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National Grid New York System Data Portal: User Guide

October 2022

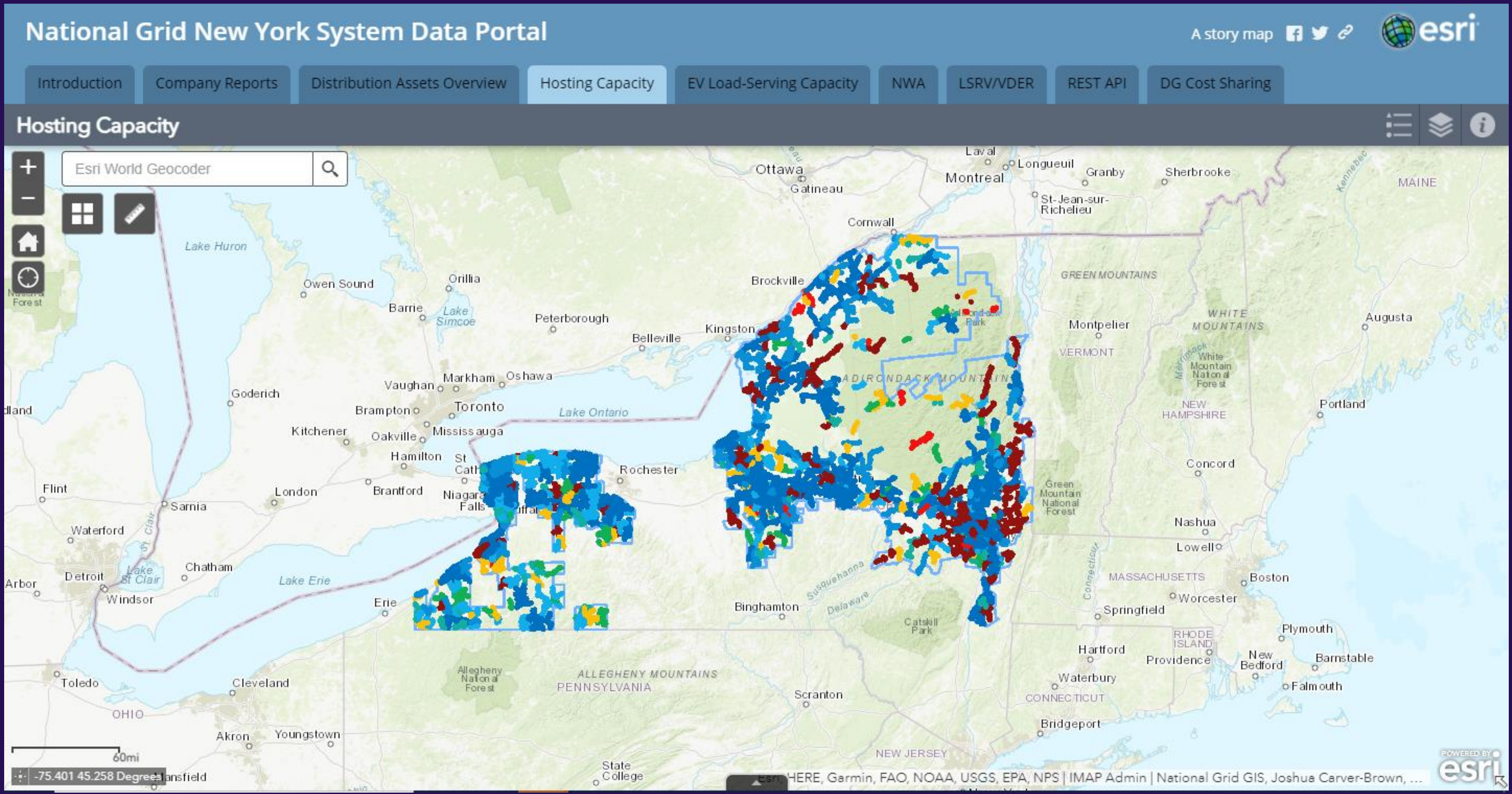

Table of Contents

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Overview

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[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 selected electric distribution lines and associated substations within the National Grid NY electric service area.

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. A number of factors drive the ability and cost of interconnecting distributed generation to the electric system and actual interconnection requirements and costs will be determined following detailed studies. These studies will consider your specific project location, operating characteristics 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.

Navigation - Tabs

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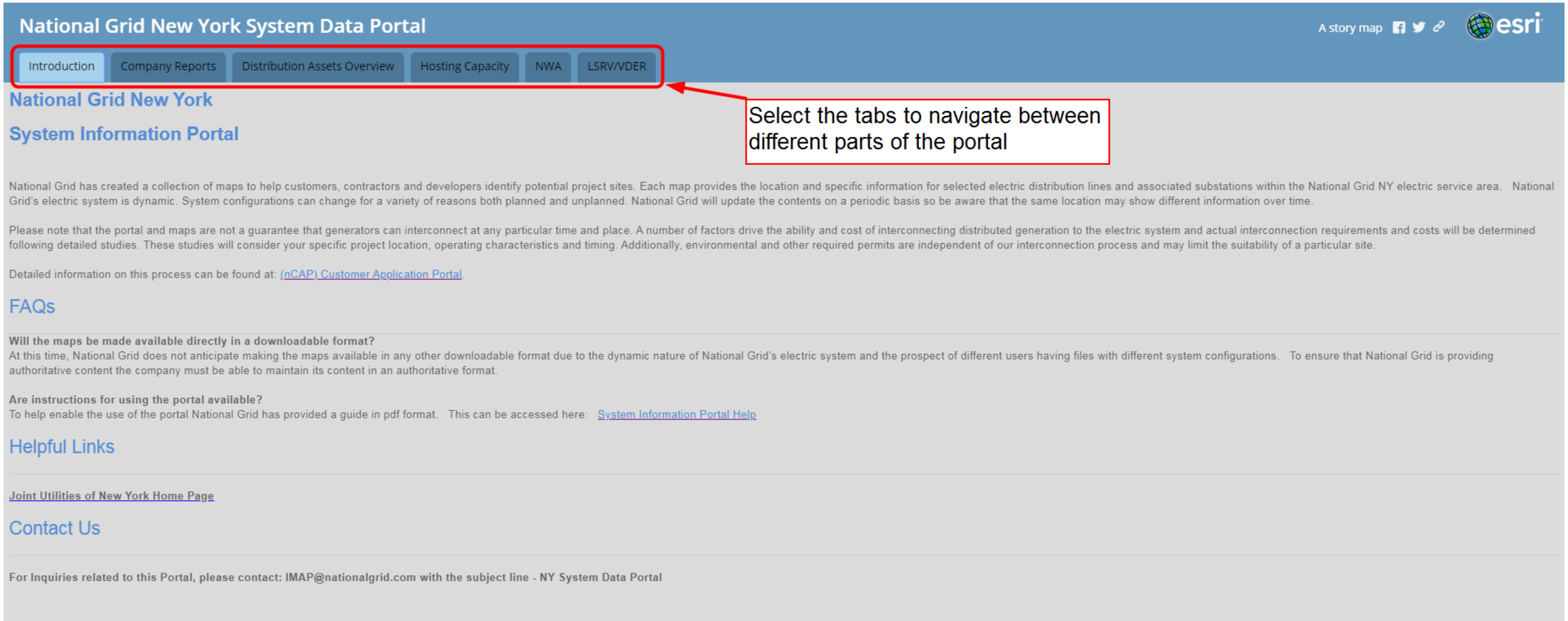
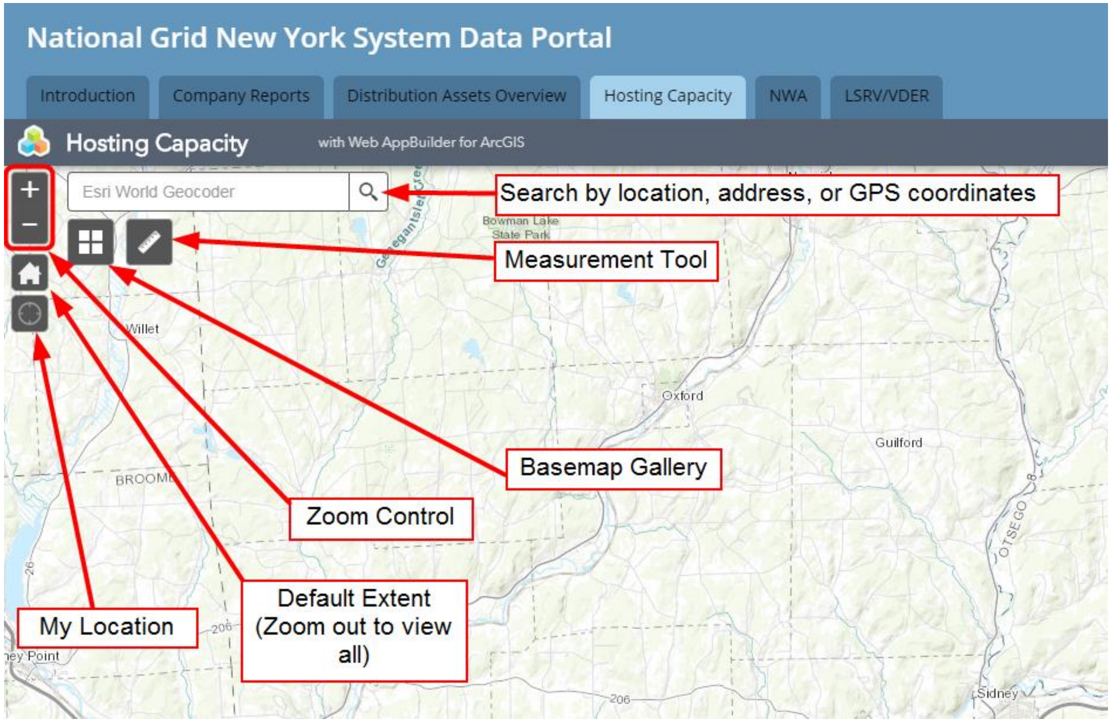
- The National Grid New York System Data Portal is organized into defined tabs with each tab containing specific information tailored to a certain aspect of the National Grid New York electric power system.



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 with regard to navigation and display features.
- Several navigation icons are shown on the upper left-hand corner of the map.



Navigation – Portal Map

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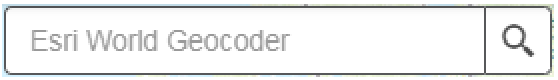

- Search Bar: Type in an address, location, place, or set of GPS coordinates to automatically bring the desired location into view

- 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 – Portal Map

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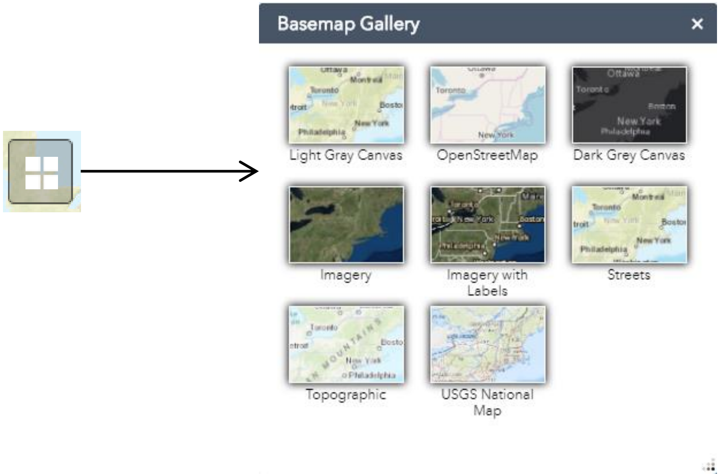
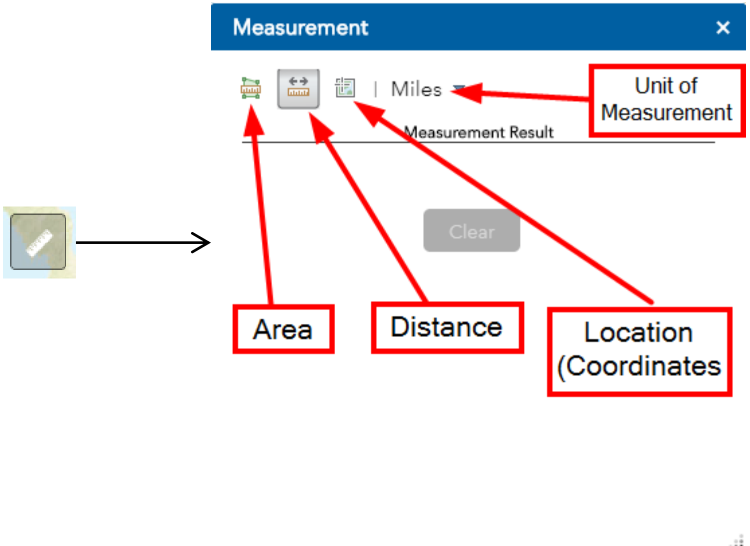


- <u>Basemap Gallery</u>: Choose from a list of basemaps to display as the background on the ESRI map



- <u>Measurement Tool</u>: 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 – Portal Map

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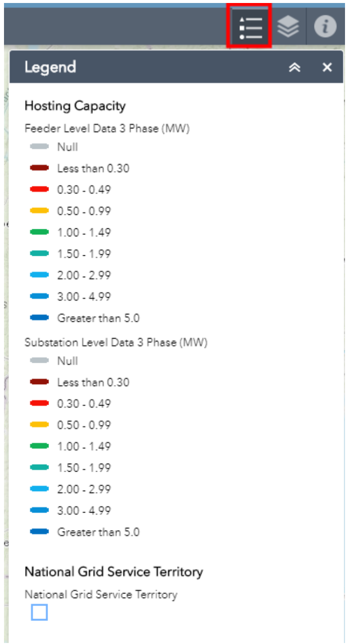
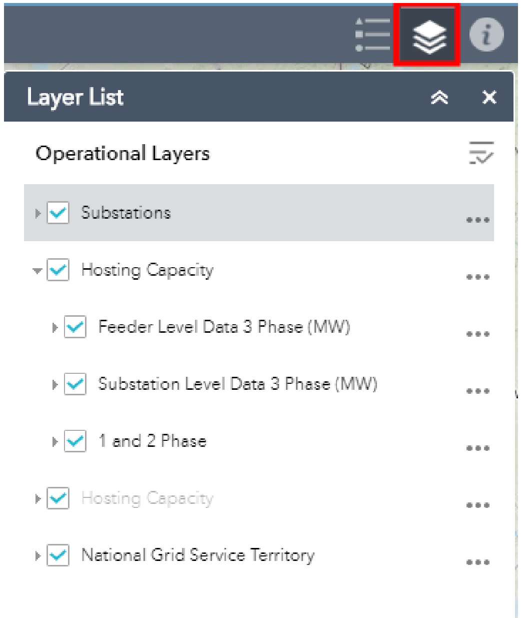
- The upper right-hand corner of the map displays two icons that detail the map display:
  - First is the Legend icon which details the meanings of the colors shown in the map. Each map has a thin blue line that outlines National Grid's New York service territory. Below is the legend that is seen on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



  - 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.



