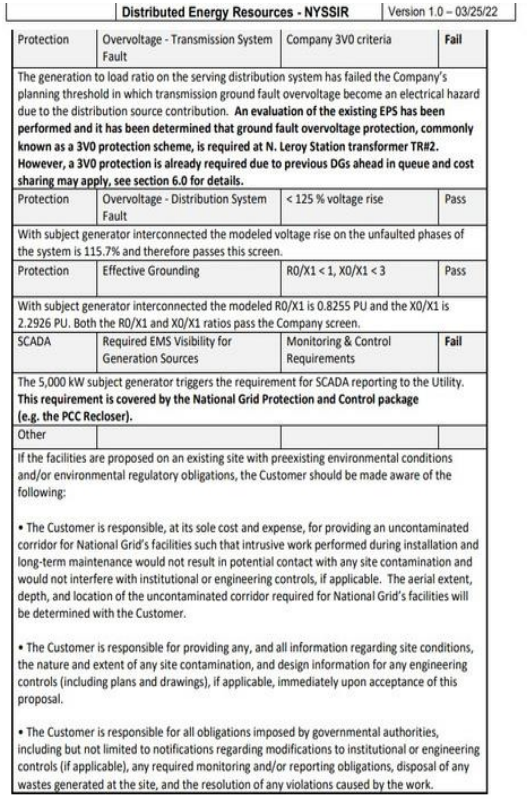


5.0 SYSTEM IMPACT ANALYSIS

Category	Criteria	Limit	Result
Voltage	Overvoltage	< 105% (ANSI C84.1)	Pass
With the addition of the subject generator the maximum voltage as modeled on the Feeder is 104.42% of nominal.			
Voltage	Undervoltage	> 95% (ANSI C84.1)	Pass
With the addition of the subject generator the minimum voltage as modeled on the Feeder is 96.62% of nominal.			
Voltage	Substation Regulation for Reverse Power	<100% minimum load criteria	**Fail**
The total generation on Feeders 0455, 0456 and 0457 is 10.497 MW. The total minimum load on these Feeders is 6.027 MW. Therefore, the generation to load ratio is 174%. **Therefore, N Leroy substation transformer TR#2 LTC controls must be replaced with bi-directional controls.**			
Voltage	Feeder Regulation for Reverse Power	<100% Minimum load to generation ratio	Pass
There are no in-line voltage regulators between N Leroy substation and POI.			
Voltage	Fluctuation	<3% steady state from proposed generation on feeder, <5% steady state from aggregate DER on substation bus, Regulator tap movement exceeds 1 position.[2]	Pass
The greatest voltage fluctuation on the feeder occurs at the POI. The resulting fluctuation at the feeder location is 0.74% due to the proposed generation.			
Voltage	Flicker	Screen H Flicker	Pass
The Pst for the location with the greatest voltage fluctuation is 0.306 and the emissions limit is 0.35 and therefore passes this test.			
Equipment Ratings	Thermal (continuous current)	<100% thermal limits	Pass
The subject generator's full output current is 219 A. The total full output current of all DER downstream of 500 CU is 452 A. 500 CU cable thermal capabilities are 402 A and considering the minimum load on the feeder, 500 CU will see 300 A and therefore is not a concern.			



