COMMENTS OF THE NEW YORK POWER AUTHORITY

Proposed Use Case: Determine Customer Site Hosting Capacity

Name and Contact Information

Emilie Bolduc, VP New York Energy Manager, New York Power Authority, emilie.bolduc@nypa.gov

James Weaver, Principal Solution Architect, New York Power Authority, james.weaver@nypa.gov

Christopher Harvey, Regulatory Affairs Analyst, New York Power Authority, Christopher.Harvey@nypa.gov

Most Immediate Needs that the IEDR Should Address as soon as possible

Deployment of distributed energy resources (DER) is a key part of New York's strategy to achieve the Climate Leadership and Community Protection Act's (CLCPA) clean energy goals. The Integrated Energy Data Resource (IEDR) Program should expand equal access to regularly updated data that DER developers can use to evaluate site feasibility and project economics, thereby reducing barriers to DER development. Including such data in Phase 1 of the IEDR Program will support economic and efficient DER interconnection, growth of competitive DER development and aggregation markets, and integration of clean energy resources into New York's energy system.

Criteria used to prioritize initial use cases

The New York Power Authority (NYPA) recommends that initial use cases should be evaluated in the extent to which they support the following:

- Providing market participants with equal access to information that can be used to analyze DER business cases
- Identifying viable DER interconnection sites
- Reducing costs associated with DER deployment

1) Contributor Name & Contact Information

Emilie Bolduc, VP New York Energy Manager, New York Power Authority, emilie.bolduc@nypa.gov

James Weaver, Principal Solution Architect, New York Power Authority, james.weaver@nypa.gov

Christopher Harvey, Regulatory Affairs Analyst, New York Power Authority, christopher.harvey@nypa.gov

2) Use Case Category

Deploying and using DERs

3) Use Case Sub-Categories

- Identifying, evaluating, and/or selecting potential DER locations
- Identifying, evaluating, and/or engaging potential DER customers
- Preparing and/or optimizing DER development plans
- Preparing and/or optimizing DER operating plans
- Designing, implementing, and/or operating DER aggregations
- Monitoring and evaluating the deployment and use of DERs
- Designing and implementing Community Distributed Generation (CDG) solutions

4) What Question(s) Does the Stakeholder Seek to Answer with This Use Case?

- How much integration/load capacity exists on the local distribution system for an existing or potential DER interconnection or for increasing load?
- How much integration/load capacity exist on the local distribution system to support larger scale EV charging facilities or other related services that would significantly change loads?

5) What Information Should the Use Case Produce for the Stakeholder?

The use case should be able to provide the stakeholder with up-to-date information on substation load and hosting capacity, circuit load and hosting capacity, and customer site load and hosting capacity. Users should be able to view and query estimated hosting/load capacities for sites, circuits, and substations whereby estimated hosting capacity is provided for all service points and all relevant levels of aggregation.

This use case would be focused on providing direct access to proposed IEDR data elements including hosting capacity at the substation transformer, hosting capacity at the end of the line, and hosting capacity at the service address. This use case would determine the preliminary planning estimates of customer site hosting capacity. Important aspects of the use case would include the timely updating of data based on new DER interconnections and changes in circuit characteristics, components, or topology.

(a) How Will the Stakeholder Use the Information Produced by This Use Case?

NYPA will use information on hosting and load capacity to plan and evaluate potential DER sites. For instance, information on hosting and load capacity can be used to determine whether a given site could be approved for a DER to provide ancillary grid services.

(b) What are the Minimum Necessary Attributes for Each Type of Information Produced?

Substation loads and hosting capacities,

- Load rating at the substation
- Load factor at the substation
- Historical hosting capacity at the substation
- Forecasted hosting capacity at the substation
- 3V0 protection at the substation

Circuit loads and hosting capacities

- Historical hosting capacity at end of line
- Forecasted hosting capacity at end of line
- Hosting capacity calculation methodology
- Hosting capacity calculation inputs
- Hosting capacity constraint reason(s)
- Circuit average load
- Circuit average peak
- Circuit peak times
- Circuit load factor
- Nominal circuit voltage
- Distance to the substation

Customer site loads and hosting capacities

- Local energy value
- Local capacity value
- Measured consumption interval data
- Synthesized consumption interval data
- Hosting capacity at service location
- Service Voltage
- Number of phases
- Load factor

Queued DER details

- Interconnection Request ID
- Interconnection queue position
- Interconnection status
- Forecasted power interval data
- Planned operational date

Forecasted DER details

- Forecasted DER ID
- Forecasted DER type
- Forecasted DER capacity
- Forecasted power interval data
- Forecasted operational date

In addition to the above data items, which were proposed in the IEDR Whitepaper, NYPA also recommends that the IEDR include historical Value of Distributed Energy Resources (VDER) Rates at the point of interconnection. This will enable developers to model potential DER project compensation rates.