Navigation – Attribute Table

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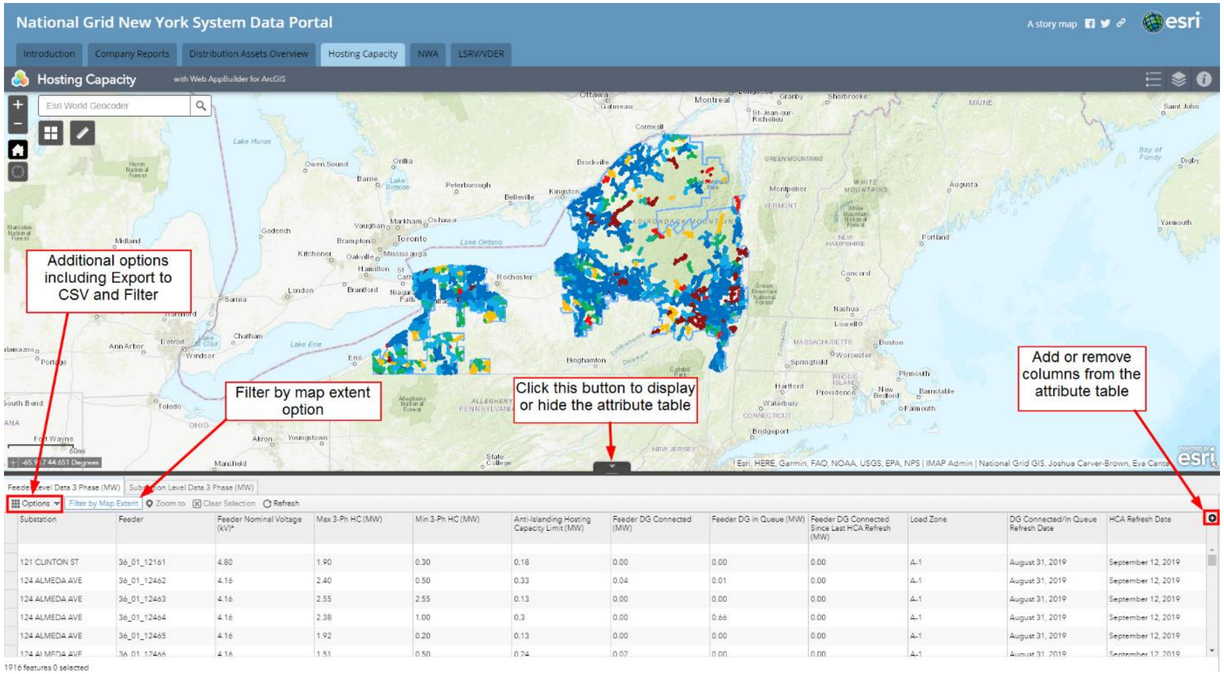
- Another important feature of the ESRI based map tabs is the attribute table which stores all pop-up information on the map in tabular form.
  - Double-clicking on a line item in the attribute table will automatically zoom the map to that object.
  - Columns can be added or removed from the table.
  - 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

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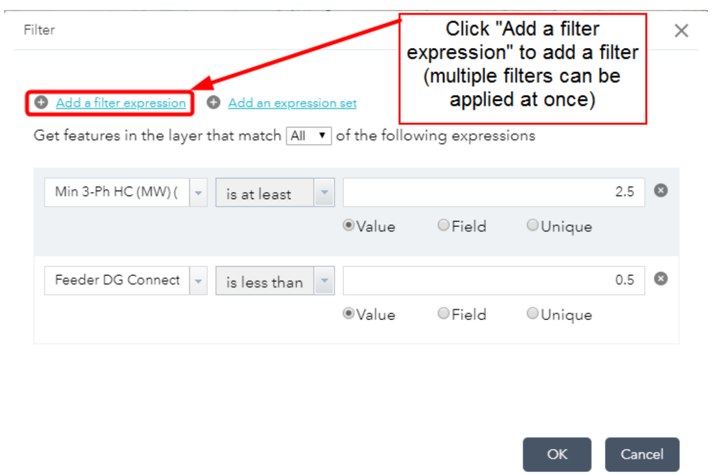
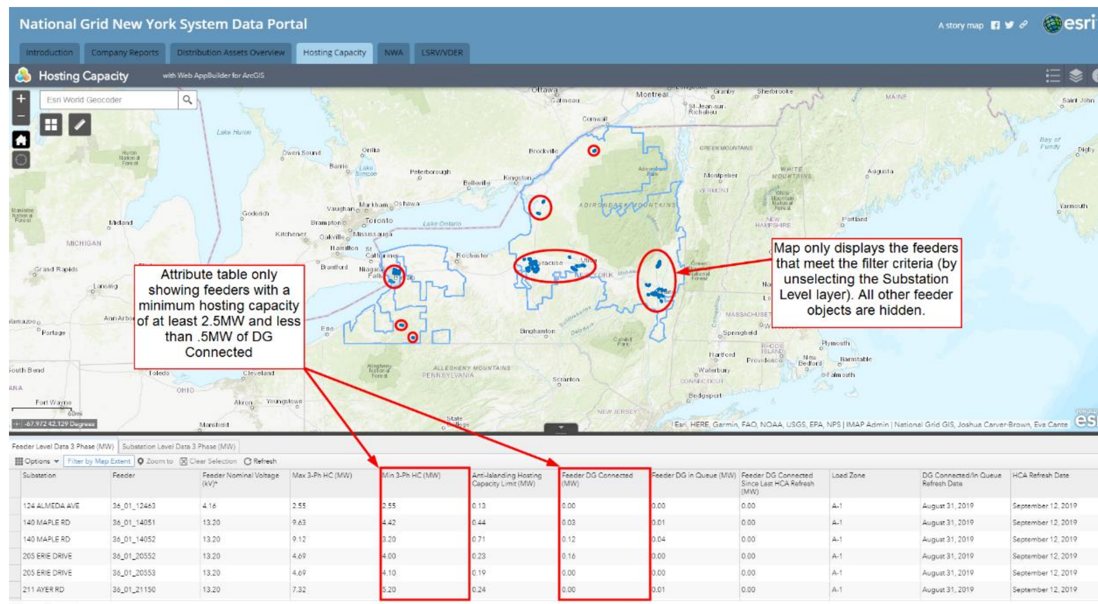
- The contents of the attribute table can be exported to CSV format by selecting "Export All to CSV" under the "Options" menu.
- The contents of the table can also be filtered through the "Options" menu.
  - The attribute table can be filtered by any of the line items contained in the pop-ups on that 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 Hosting Capacity tab to only display feeders with a minimum hosting capacity of at least 2.5MW and less than .5MW of DG Connected.





Tab - Introduction

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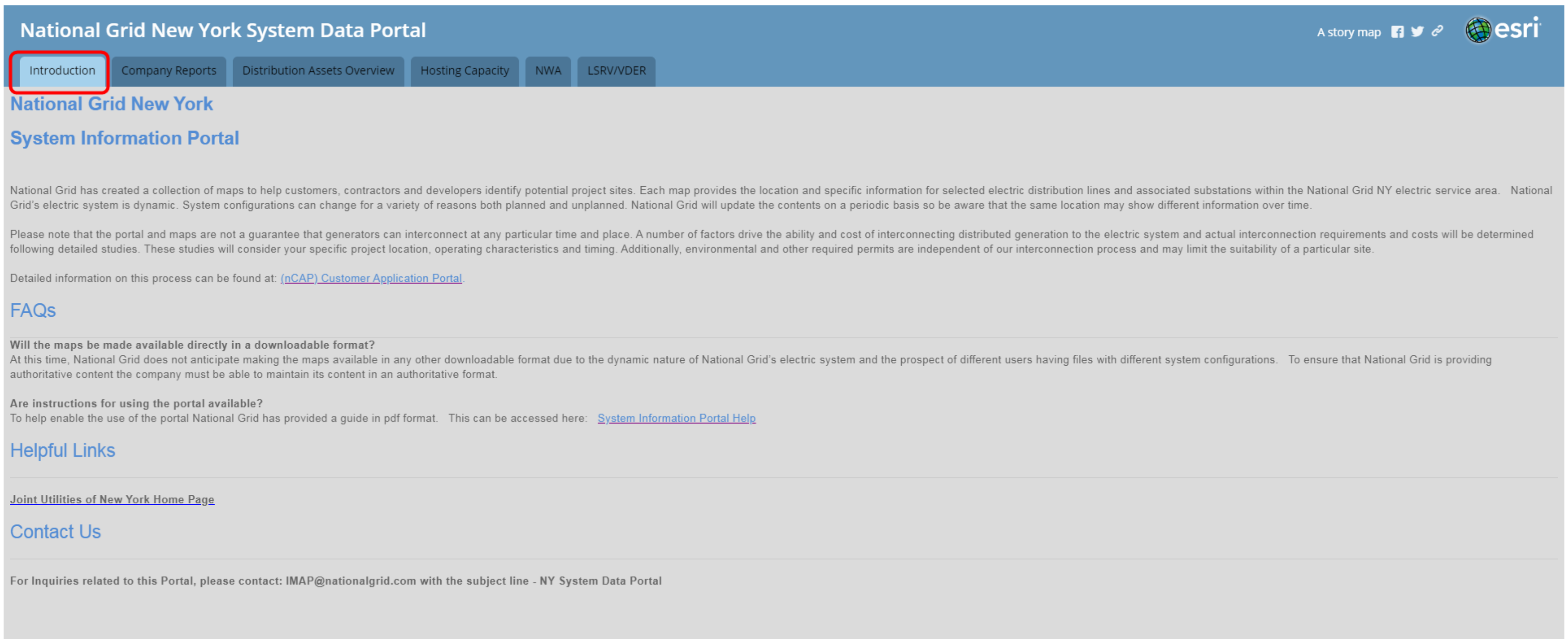
- The Introduction Tab provides an overview of the System Data Portal, with FAQs and a link to this User's Guide. Additionally, a link to National Grid's Interconnection Online Application Portal, nCAP, is provided.



National Grid New York System Data Portal

A story map

esri

Introduction | Company Reports | Distribution Assets Overview | Hosting Capacity | NWA | LSRV/VDER

National Grid New York

System Information 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 selected electric distribution lines and associated substations within the National Grid NY electric service area. 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 be aware that the same location may show different information over time.

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

FAQs

Will the maps be made available directly in a downloadable format?
At this time, National Grid does not anticipate making the maps available in any other downloadable format due to the dynamic nature of National Grid's electric system and the prospect of different users having files with different system configurations. To ensure that National Grid is providing authoritative content the company must be able to maintain its content in an authoritative format.

Are instructions for using the portal available?
To help enable the use of the portal National Grid has provided a guide in pdf format. This can be accessed here: System Information Portal Help

Helpful Links

Joint Utilities of New York Home Page

Contact Us

For Inquiries related to this Portal, please contact: IMAP@nationalgrid.com with the subject line - NY System Data Portal

Tab - Company Reports

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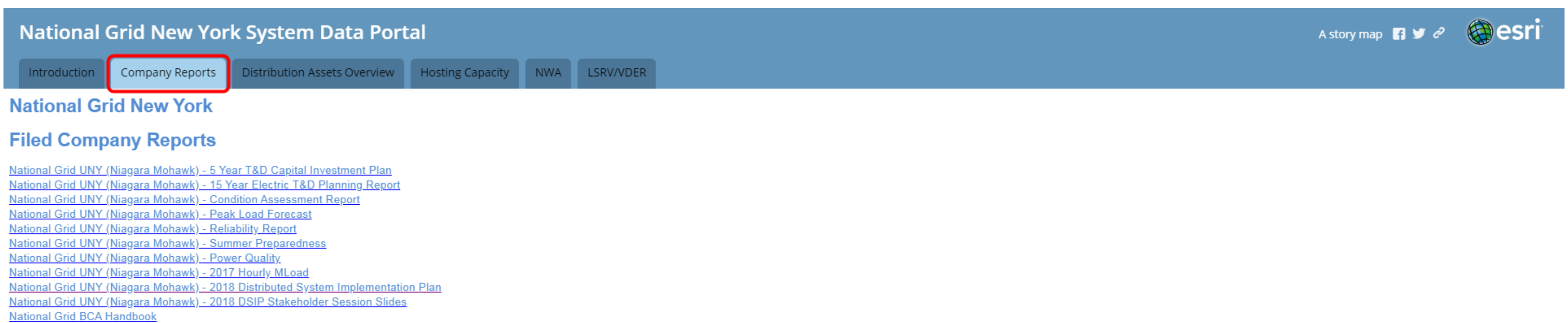
- The Company Reports Tab includes various regulatory filings and company reports including:
  - The 5 Year Transmission and Distribution Capital Investment Plan
  - The 15 year Electric Transmission and Distribution Planning Report
  - The 15 Year Electric Peak Load Forecast Report
  - The Reliability, Summer Preparedness, Condition Assessment, and Power Quality Reports
  - The 2017 Hourly MLoad report showing the aggregated system load for National Grid's NY service territory
  - National Grid's 2018 Distributed System Implementation Plan



Tab - Distribution Assets Overview

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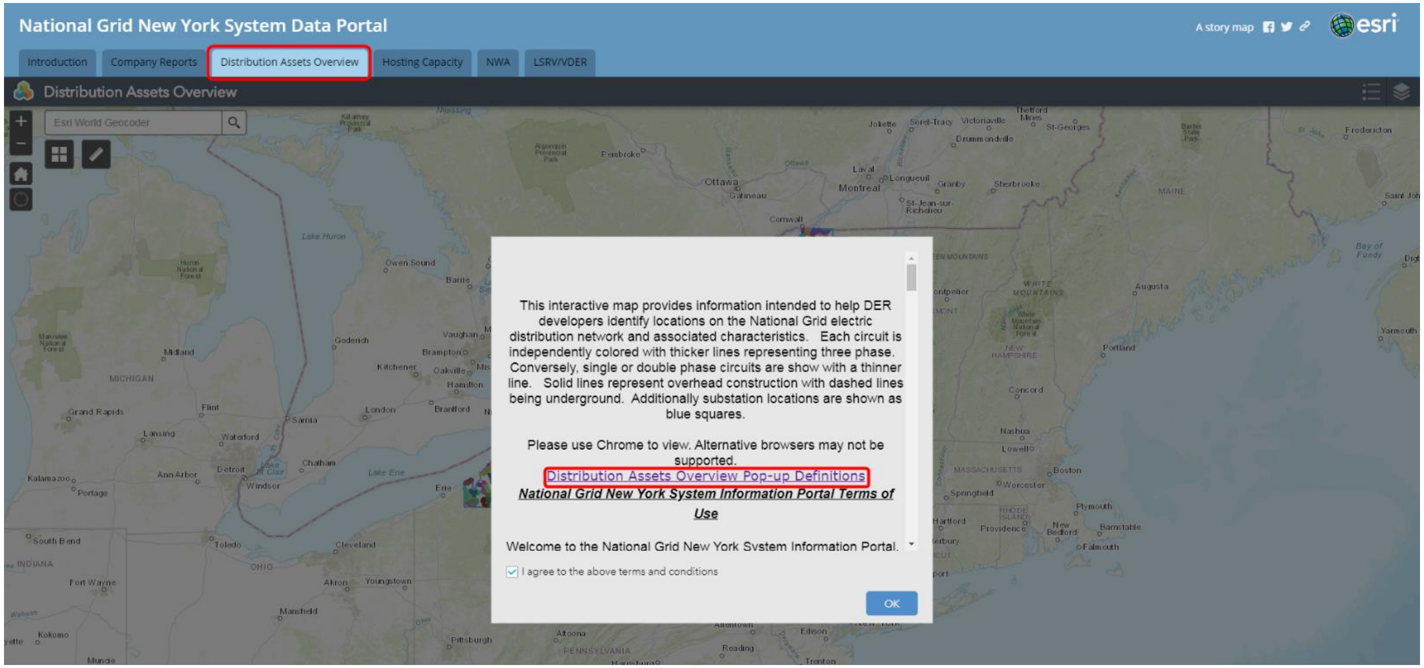
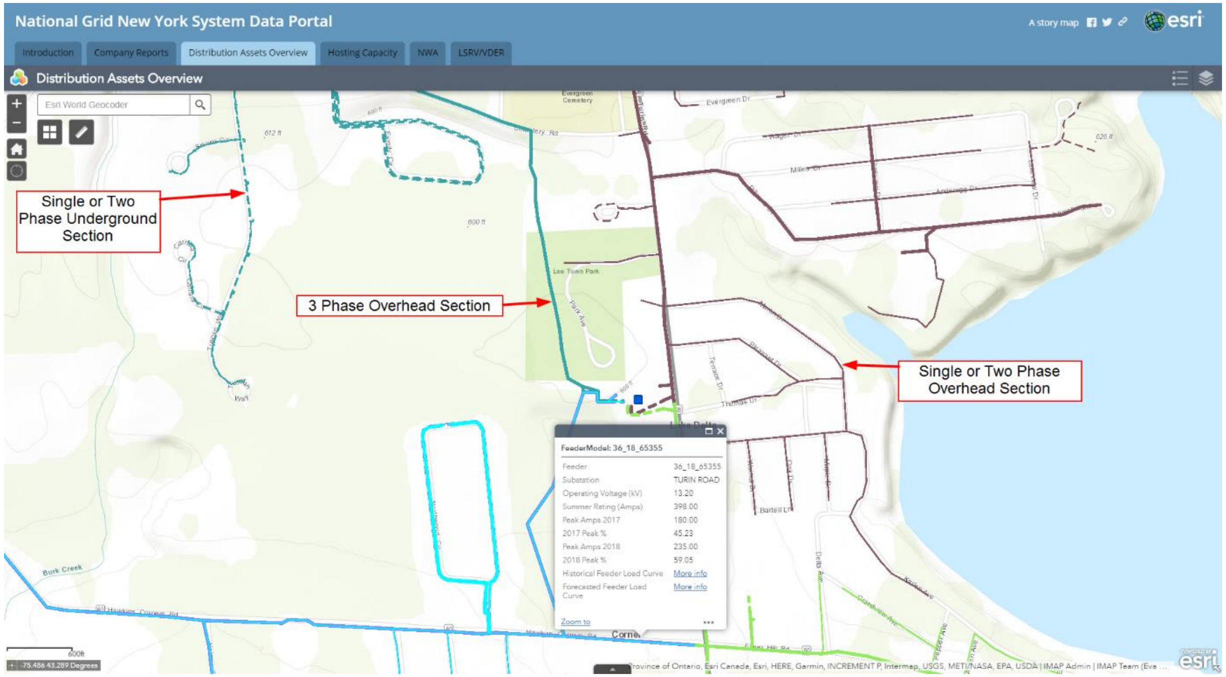
- The Distribution Assets Overview Tab provides planning information for feeders including historical and forecasted loading information. The data on this tab can be used to understand potential system constraints that may impact future interconnections.
- The pop-up that appears when the tab is initially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

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



Tab - Distribution Assets Overview

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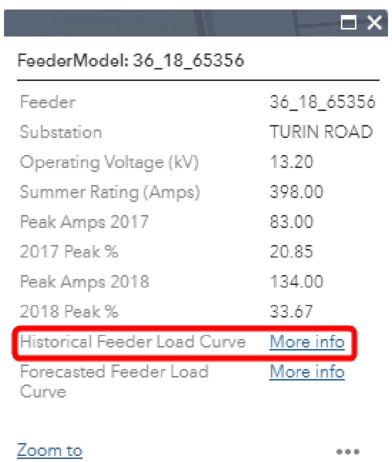
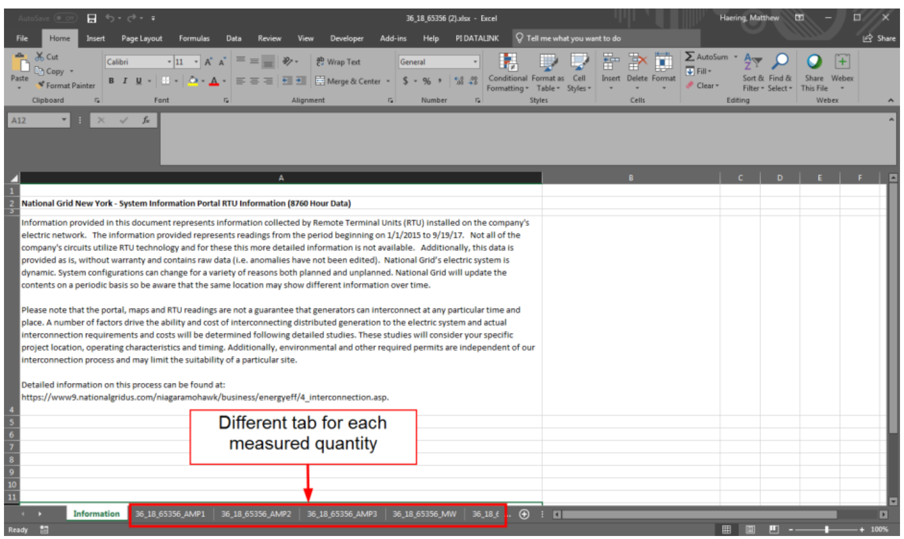
- The final two line items in the pop-up contain links to historical and forecasted feeder loading data.
- <u>Historical Feeder Load Curve</u> - If National Grid has communications with this feeder, this line item will be populated with a link to a downloadable excel file containing raw historical measurements on the feeder.
  - If there are no communications with the selected feeder and therefore no data to present, the entry in this line item will read “No additional 8760 information available”.
  - If there is data for this feeder, the entry in this line item will be a link titled “More Info”. Selecting this link will begin the download of an excel file containing the raw historical feeder level data.
  - This file will have a tab with a disclaimer followed by a separate tab for each measured value (i.e. Amps on Phase A or MW).