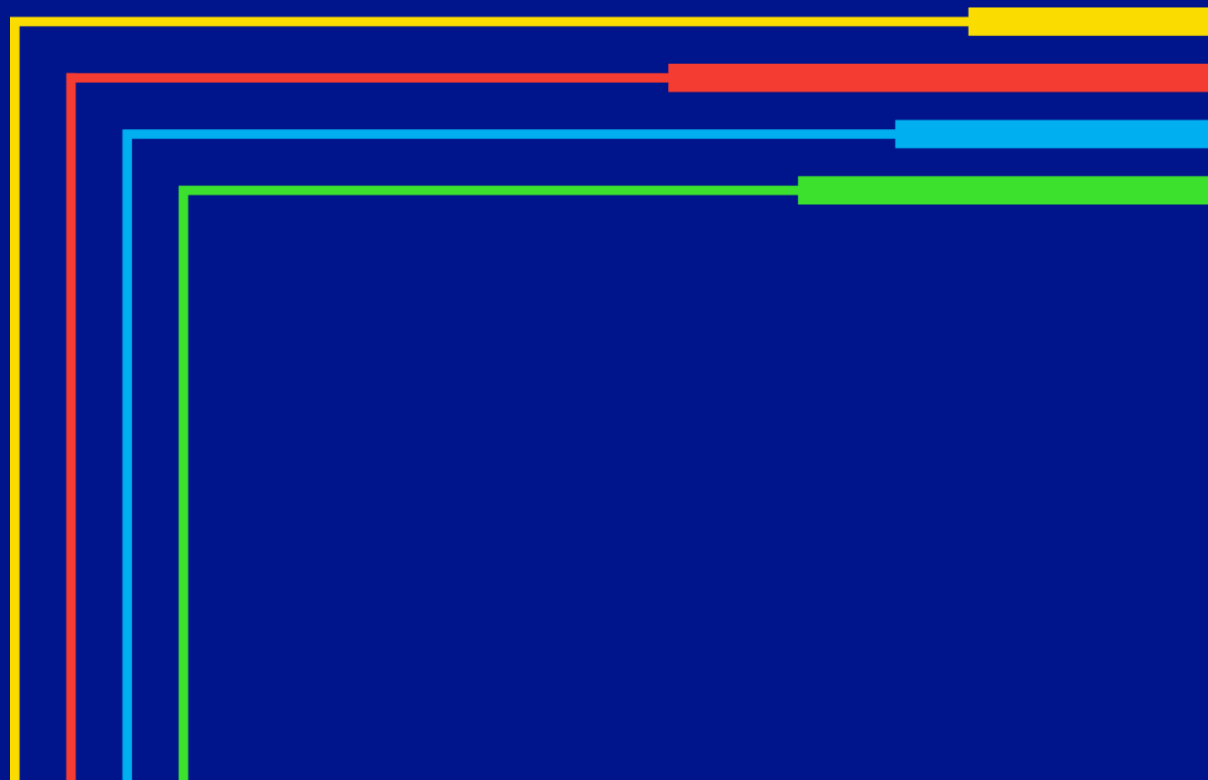
Equipment Ratings	Withstand (fault current)	<90% withstand limits	Pass
The additional fault current contribution from the generation does not contribute to interrupting ratings in excess of existing EPS equipment.			
Protection	Unintentional Islanding	Unintentional Islanding Document & Company Guidelines	**Fail**
The subject generator is a 5,000 kW PV generation system. The subject generation exceeds the Company's criteria for islanding a distributed resource under light load conditions and will require: • **National Grid protection and control package** • **Reclose blocking required for R30555**			
Protection	Protective device coordination	Company Guidelines	**Fail**
The customer's currently proposed system protection relay for this project is a SEL-651R Recloser. The Interconnection Customer shall revise the site's over current protection to provide adequate coordination with the Company's upstream protective device listed below in accordance with IEEE 242 Table 15-3. -Recloser R30555 – G&W Viper with SEL-651R -OC phase relay settings: PU = 440A, Curve = U4, TD = 1.3, Instantaneous Pickup = 2,200A -OC ground relay settings: PU = 330A, Curve = U4, TD = 2.0, Instantaneous Pickup = 2,200A The 50, 51, 50G, and 51G functions must be enabled as highlighted by ESB 756B to provide appropriate coordination with the interconnected distribution. **The Customer must use the instantaneous overcurrent elements in their recloser to provide appropriate coordination with the company upstream recloser.**			
Protection	Fault Sensitivity	Rated capabilities of EPS equipment	Pass
Fault studies show that contribution from the subject generator for faults on the N. Leroy feeder 0456 will not have a significant increase in fault current seen by utility equipment. Aggregate source fault contribution from the addition of the proposed system is within the rated capabilities of EPS equipment.			
Protection	Ground Fault Detection	Reduction of reach > 0%	**Fail**
The Interconnection Customer has proposed two (2) 2,500 kVA grounded wye – grounded wye interconnection transformers each with an impedance of 5.75% and X/R ratio of 7. Additionally, one (1) 160 kVA zig-zag grounding transformer with NGR is proposed on the high side of interconnection transformers with an impedance of 98 ohms (Ground transformer + NGR). **The Customer to remove the NGR from the design and keep only the grounding transformer. To be within Company guidelines, the grounding transformer shall have an impedance of 43.56 ohms.** With this grounding transformer in service, the Interconnection Customer will contribute approximately 66A of 3I0 current to remote bolted line to ground faults and 228A to faults at the PCC.			