6) How Should the IEDR User Interface Present the Information Produced by the Use Case?

The IEDR user interface should utilize simple cascading dashboards that allow for visualizations of hosting and load capacity at the substation, circuit, and site levels. The interface should support user searches by address, transmission node, and substation. Additionally, the user should be able to manually search for hosting and load capacity in a given geographic location by using manual pan/zoom/select methods over a street map. Data produced by the use case should be consumable by the interface either through a custom application programming interface (API) or representational state transfer (REST) endpoint. The IEDR user interface should also generate a standard profile report at each of the levels identified above.

The IEDR user interface should also utilize an interactive screen for entering potential DER loads at a given site and recalculating available integration capacity. In this setting, the user should be able to add discreet DER load and receive summary hosting capacity data at the sites, circuits, and substation levels.

7) What Type(s) of Data Does the IEDR Need to Analyze for This Use Case?

(a) What are the Minimum Necessary Data Attributes for Each Type of Data Collected and Analyzed?

Utility data should be updated monthly, with a 5% accuracy threshold. Historical utility data should go back 5 years. Building/EV level data should be updated daily, with a 2% accuracy threshold. Historical building/EV level data should go back 3 years.

8) What Data Relationships Does the IEDR Need to Analyze for This Use Case?

The required electric hierarchical relationship that is required is site to feeder to substation transformer to substation high side bus (ISO Node).

9) What Data Analysis Function(s) Does the IEDR Need for This Use Case?

For the data elements identified in 5b, above, the IEDR should be able to generate averages, maximums, and minimums. For all consumption-based information, data should be available as a 24-hour profile whereby load information is reported hourly. The IEDR should also be able to provide a summer peak profile, winter peak profile, and average monthly profile for all data elements listed in 5b.

(a) What are the Minimum Necessary User Input Variables Needed to Enable a Useful Analysis?

For the proposed use case, the critical data is the hosting capacity and load information at the site and the substation. One missing component is that the IEDR fields are proposed to collect the high side bus loading of substation transformers. Users must be able to view this transformer information summarized to the high-side bus of the substation to ascertain overall hosting capacity at the substation. User input would be the criteria to search and locate specific sites or substations. The specific methods should be TBD for the actual use case design/build however most likely this input

would be a geographic location (e.g. address, intersection, municipality, coordinates, or manual pan/zoom via a geographic interface) and parameters related to identifying substations connected to a specific node with at least "X" hosting capacity."

10) How Often Does the Stakeholder Expect to Employ This Use Case?

NYPA expects that this use case would be used weekly.

11) How Does This Use Case Benefit the Stakeholder?

This use case will allow stakeholders to know if a customer site is connected to the distribution system operator's (DSO) distribution network in a location that has hosting capacity for DERs.

12) Why Should This Use Case Be Prioritized from the Perspective of i) the Industry and ii) the Citizens of New York State?

Industry

From the industry's perspective, this use case will allow prosumers to better evaluate the economics of DER investments and to reduce interconnection requests at non-viable locations. It will enable greater visibility into hosting capacity available at a given site, thus helping DER developers and aggregators understand when investments in utility distribution system upgrades would be needed to increase hosting capacities.

Citizens of New York State

This use case will benefit the citizens of New York State by promoting an open DER market with equal access to information on site economics, thereby ensuring that DSOs do not have an unfair advantage in knowing where DER deployments are viable. By providing information on where DER interconnections are viable, the use case will support competition between aggregators and reduce customer costs for aggregation services. This will facilitate greater customer choice and promote job growth via a vibrant and competitive aggregation services market. Competition will allow additional DER aggregators to serve customers in New York, facilitating greater customer choice in aggregator service providers and promoting job growth in this industry. Furthermore, this use case will support New York's efforts to deploy clean energy and reduce carbon emissions pursuant to the goals of the CLCPA.