Tab - Distribution Assets Overview

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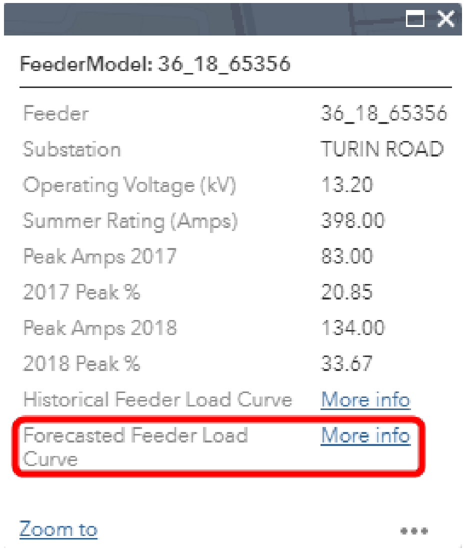
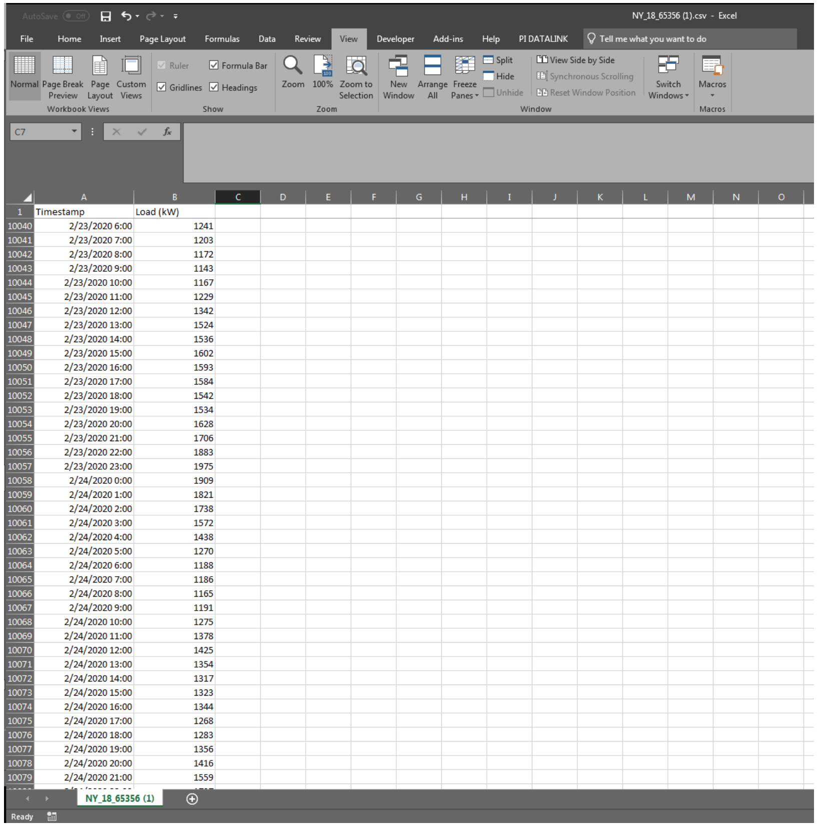
- Forecasted Feeder Load Curve - This line item will be populated with a link to a downloadable CSV file containing 5 years of forecasted hourly feeder loading.





	Timestamp	Load (kW)
10040	2/23/2020 6:00	1241
10041	2/23/2020 7:00	1203
10042	2/23/2020 8:00	1172
10043	2/23/2020 9:00	1143
10044	2/23/2020 10:00	1167
10045	2/23/2020 11:00	1229
10046	2/23/2020 12:00	1342
10047	2/23/2020 13:00	1524
10048	2/23/2020 14:00	1536
10049	2/23/2020 15:00	1602
10050	2/23/2020 16:00	1593
10051	2/23/2020 17:00	1584
10052	2/23/2020 18:00	1542
10053	2/23/2020 19:00	1534
10054	2/23/2020 20:00	1628
10055	2/23/2020 21:00	1706
10056	2/23/2020 22:00	1883
10057	2/23/2020 23:00	1975
10058	2/24/2020 0:00	1909
10059	2/24/2020 1:00	1821
10060	2/24/2020 2:00	1738
10061	2/24/2020 3:00	1572
10062	2/24/2020 4:00	1438
10063	2/24/2020 5:00	1270
10064	2/24/2020 6:00	1188
10065	2/24/2020 7:00	1186
10066	2/24/2020 8:00	1165
10067	2/24/2020 9:00	1191
10068	2/24/2020 10:00	1275
10069	2/24/2020 11:00	1378
10070	2/24/2020 12:00	1425
10071	2/24/2020 13:00	1354
10072	2/24/2020 14:00	1317
10073	2/24/2020 15:00	1323
10074	2/24/2020 16:00	1344
10075	2/24/2020 17:00	1268
10076	2/24/2020 18:00	1283
10077	2/24/2020 19:00	1356
10078	2/24/2020 20:00	1416
10079	2/24/2020 21:00	1559

Tab – PV Hosting Capacity

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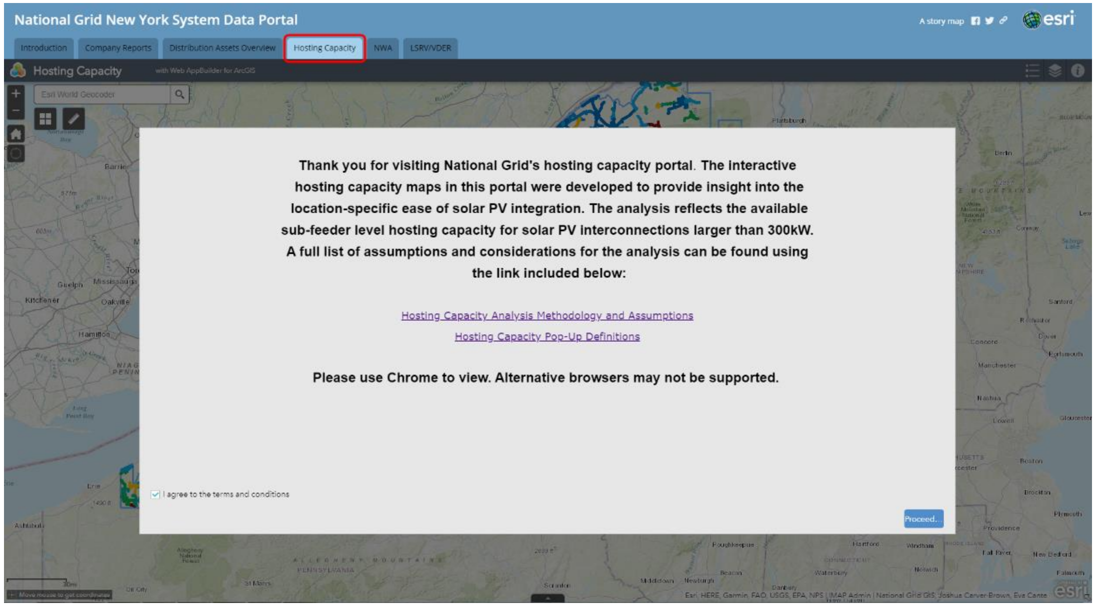
- The PV Hosting Capacity Tab shows an estimate of the amount of solar PV that may be accommodated by a feeder without adversely impacting power quality or reliability under current configurations and without infrastructure upgrades.
- When the Hosting Capacity Tab is selected a screen appears showing links to two PDFs that should be read carefully before going further:
  - 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
  - Hosting Capacity Pop-Up Definitions: This document provides detailed explanations of each line item in the pop-ups displayed on this tab



Tab – PV Hosting Capacity

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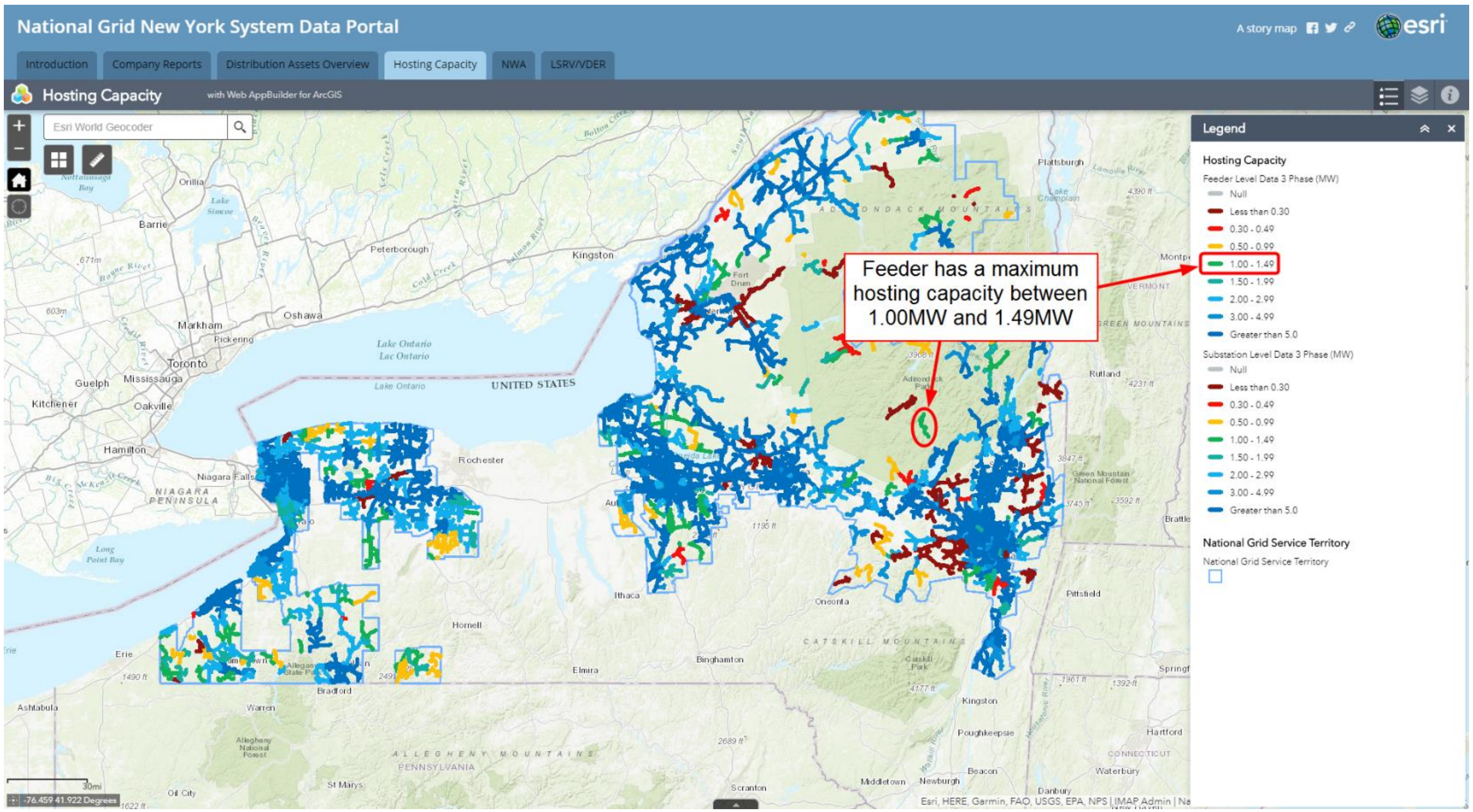
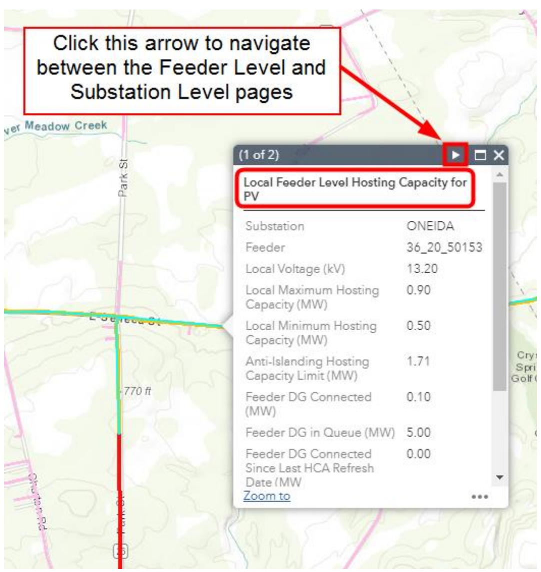
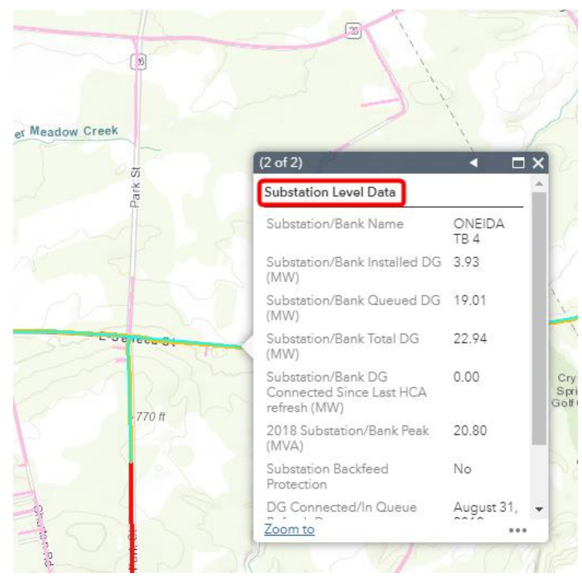
- At the default extent level, feeders on the hosting capacity tab are colored according to their maximum hosting capacity value. The range of values which each color symbolizes is shown in the legend.



Tab – PV Hosting Capacity

- 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 two pages: a Feeder Level page and a Substation Level page
  - The Feeder Level page includes information such as the local minimum and maximum hosting capacity of the selected grouping, the DG connected and in queue on the feeder, the dates the information were last refreshed, and some general feeder characteristics
  - The Substation Level page includes information such as DG connected and in queue at the substation bank level, the previous year's peak at the substation bank, and the status of DG backfeed protection at the station.