Protection	Overvoltage - Transmission System Fault	Company 3V0 criteria	**Fail**
The generation to load ratio on the serving distribution system has failed the Company's planning threshold in which transmission ground fault overvoltage become an electrical hazard due to the distribution source contribution. **An evaluation of the existing EPS has been performed and it has been determined that ground fault overvoltage protection, commonly known as a 3V0 protection scheme, is required at N. Leroy Station transformer TR#2. However, a 3V0 protection is already required due to previous DGs ahead in queue and cost sharing may apply, see section 6.0 for details.**			
Protection	Overvoltage - Distribution System Fault	< 125 % voltage rise	Pass
With subject generator interconnected the modeled voltage rise on the unfaulted phases of the system is 115.7% and therefore passes this screen.			
Protection	Effective Grounding	R0/X1 < 1, X0/X1 < 3	Pass
With subject generator interconnected the modeled R0/X1 is 0.8255 PU and the X0/X1 is 2.2926 PU. Both the R0/X1 and X0/X1 ratios pass the Company screen.			
SCADA	Required EMS Visibility for Generation Sources	Monitoring & Control Requirements	**Fail**
The 5,000 kW subject generator triggers the requirement for SCADA reporting to the Utility. **This requirement is covered by the National Grid Protection and Control package (e.g. the PCC Recloser).**			
Other			
If the facilities are proposed on an existing site with preexisting environmental conditions and/or environmental regulatory obligations, the Customer should be made aware of the following: • The Customer is responsible, at its sole cost and expense, for providing an uncontaminated corridor for National Grid's facilities such that intrusive work performed during installation and long-term maintenance would not result in potential contact with any site contamination and would not interfere with institutional or engineering controls, if applicable. The aerial extent, depth, and location of the uncontaminated corridor required for National Grid's facilities will be determined with the Customer. • The Customer is responsible for providing any, and all information regarding site conditions, the nature and extent of any site contamination, and design information for any engineering controls (including plans and drawings), if applicable, immediately upon acceptance of this proposal. • The Customer is responsible for all obligations imposed by governmental authorities, including but not limited to notifications regarding modifications to institutional or engineering controls (if applicable), any required monitoring and/or reporting obligations, disposal of any wastes generated at the site, and the resolution of any violations caused by the work.			

