JOINT UTILITIES OF NEW YORK

Hosting Capacity Stakeholder Webinar

(November 19, 2020)

Audio:
Dial-in (212) 894-5498; Code: 25658938#

Engagement Group Ground Rules*

- All stakeholder engagement (Advisory Group and Engagement Group) meetings, webinars and information exchange are designed solely to provide an open forum or means for the expression of various points of view in compliance with antitrust laws.

- Under no circumstances shall stakeholder engagement activities be used as a means for competing companies to reach any understanding, expressed or implied, which tends to restrict competition, or in any way, to impair the ability of participating members to exercise independent business judgment regarding matters affecting competition or regulatory positions.

- Proprietary information shall not be disclosed by any participant during any stakeholder engagement meeting or its subgroups. In addition, no information of a secret or proprietary nature shall be made available to stakeholder engagement members.

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- AG & EG discussions will be open forums without attribution and no public documents by the AG or EG will be produced unless publication is agreed upon by the group.

**Ground Rules adapted from the JU Advisory Group*

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Agenda

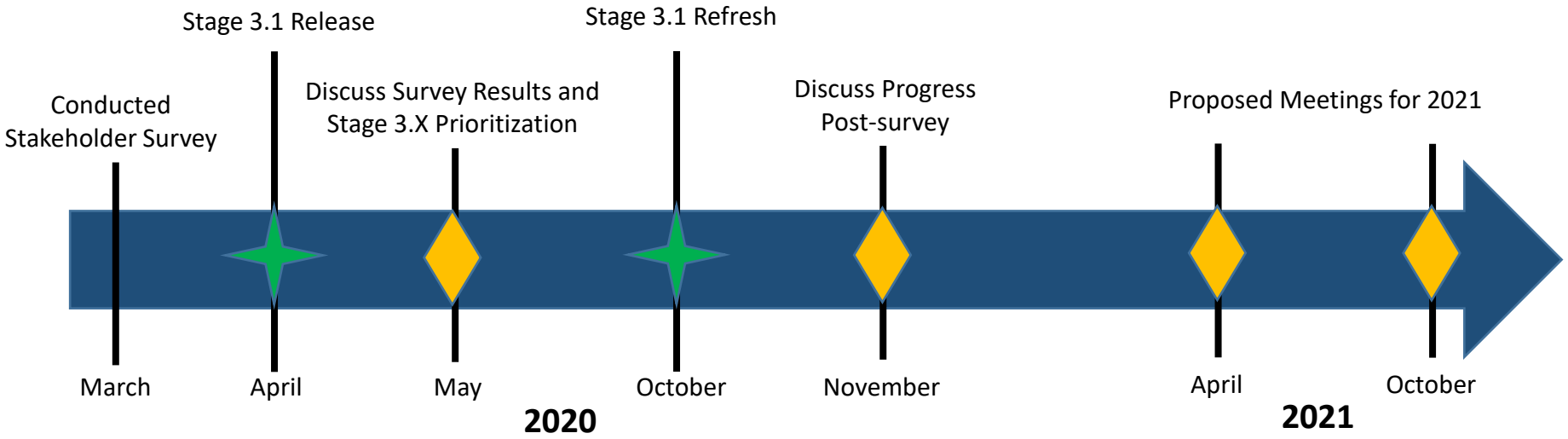
1. Introductions
2. Meeting Goals
3. Recap Recent Activities
4. Near-to-Medium Term Enhancements
    1. Increased Analysis Refresh Rate
    2. Additional Map Functionality / Scenic Hudson Solar PV Mapping Tool
    3. Load Capacity Map Development
5. Long-term Roadmap Items

Meeting Goals

- Review and discuss recent activity on the near-to-medium term enhancements where the JU will continue making progress over the next six-months.
- Provide Scenic Hudson an opportunity to update and get feedback from stakeholders on the release of their solar PV mapping tool.
- Provide an update on the JU's current approach towards developing a load capacity map.
- Solicit input from stakeholders on the next stages of the hosting capacity maps.