Tab – PV Hosting Capacity

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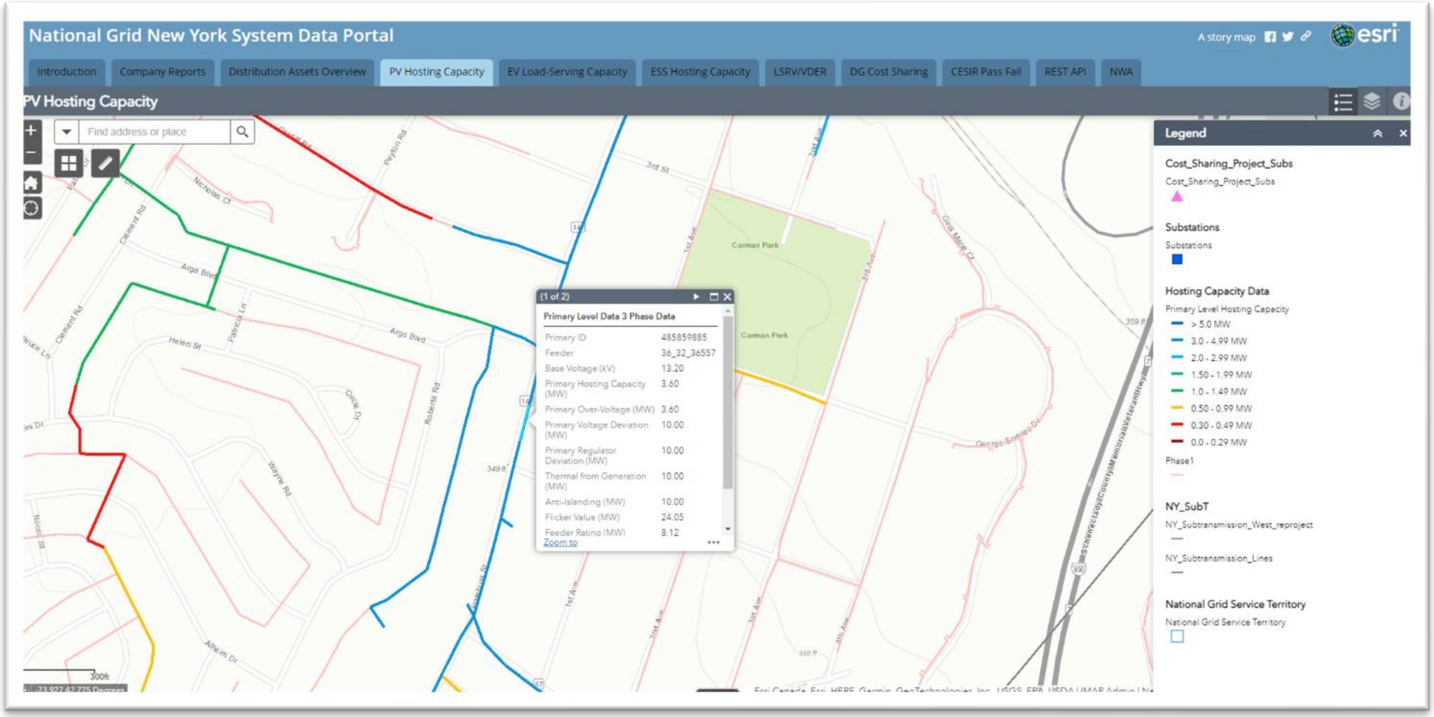
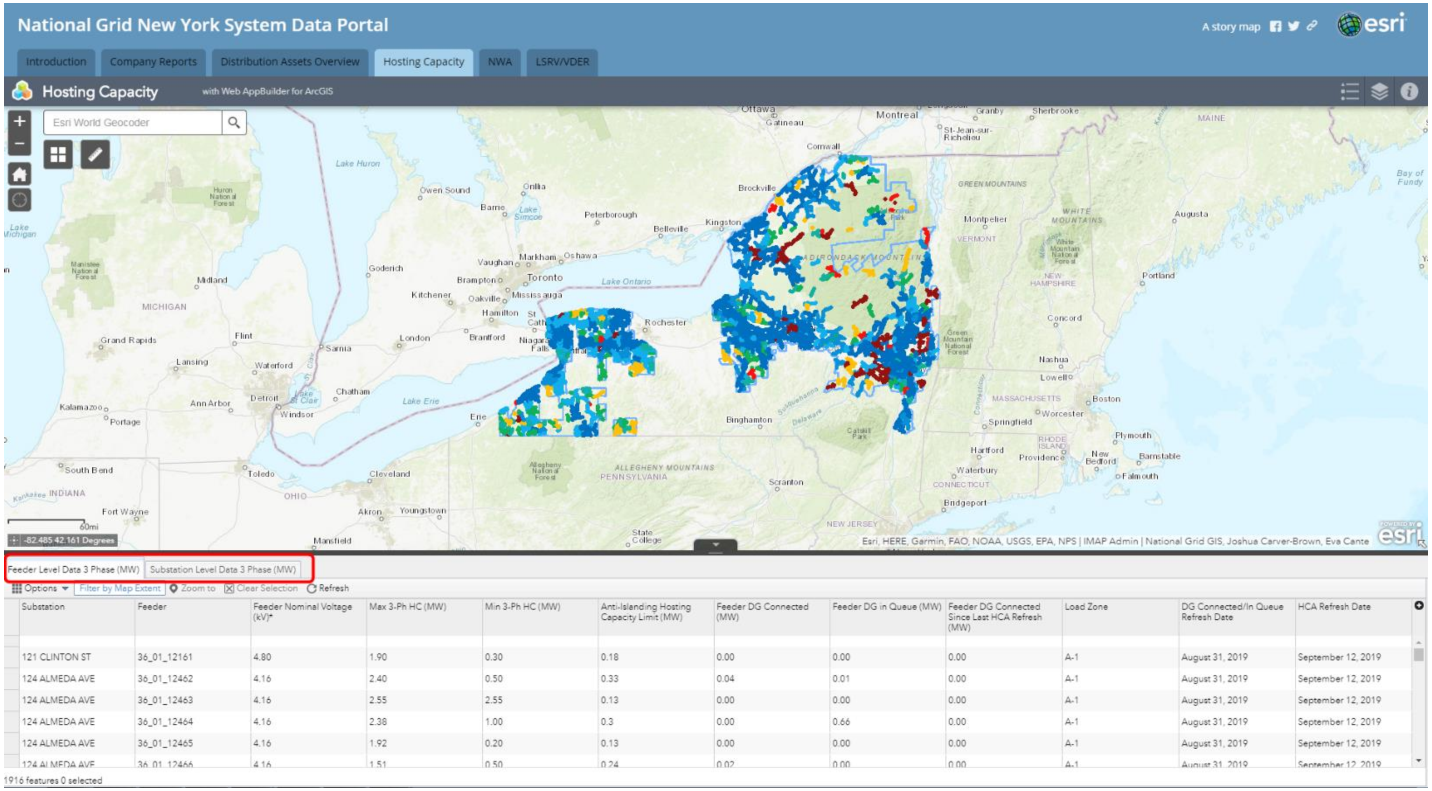
- Once zoomed in, the sub-feeder level analysis appears and various color groupings are observed across each feeder.
  - Each grouping is still colored according its maximum hosting capacity, however the sub-feeder level analyses display how hosting capacity changes over the length of a feeder and provide 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

- The attribute table on the hosting capacity page has one tab for the feeder level data and one tab for the substation level data.
  - Note that sub-feeder level data is not captured in the attribute table
- As shown previously, the Hosting Capacity tab is a good place to apply filters in order to identify the feeders that meet a specified set of criteria (Attribute Table: Options → Filter).



Tab – PV Hosting Capacity

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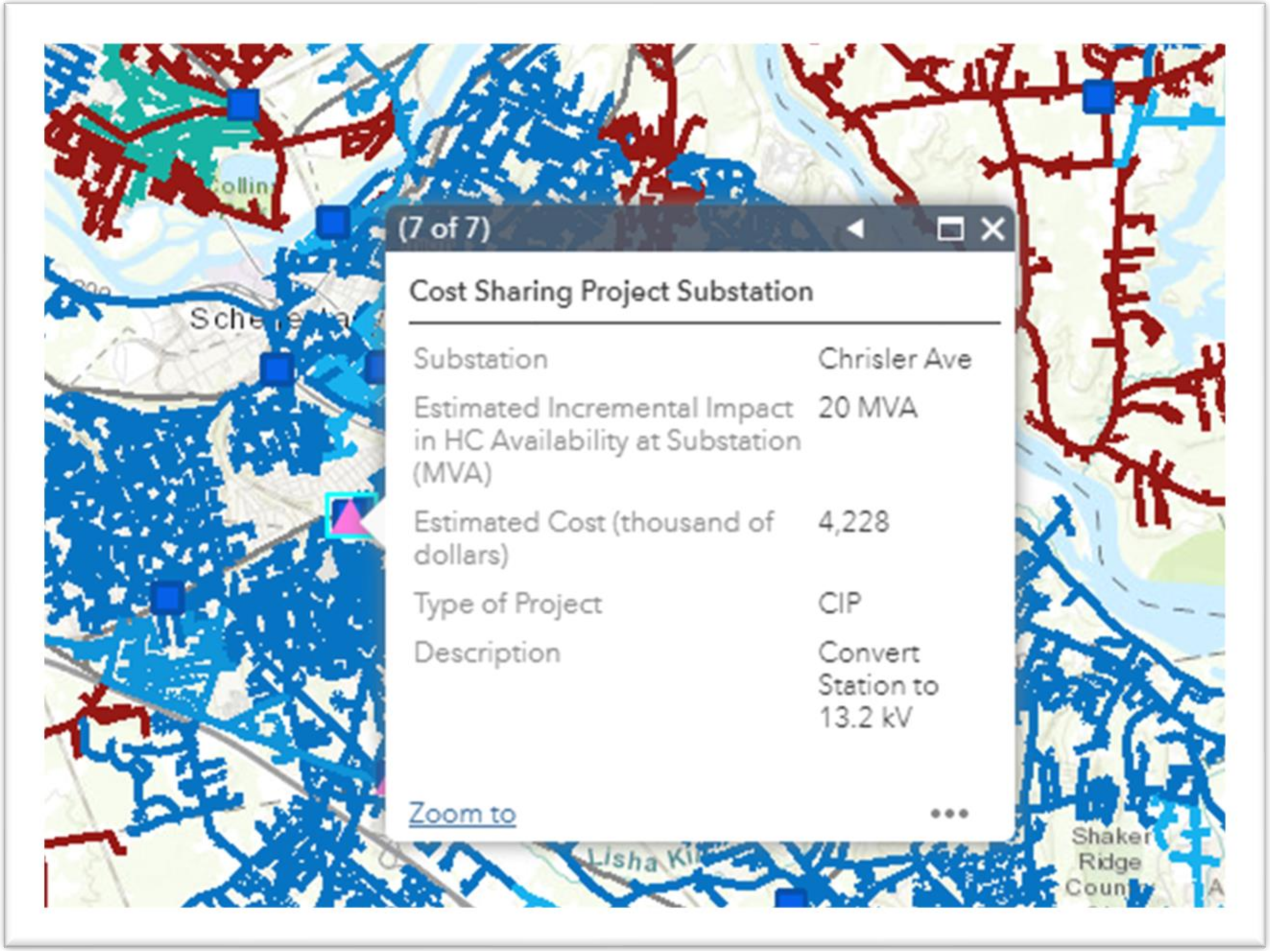
- The location of DG cost sharing projects at substations is provided on the map. It shows the location of the project and provides details on the project.



Tab – PV Hosting Capacity

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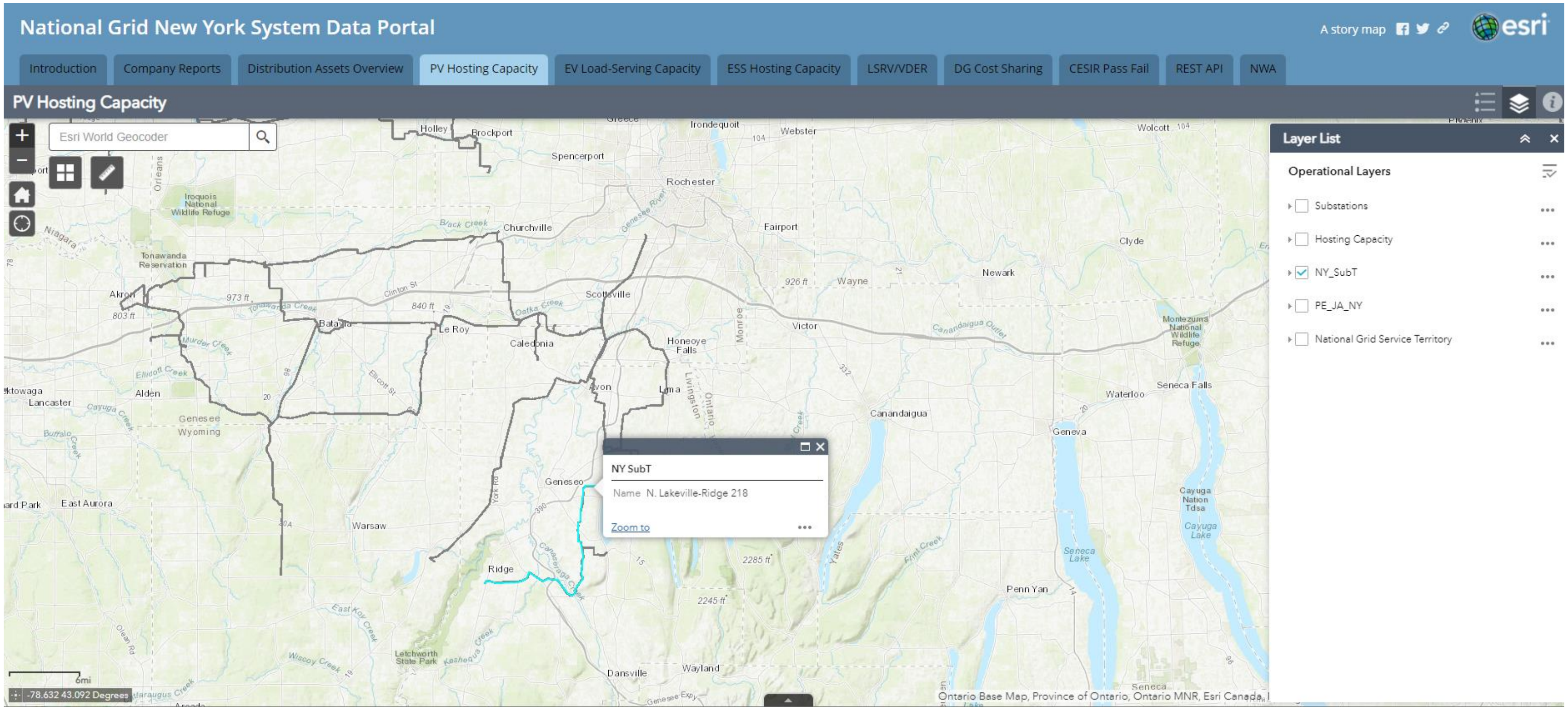
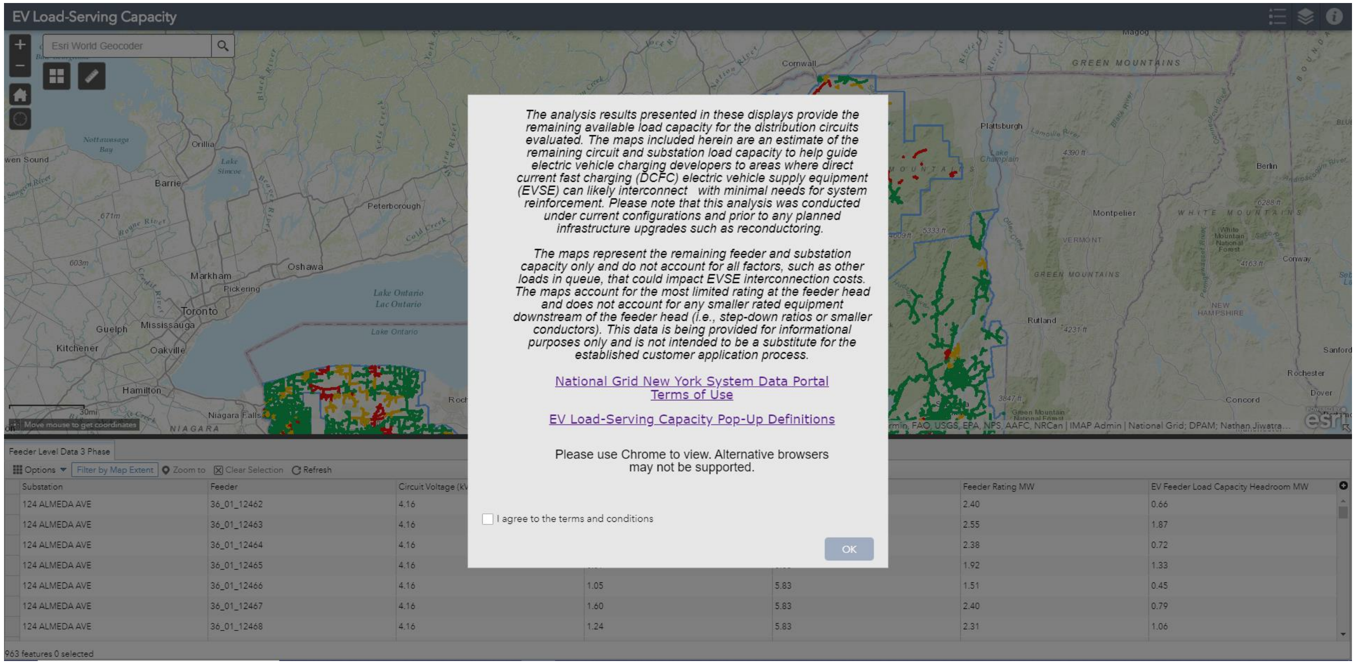
- The location and name of our Sub-transmissions lines has been added to our PV Hosting Capacity map. It can be viewed as a layer by itself or with all the other PV HCA data by selecting the desired layers.



Tab – EV Load-Serving Capacity

- The EV Load-Serving Capacity Tab shows an estimate of the amount of load for that may be accommodated by a feeder without adversely impacting power quality or reliability under current configurations and without infrastructure upgrades.
- When the EV Load-Serving 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 EV Load-Serving Capacity Tab.
  - EV Load-Serving Capacity Pop-Up Definitions: This document provides detailed explanations of each line item in the pop-ups displayed on this tab.