2.9

Tabs – REST API and NWA Tabs

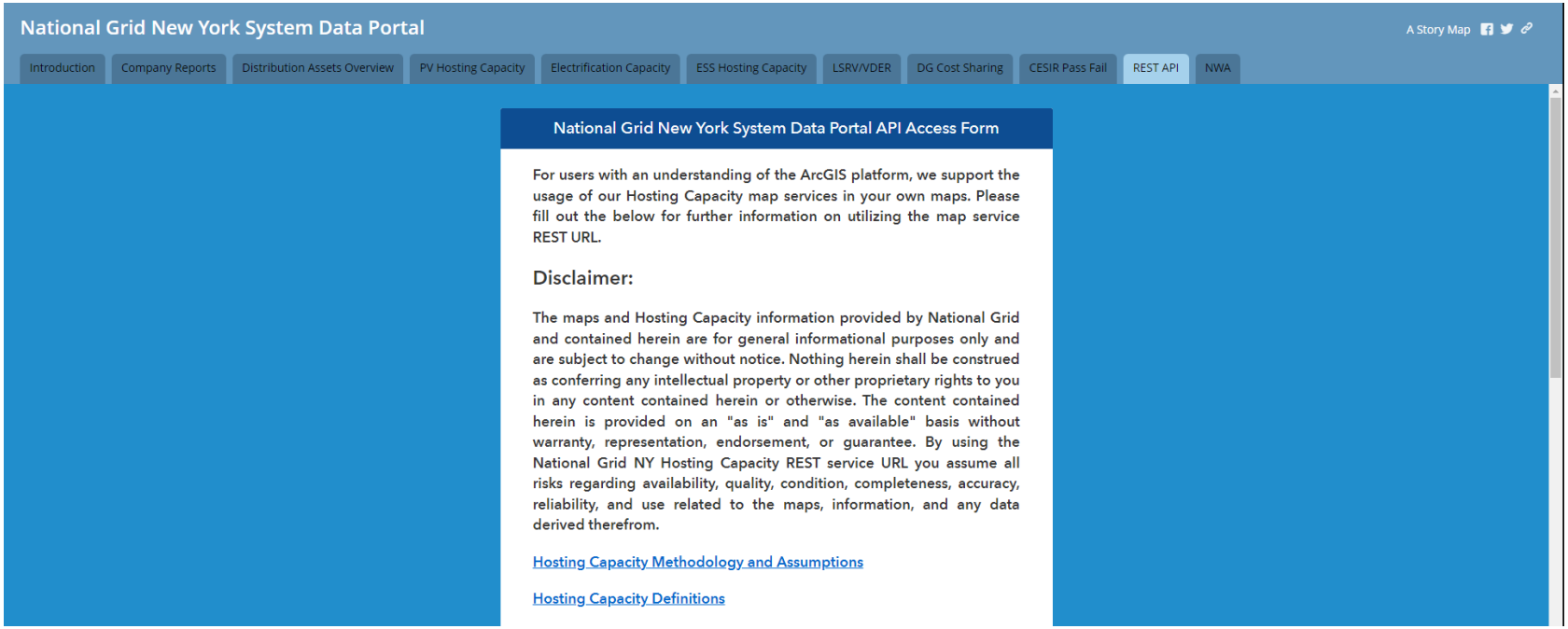


nationalgrid

Tab – REST API

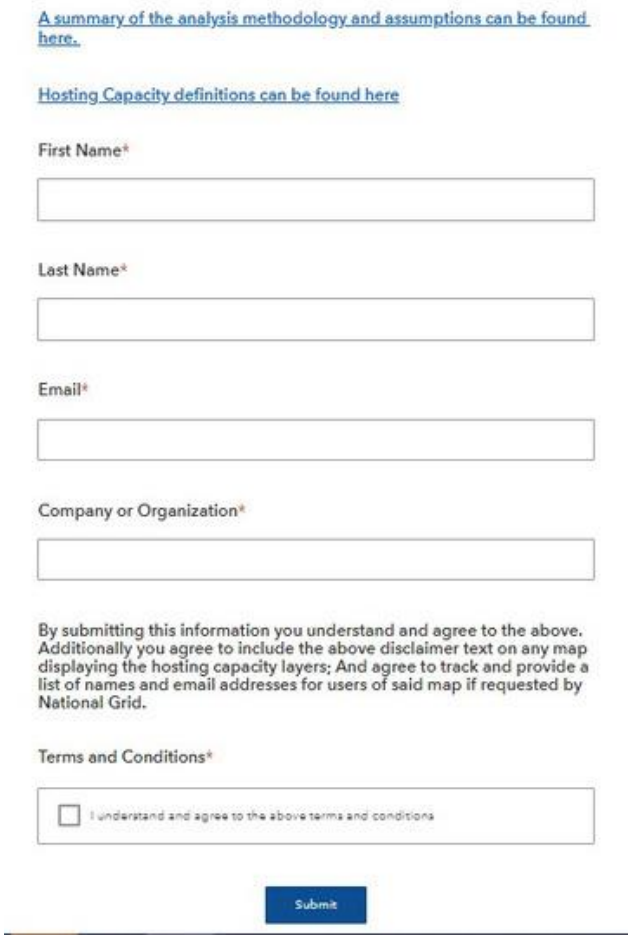
Third parties can now overlay JU Hosting Capacity data within their own GIS systems and mapping tools.

The REST URL access provides a live version of the current hosting capacity maps enabling access to the most up-to-date information



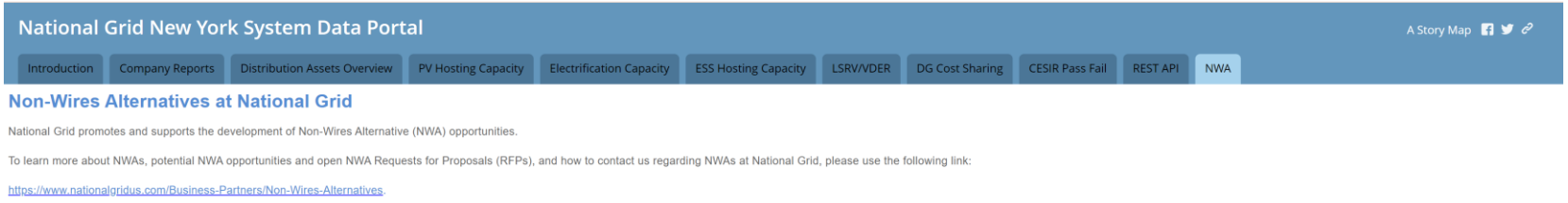
Tab – REST API

- **Fill out the REST API form confirming your information.**
- This also indicates that you will place the disclaimer language.
- This also confirms that you will track who uses your map and provide a list of users if requested by National Grid



Tab – NWA (Non-Wire Alternatives)

The NWA Tab contains a link to National Grid's Non-Wires Alternatives web page which includes helpful information about NWAs, basic project metrics, and scope and timing of potential future NWA opportunities. Requests for Proposal or the like will contain more details about project scope, area information, and timing.



nationalgrid