Tab – EV Load-Serving Capacity

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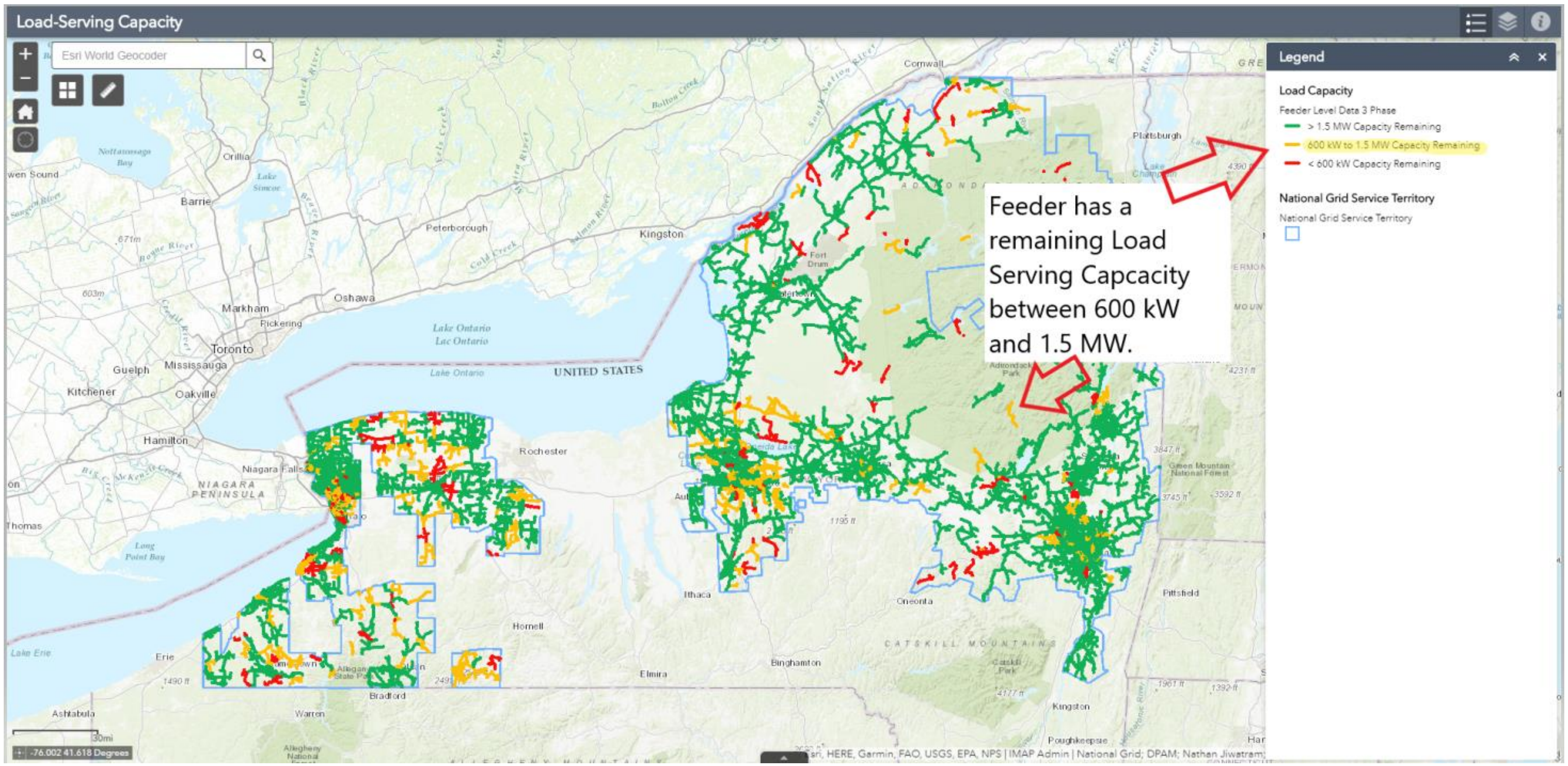
- The EV Load-Serving Capacity tab are colored according to their remaining load-serving capacity value. The range of values which each color symbolizes is shown in the legend.



Tab – EV Load-Serving Capacity

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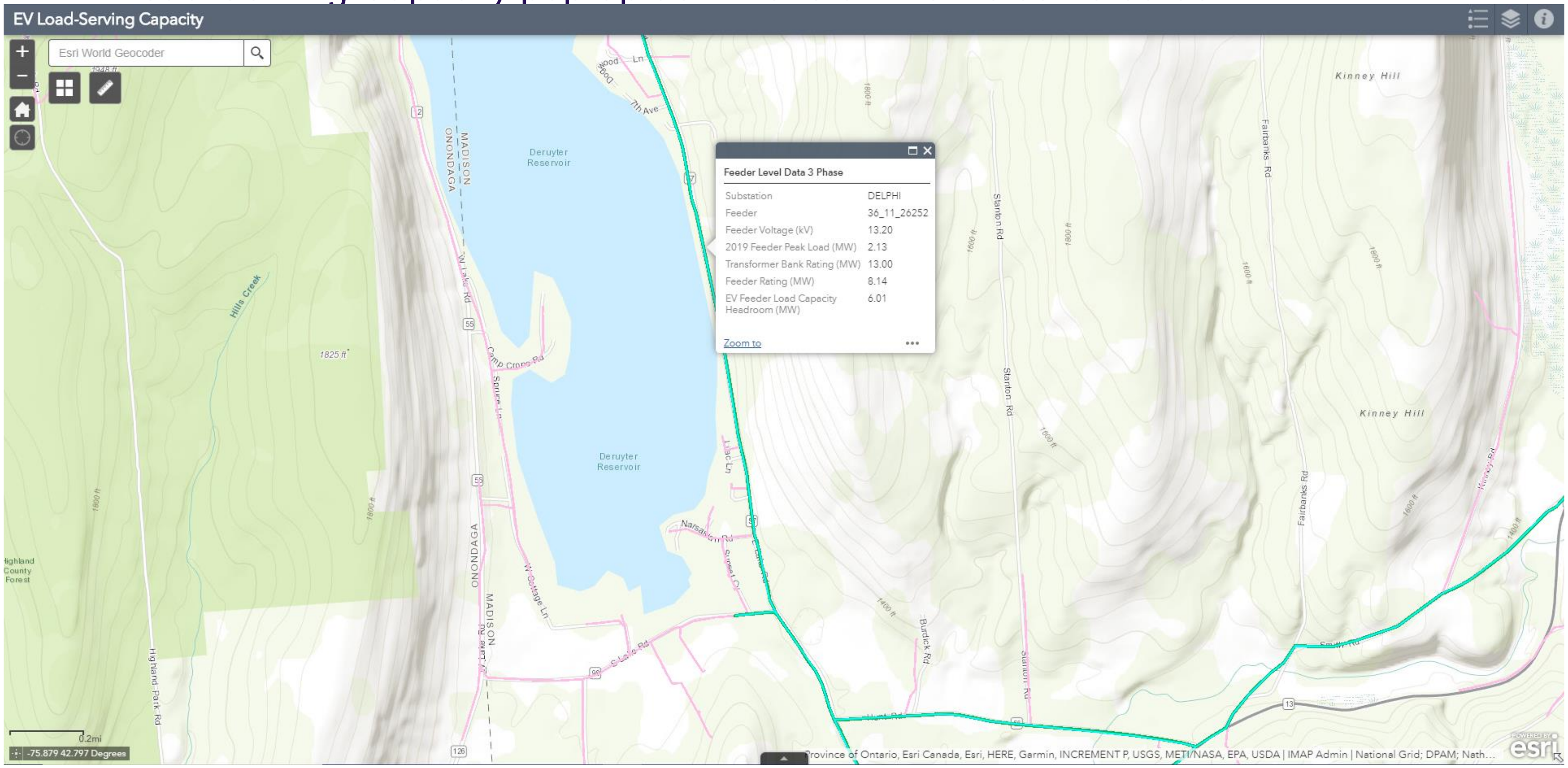
- The pop-up on the EV Load-Serving Capacity tab includes information on the selected feeder in a pop-up including name and substation. It also contains technical data of the Voltage (kV), Peak (MW), Feeder Head Ratings (MW), and EV Feeder Load Capacity Headroom (MW). More explanation is provided on the EV Load-Serving Capacity pop-up definitions on the welcome screen.



Tab – EV Load-Serving Capacity

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- The feeder popup data is able to be exported in an attribute table on the EV Load-Serving Capacity tab.

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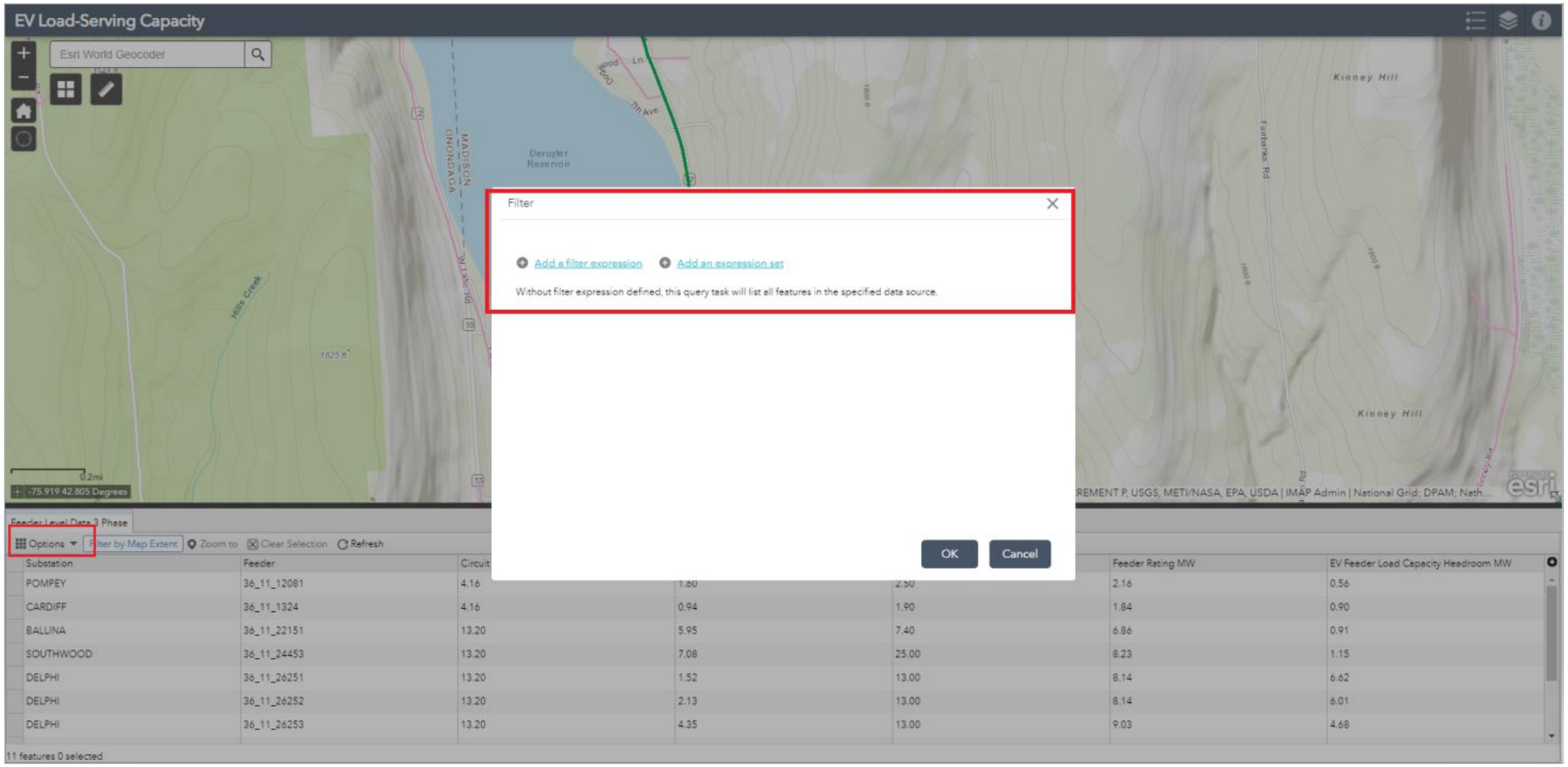

Tab – ESS Hosting Capacity

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- 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.

- When the Hosting Capacity Tab is selected 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

Thank you for visiting National Grid's Battery Energy Storage Hosting Capacity Portal. The maps represent the feeder level energy storage hosting capacity only and do not account for all factors, such as other loads in queue, that could impact energy storage interconnection costs.

The maps are color-coded by the feeder maximum hosting capacity value. As a rule of thumb, the maximum hosting capacity value is indicative of the available hosting capacity at a specific location across the feeder segment, most often located at the beginning of a feeder's three-phase mainline. The minimum hosting capacity value is indicative of the available hosting capacity across the length of the feeder and most often defined by the hosting capacity value located at the end of the three-phase mainline.

To calculate the hosting capacity, the output change for voltage deviation was input as 200%.

This data is being provided for informational purposes only and is not intended to be a substitute for the established customer application process. A full list of assumptions and considerations for the analysis can be found using the link below:

Battery Energy Storage Hosting Capacity Methodology and Definitions

☐ I agree to the above terms and conditions.

OK

Tab – ESS Hosting Capacity

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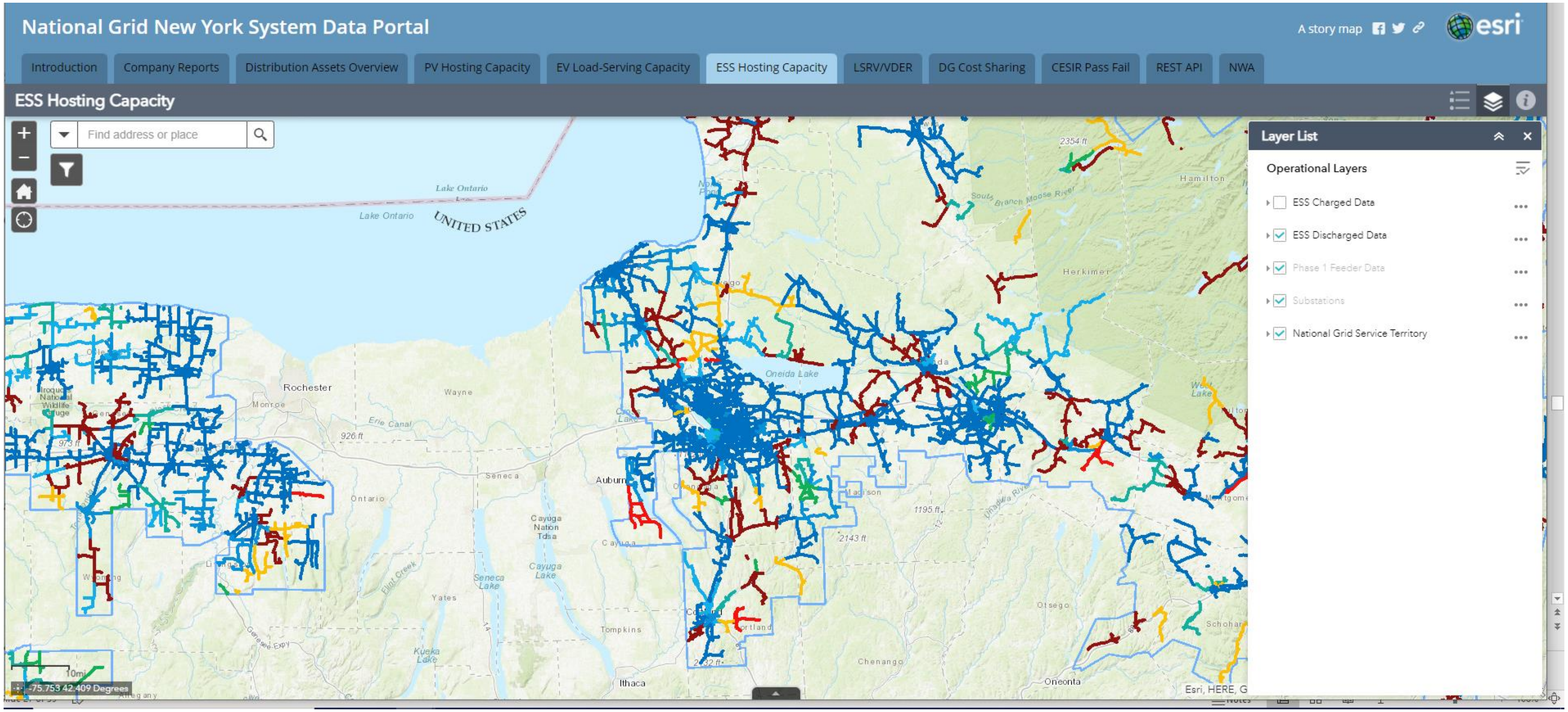
- The ESS Hosting Capacity has two layers. One for discharging of the Energy Storage System or exporting power onto the grid. The data is mapped for the feeder ESS HCA max. The min is provided in the popup.



Tab – ESS Hosting Capacity

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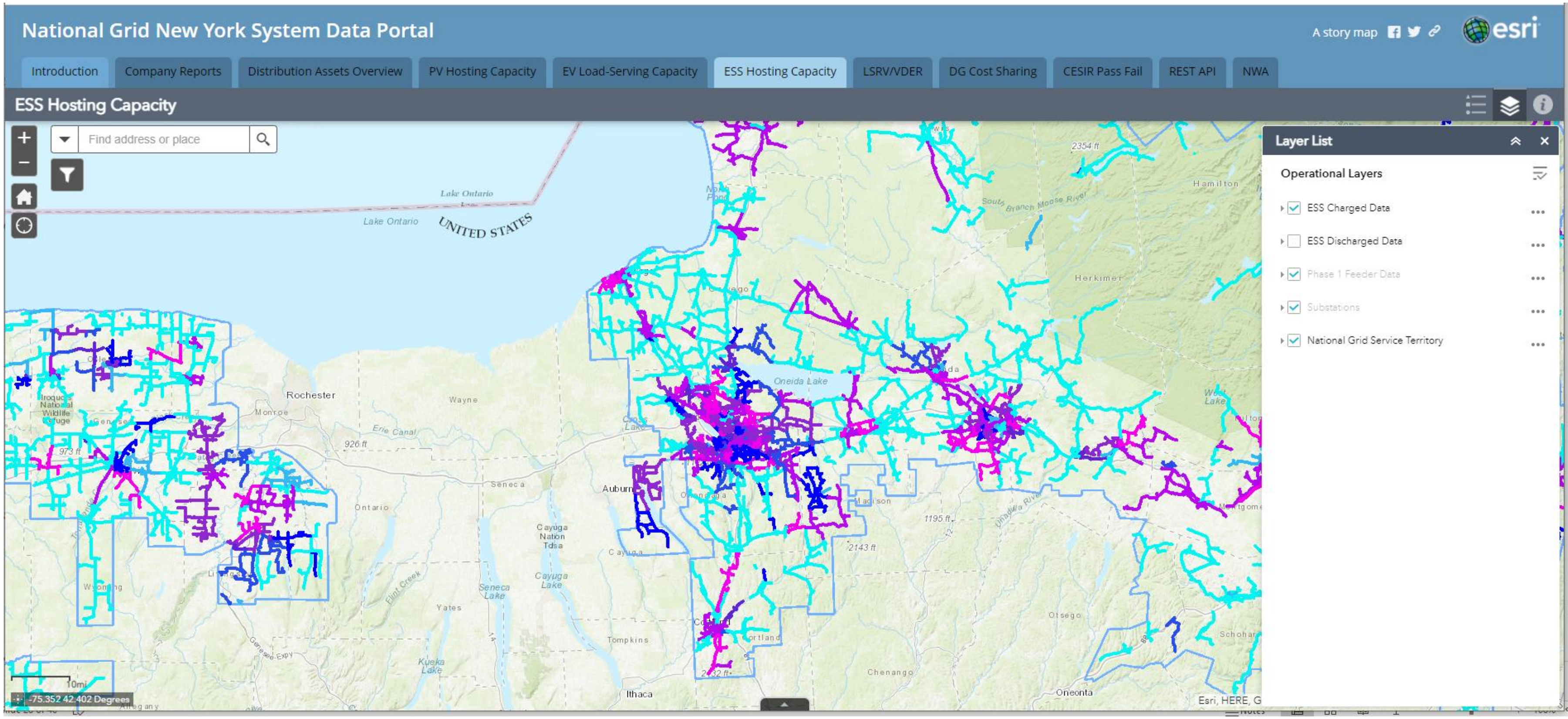
- The other layers is for charging of the Energy Storage. This is using the Grid to charge an Energy Storage System. The data is mapped for the feeder ESS HCA max. The min is provided in the popup.



Tab – ESS Hosting Capacity

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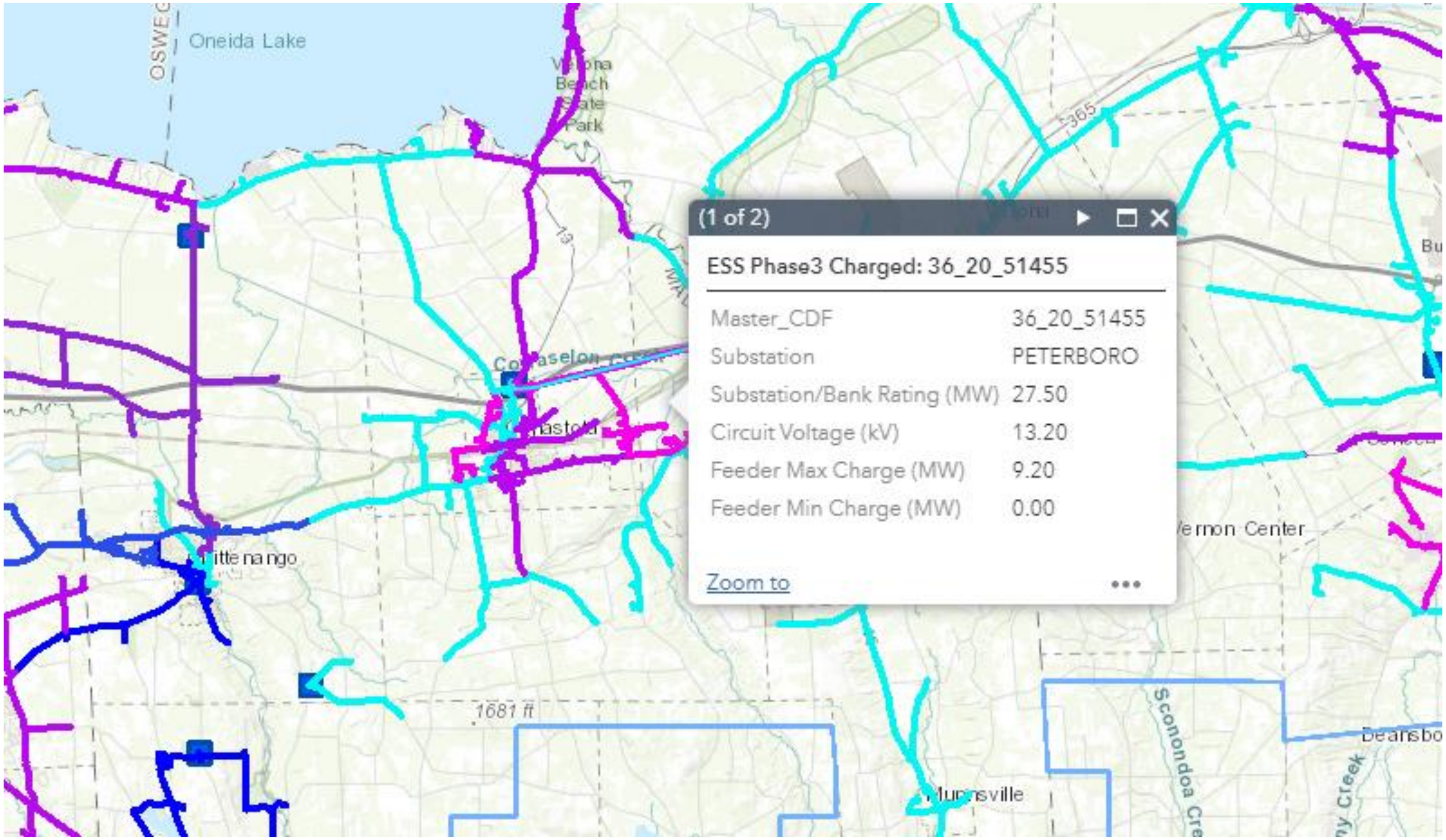
- Popup data is provided for feeder for more information.



Tab – ESS Hosting Capacity

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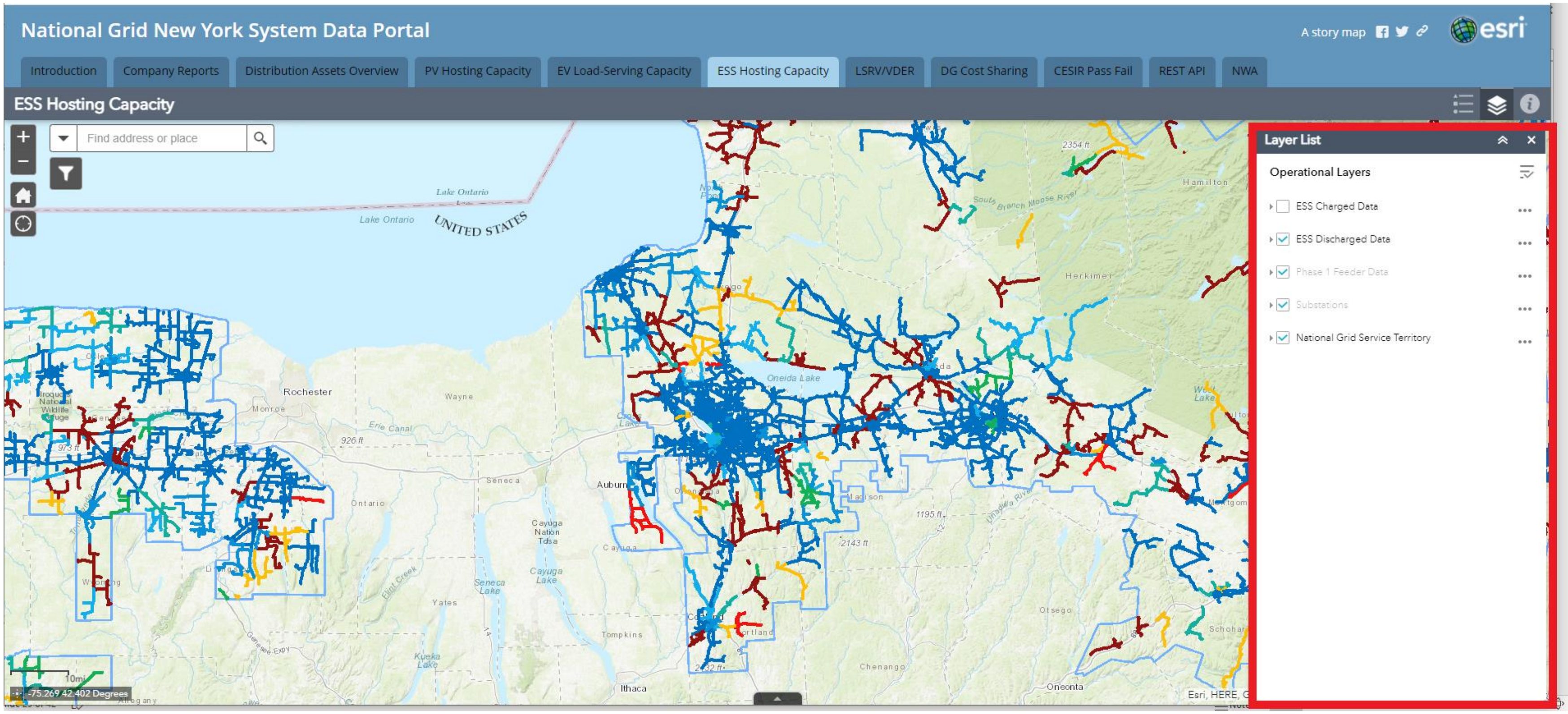
- To toggle between the Charge and Discharge layers go to the layer list and select which mode you which to view charge or discharge.



Tab – ESS Hosting Capacity

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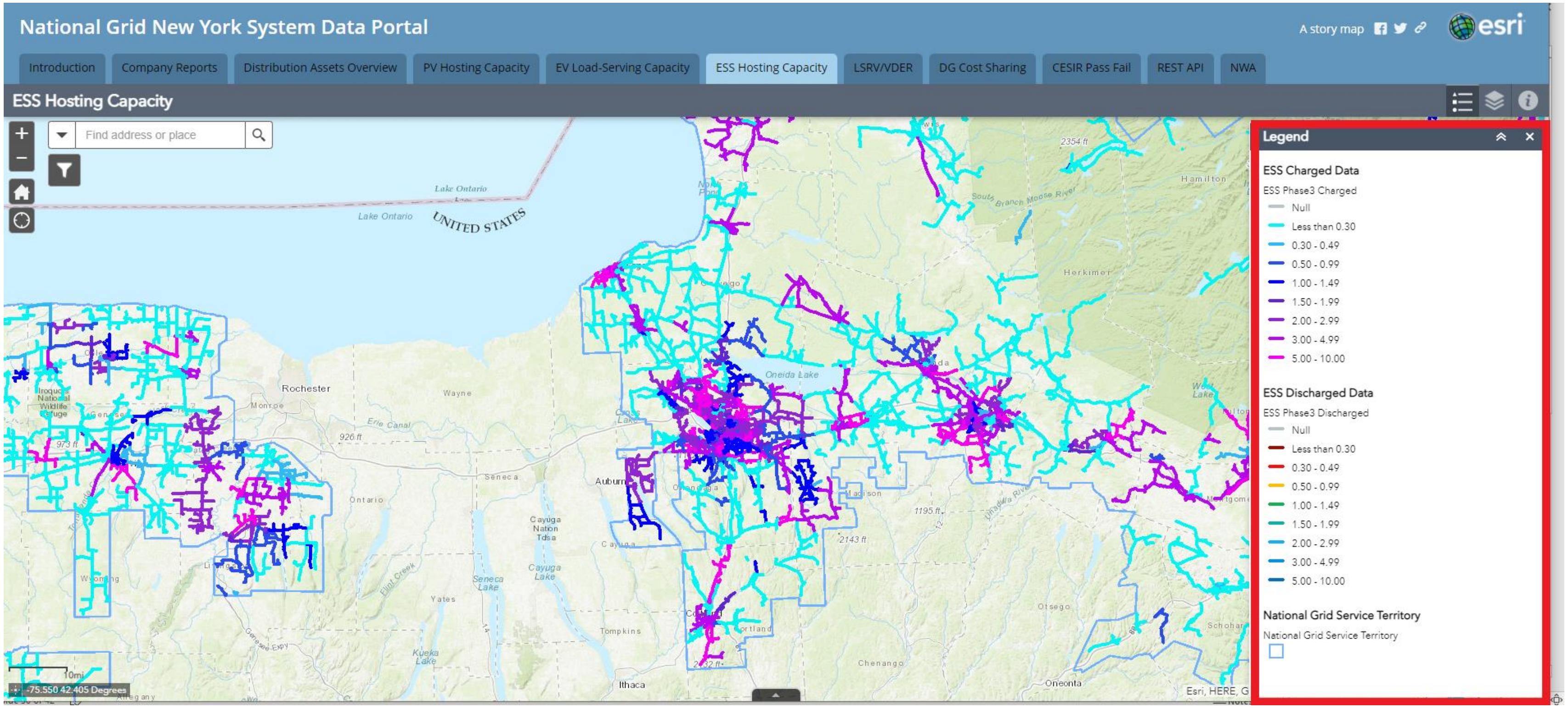
- Different color schemes were selected to differentiate between the modes of operation.



Tab – ESS Hosting Capacity

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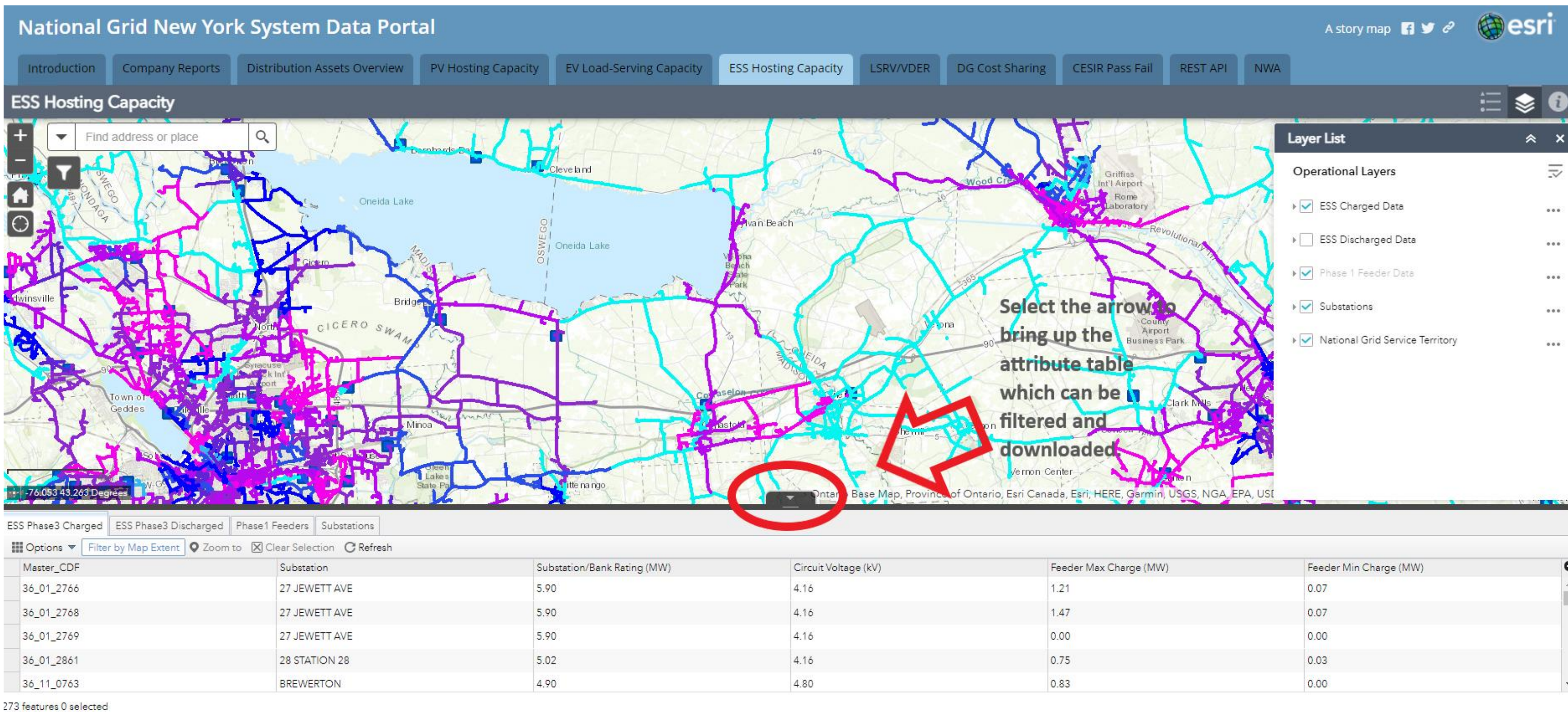
- The data can be downloaded as a CSV from the attribute table and filtered



Tab – LSRV/VDER

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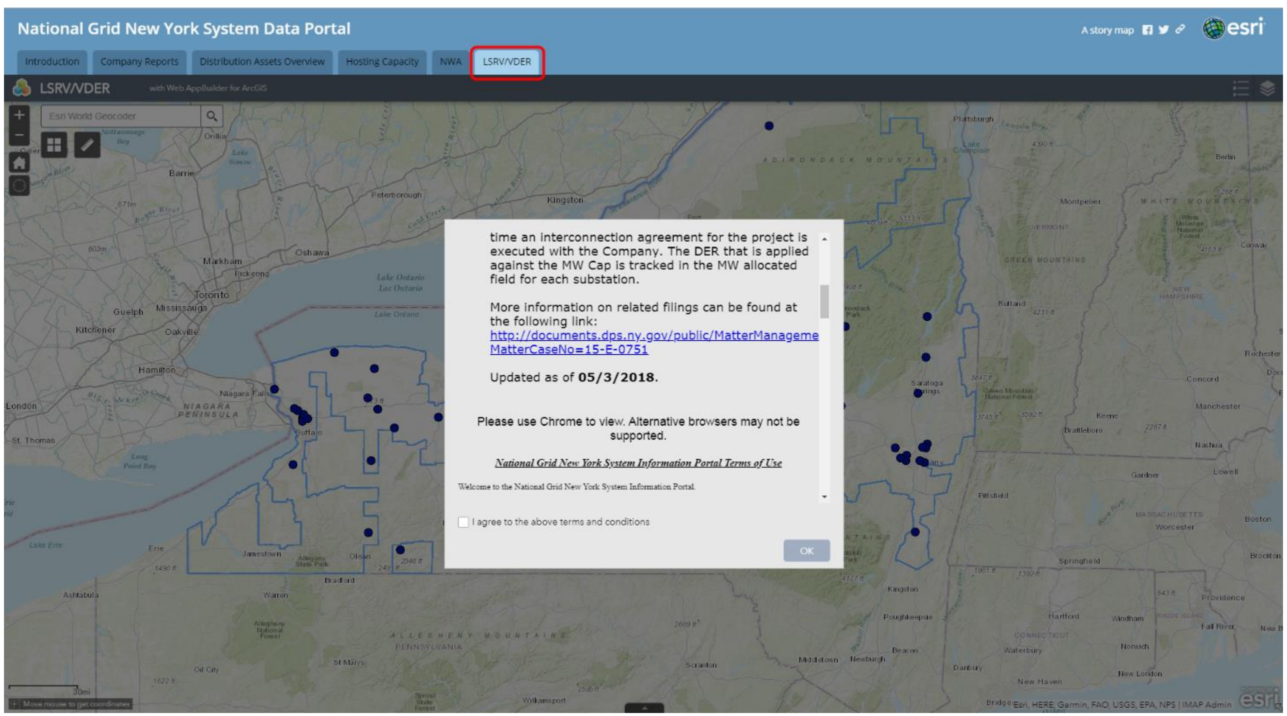
- The LSRV/VDER map indicates the substations on which Location System Relief Value (LSRV) compensation is available as part of the VDER Value Stack compensation.
- Upon clicking on the tab, a disclaimer page first appears. It includes important information such as methodology used in the analysis, the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



Tab – LSRV/VDER

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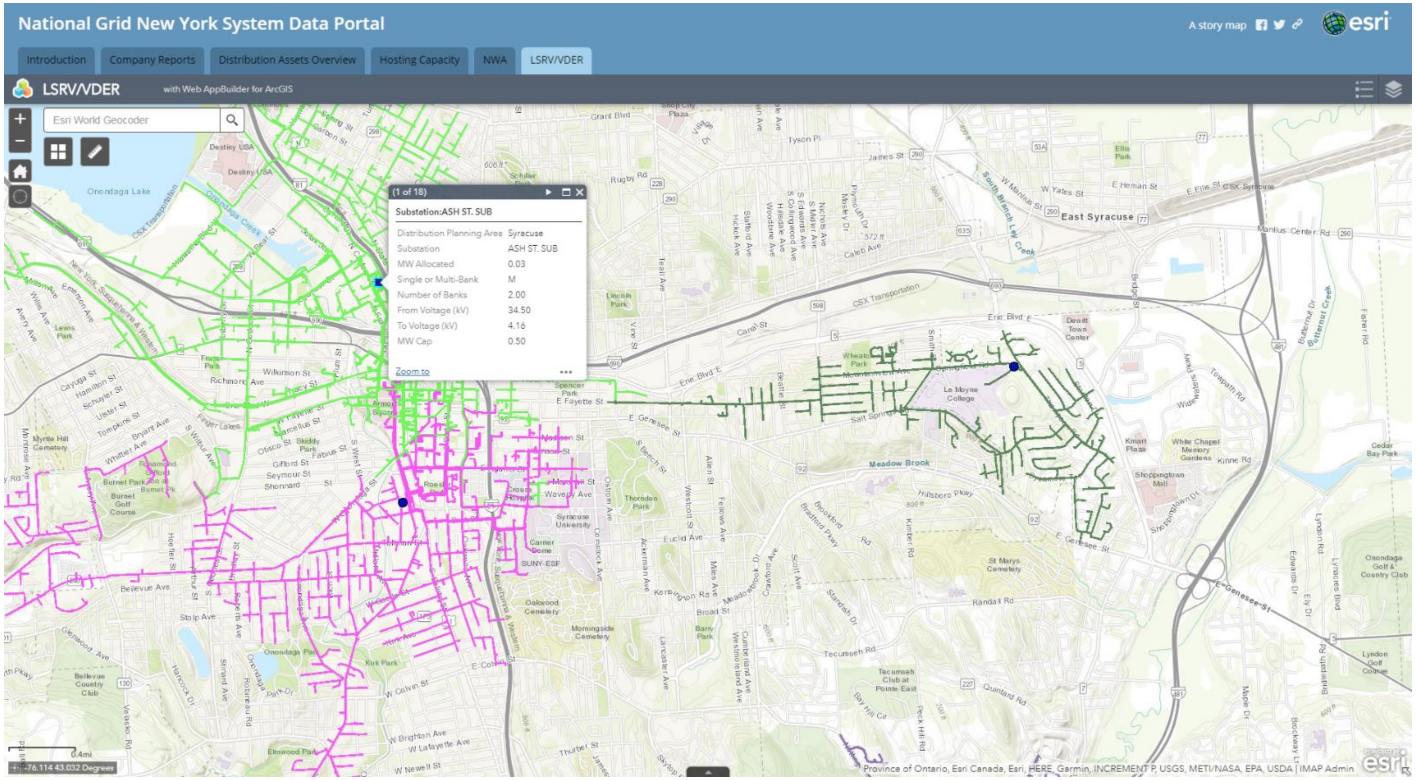
- Substations and all associated feeders are highlighted for a given LSRV area and details can be accessed by clicking on the blue substation symbols.
- The LSRV pop-up contains the substation name, the distribution planning area of the station, the MW allocated, and the MW cap.



Tab – DG Cost Sharing

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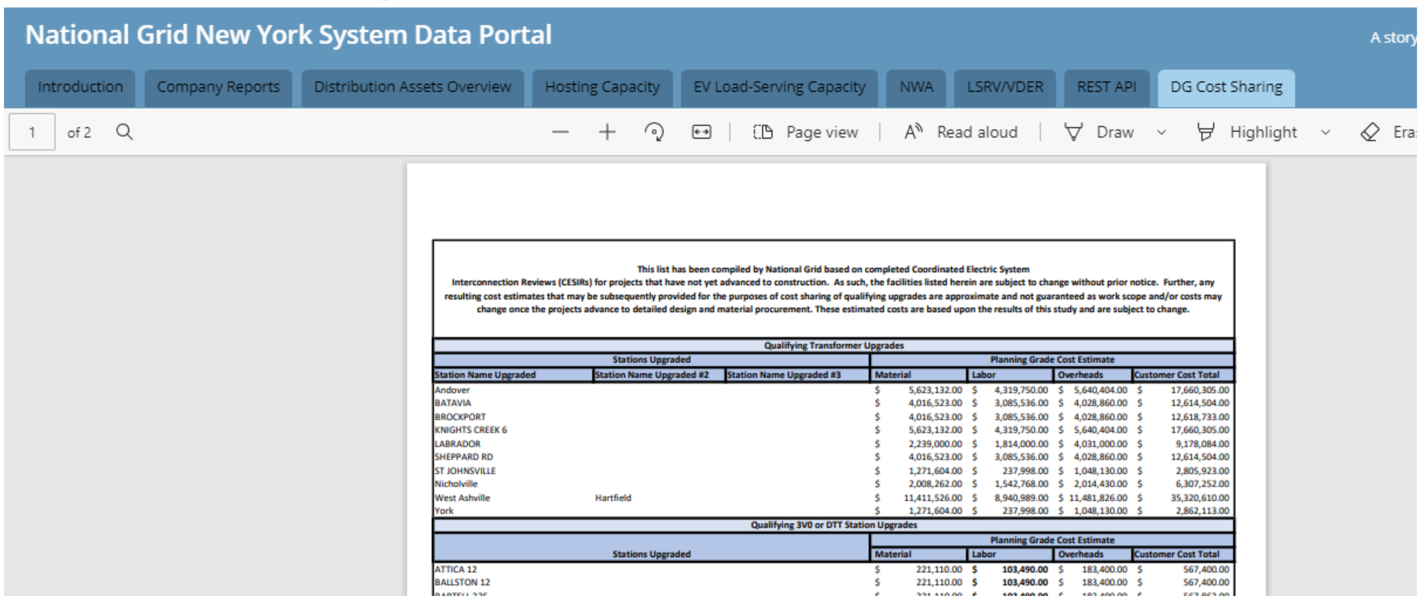
- The information provided on this tab identifies "Qualifying Upgrades" per the DG cost sharing order (Case 20-E-0543).
- These upgrades have been identified in a completed CESIR, but may not have advanced to construction.



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 Transformer Upgrades						
Stations Upgraded			Planning Grade Cost Estimate			
Station Name Upgraded	Station Name Upgraded #2	Station Name Upgraded #3	Material	Labor	Overheads	Customer Cost Total
Andover			$ 5,623,132.00	$ 4,319,750.00	$ 5,640,404.00	$ 17,660,305.00
BATAVIA			$ 4,016,523.00	$ 3,085,536.00	$ 4,028,860.00	$ 12,614,504.00
BROCKPORT			$ 4,016,523.00	$ 3,085,536.00	$ 4,028,860.00	$ 12,618,733.00
KNIGHTS CREEK 6			$ 5,623,132.00	$ 4,319,750.00	$ 5,640,404.00	$ 17,660,305.00
LABRADOR			$ 2,239,000.00	$ 1,814,000.00	$ 4,031,000.00	$ 9,178,084.00
SHEPPARD RD			$ 4,016,523.00	$ 3,085,536.00	$ 4,028,860.00	$ 12,614,504.00
ST JOHNSVILLE			$ 1,271,604.00	$ 237,998.00	$ 1,048,130.00	$ 2,805,923.00
Nicholville			$ 2,008,262.00	$ 1,542,768.00	$ 2,014,430.00	$ 6,307,252.00
West Ashville	Hartfield		$ 11,411,526.00	$ 8,940,989.00	$ 11,481,826.00	$ 35,320,610.00
York			$ 1,271,604.00	$ 237,998.00	$ 1,048,130.00	$ 2,862,113.00

Qualifying 3V0 or DTT Station Upgrades				
	Planning Grade Cost Estimate			
Stations Upgraded	Material	Labor	Overheads	Customer Cost Total
ATTICA 12	$ 221,110.00	**$ 103,490.00**	$ 183,400.00	$ 567,400.00
BALLSTON 12	$ 221,110.00	**$ 103,490.00**	$ 183,400.00	$ 567,400.00

Tab – DG Cost Sharing

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- Each upgrade has an estimated cost associated with them.
- Each cost is broken down into Material, Labor, Overhead, and Customer Cost Total for the total cost of the cost sharing project.

Other Qualifying Station Upgrades						
Stations Upgraded			Planning Grade Cost Estimate			
Station Name Upgraded	Station Name Upgraded #2	Station Name Upgraded #3/#4	Material	Labor	Overheads	Customer Cost Total
Golah	North Lakeville	Batavia	$ 184,893.00	$ 437,732.00	$ 301,527.00	$ 924,152.00
Machias	Nile	Homer Hill/North Angola	$ 369,789.00	$ 865,461.00	$ 603,054.00	$ 2,058,564.00
Machias	Homer Hill	Nile	$ 308,157.00	$ 731,218.00	$ 502,545.00	$ 1,725,992.00
Homer Hill	Machias	North Angola	$ 369,789.00	$ 865,461.00	$ 603,054.00	$ 2,058,564.00
Golah	North Lakeville		$ 123,262.00	$ 288,488.00	$ 201,018.00	$ 687,808.00
Andover			$ 61,631.00	$ 144,244.00	$ 100,509.00	$ 343,198.00
Bristolhill	Woodard		$ 575,233.00	$ 1,361,025.00	$ 517,902.00	$ 2,774,363.00
Brockport	Telegraph		$ 184,894.00	$ 432,731.00	$ 301,527.00	$ 1,034,776.00
Hartfield	Dunkirk		$ 123,262.00	$ 288,488.00	$ 201,018.00	$ 686,188.00
Nicholville			$ 79,259.00	$ 138,782.00	$ 175,608.00	$ 446,977.00
Rathbun	Labrador		$ 244,000.00	$ 264,000.00	$ 430,000.00	$ 1,063,796.00
Boonville			$ 155,090.00	$ 72,590.00	$ 128,640.00	$ 399,952.00
Machias			$ 123,263.00	$ 288,487.00	$ 201,018.00	$ 686,397.00
Malone			$ 79,259.00	$ 138,782.00	$ 175,608.00	$ 446,826.00

Tab – CESIR Pass Fail

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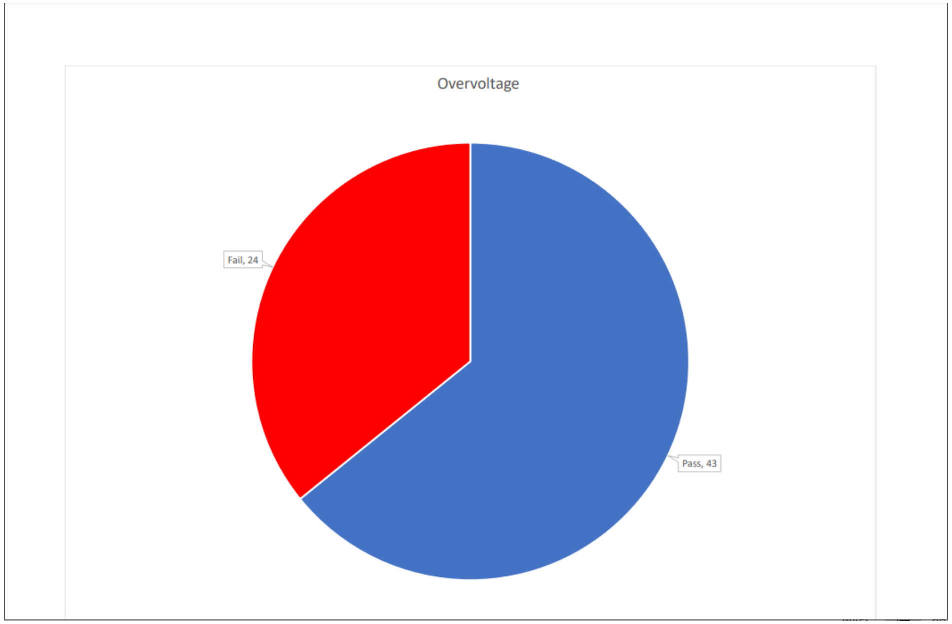
- A tab was provided with the 17 CESIR Criteria on if the pass fail rate in graphical format.



Case Number	Total Generator kWAC	Feeder 1	Distribution/Group Study: Study ID	Distribution/Group Study: Overvoltage - Result	Distribution/Group Study: Undervoltage - Result	Distribution/Group Study: Substation LTC for Reverse Power	Distribution/Group Study: Feeder Regulation For Reverse Power	Distribution/Group Study: Fluctuation Feeder < 3% - Result	Distribution/Group Study: Fluctuation Station Bus < 5% - Result	Distribution/Group Study: Flicker - Result
00396390	5,000.000	36_04_0456	S-26677	Pass	Pass	Fail	Pass	Pass	Pass	Pass
00366619	5,000.000	ATTICA-WETHERSFIELD #209	S-26467	Fail	Pass	Pass	Fail	Pass	Pass	Pass
00368025	5,000.000	N LEROY-ATTICA #208	S-26532	Fail	Pass	Pass	Pass	Pass	Pass	Pass
00367730	5,000.000	N LEROY-ATTICA #208	S-26501	Fail	Pass	Pass	Pass	Pass	Pass	Pass
00363883	5,000.000	N LEROY-ATTICA #208	S-26531	Fail	Pass	Pass	Pass	Pass	Pass	Pass
00350732	5,000.000	PHILLIPS RD-MEDINA #301	S-26537	Fail	Pass	Pass	Pass	Fail	Fail	Pass
00374371	5,000.000	OAKFIELD-CALEDONIA #201	S-26398	Pass	Pass	Pass	Pass	Pass	Pass	Pass
00380357	5,000.000	LOWVILLE-BOONVILLE #22	S-26534	Pass	Pass	Pass	Pass	Pass	Pass	Pass
00374264	5,000.000	36_06_7452	S-26567	Pass	Pass	Fail	Pass	Pass	Pass	Pass
00362135	5,000.000	36_07_18253	S-26313	Fail	Pass	Fail	Pass	Pass	Pass	Pass

Case Number	Distribution/Group Study: Thermal - Results	Distribution/Group Study: Withstand (fault current) - Results	Distribution/Group Study: Unintentional Islanding	Distribution/Group Study: Protective Device Coordination	Distribution/Group Study: Fault Sensitivity	Distribution/Group Study: Ground Fault Detection	Distribution/Group Study: Overvoltage - Transmission System Fault	Distribution/Group Study: Overvoltage - Dist. System Fault Result	Distribution/Group Study: Effective Grounding	Distribution/Group Study: SCADA
00396390	Pass	Pass	Fail	Fail	Pass	Fail	Fail	Pass	Pass	Fail
00366619	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00368025	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00367730	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00363883	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00350732	Fail	Fail	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00374371	Pass	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00380357	Fail	Pass	Fail	Fail	Fail	Pass	Pass	Pass	Pass	Fail
00374264	Fail	Fail	Fail	Fail	Pass	Fail	Fail	Pass	Pass	Fail
00362135	Fail	Pass	Fail	Fail	Pass	Fail	Fail	Pass	Pass	Fail

Tab – CESIR Pass Fail

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Case Number	Total Generator kWAC	Feeder 1	Distribution/Group Study: Study ID	Distribution/Group Study: Overvoltage - Result	Distribution/Group Study: Undervoltage - Result	Distribution/Group Study: Substation LTC for Reverse Power	Distribution/Group Study: Feeder Regulation For Reverse Power	Distribution/Group Study: Fluctuation Feeder < 3% - Result	Distribution/Group Study: Fluctuation Station Bus < 5% - Result	Distribution/Group Study: Flicker - Result
00396390	5,000.000	36_04_0456	S-26677	Pass	Pass	Fail	Pass	Pass	Pass	Pass
00366619	5,000.000	ATTICA-WETHERSFIELD #209	S-26467	Fail	Pass	Pass	Fail	Pass	Pass	Pass
00368025	5,000.000	N LEROY-ATTICA #208	S-26532	Fail	Pass	Pass	Pass	Pass	Pass	Pass
00367730	5,000.000	N LEROY-ATTICA #208	S-26501	Fail	Pass	Pass	Pass	Pass	Pass	Pass
00363883	5,000.000	N LEROY-ATTICA #208	S-26531	Fail	Pass	Pass	Pass	Pass	Pass	Pass
00350732	5,000.000	PHILLIPS RD-MEDINA #301	S-26537	Fail	Pass	Pass	Pass	Fail	Fail	Pass
00374371	5,000.000	OAKFIELD-CALEDONIA #201	S-26398	Pass	Pass	Pass	Pass	Pass	Pass	Pass
00380357	5,000.000	LOWVILLE-BOONVILLE #22	S-26534	Pass	Pass	Pass	Pass	Pass	Pass	Pass
00374264	5,000.000	36_06_7452	S-26567	Pass	Pass	Fail	Pass	Pass	Pass	Pass
00362135	5,000.000	36_07_18253	S-26313	Fail	Pass	Fail	Pass	Pass	Pass	Pass

Case Number	Distribution/Group Study: Thermal - Results	Distribution/Group Study: Withstand (fault current) - Results	Distribution/Group Study: Unintentional Islanding	Distribution/Group Study: Protective Device Coordination	Distribution/Group Study: Fault Sensitivity	Distribution/Group Study: Ground Fault Detection	Distribution/Group Study: Overvoltage - Transmission System Fault	Distribution/Group Study: Overvoltage - Dist. System Fault Result	Distribution/Group Study: Effective Grounding	Distribution/Group Study: SCADA
00396390	Pass	Pass	Fail	Fail	Pass	Fail	Fail	Pass	Pass	Fail
00366619	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00368025	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00367730	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00363883	Fail	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00350732	Fail	Fail	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00374371	Pass	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Pass	Fail
00380357	Fail	Pass	Fail	Fail	Fail	Pass	Pass	Pass	Pass	Fail
00374264	Fail	Fail	Fail	Fail	Pass	Fail	Fail	Pass	Pass	Fail
00362135	Fail	Pass	Fail	Fail	Pass	Fail	Fail	Pass	Pass	Fail

Tab – CESIR Pass Fail

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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.			

Tab – CESIR Pass Fail

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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.			

Tab – CESIR Pass Fail

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.			

Tab – REST API

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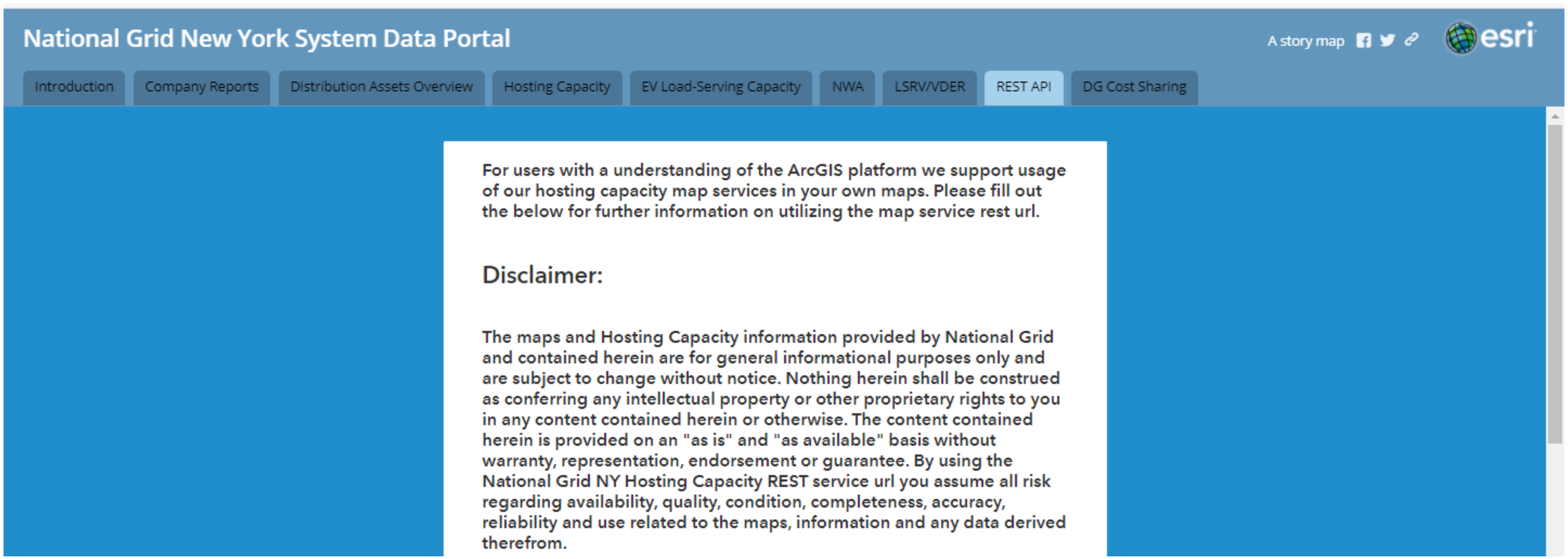
- Third parties can now overlay JU hosting capacity data within their own GIS systems and mapping tools.

- 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

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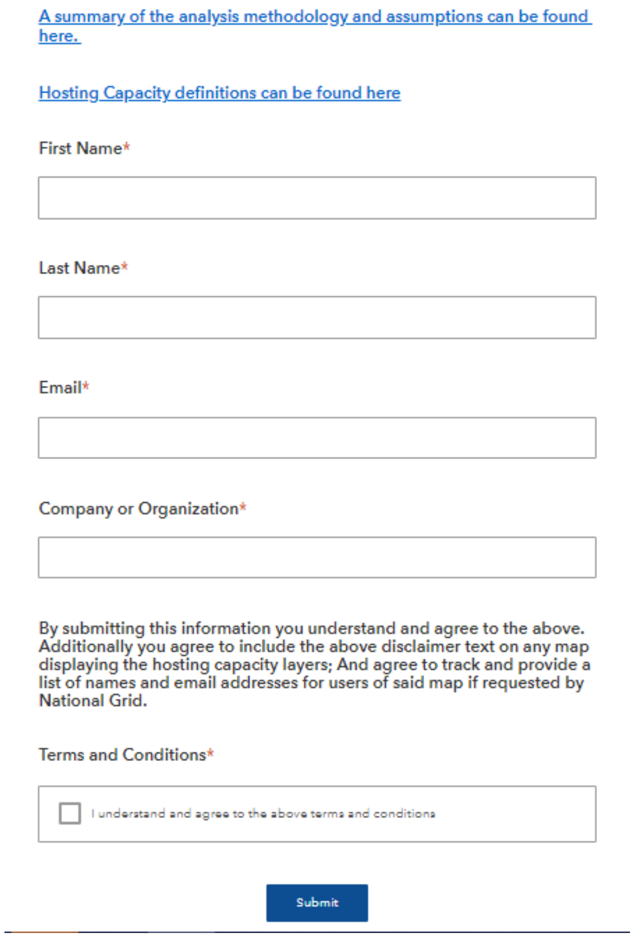
- Fill out the RES API Form confirming your information.
- This also indicates that you will place the disclaimer language.
- This also confirms that you will track who uses your map and provide a list of users if requested by National Grid.


A summary of the analysis methodology and assumptions can be found here.

Hosting Capacity definitions can be found here

First Name*

Last Name*

Email*

Company or Organization*

By submitting this information you understand and agree to the above. Additionally you agree to include the above disclaimer text on any map displaying the hosting capacity layers; And agree to track and provide a list of names and email addresses for users of said map if requested by National Grid.

Terms and Conditions*

☐ I understand and agree to the above terms and conditions

Submit

Tab – NWA

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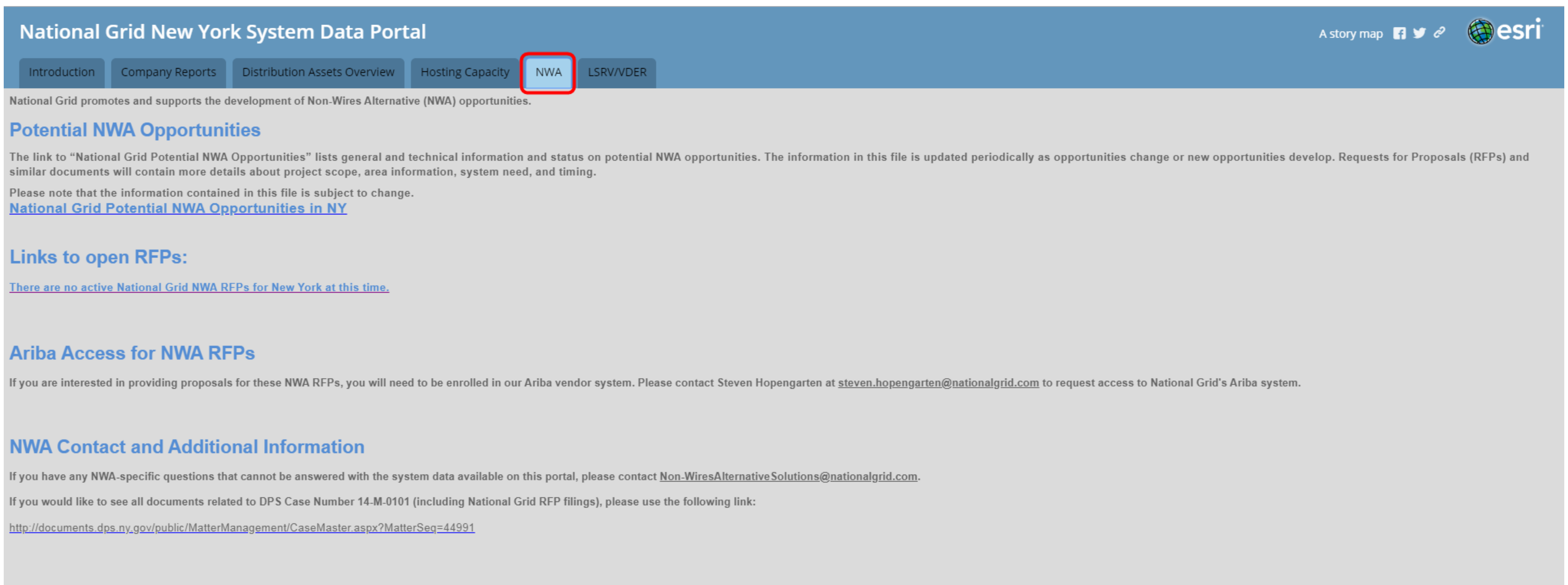
- The NWA Tab presents a NWA opportunities document which includes basic project metrics, and scope and timing of potential future NWA opportunities. Requests for Proposal or the like will contain more details about project scope, area information, and timing.



Layer – Environmental Justice Locations

- National Grid has added the layer for Environmental Justice Locations.
- 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.

- https://www.dec.ny.gov/public/911.html

Layer – Environmental Justice Locations

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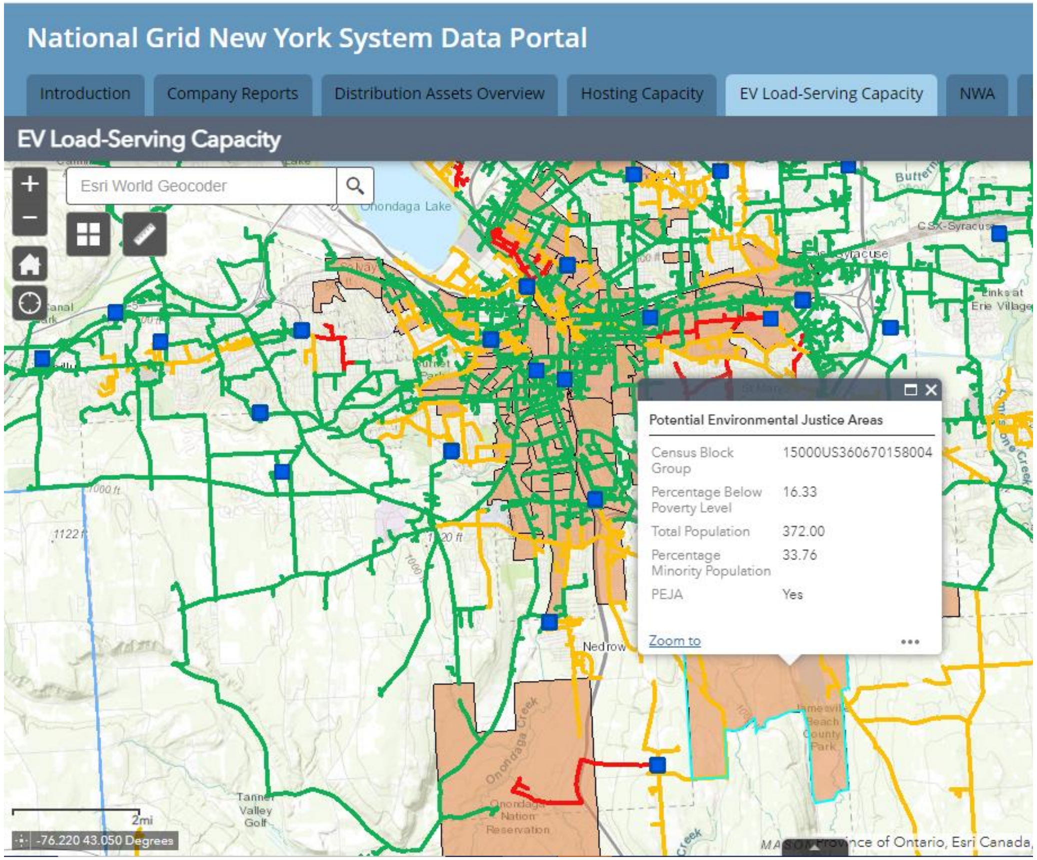
- The Environmental Justice Locations are defaulted on for the EV Load – Serving Capacity Maps.



Layer – Environmental Justice Locations

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- In order to turn the layer on other maps go to the Layers List and select the PE_JA_NY Layer.