Recent Activities

- The JU recently completed their annual refresh of the hosting capacity maps according to the latest release (Stage 3.1).
- Since the May stakeholder session, the JU have advanced high priority enhancements, to the hosting capacity displays.



Recent Additions to the Data Pop-ups

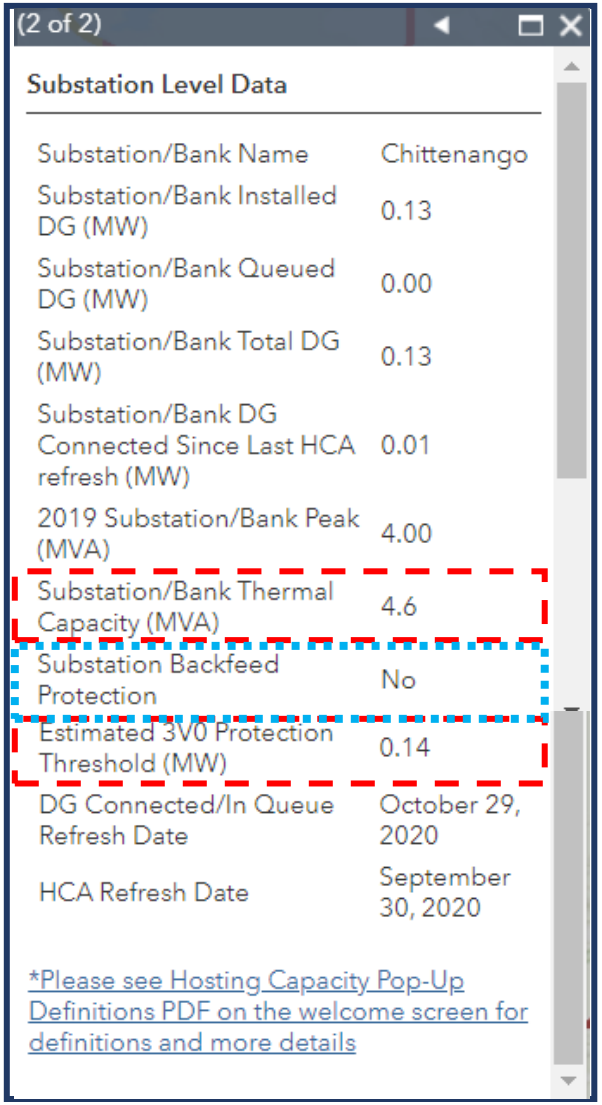
Stage 3.0

Stage 3.1

Local Feeder Level Hosting Capacity for PV

Substation	CHITTENANGO
Feeder	36_11_1673
Local Voltage (kV)	4.80
Local Maximum Hosting Capacity (MW)	2.80
Local Minimum Hosting Capacity (MW)	2.00
Anti-Islanding Hosting Capacity Limit (MW)	0.2879
Feeder DG Connected (MW)	0.07
Feeder DG in Queue (MW)	0.00
Feeder DG Connected Since Last HCA Refresh Date (MW)	0.01
Load Zone	C-2
DG Connected/In Queue Refresh Date	October 29, 2020
HCA Refresh Date	September 30, 2020
Notes:	Fed from NYSEG/RG&E

*Please see Hosting Capacity Pop-Up Definitions PDF on the welcome screen for definitions and more details



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High Priority Near-to-Medium Term Enhancements

- **Increased Analysis Refresh Rate** – The hosting capacity maps will be updated every 6 months in-between the annual refresh, for areas that experience a significant circuit change.

- **Additional Map Functionality –** REST URL access as piloted with Scenic Hudson will be expanded for other third-party access at request.

- **Load Capacity Maps –** A separate display/layer focused on a load-based hosting capacity analysis.

Increasing Analysis Refresh Rate

- Significant circuit changes dictating if an analysis refresh is required will be based on if the circuit has received a total increase of connected DG above 500 kW over the prior 6 months.

- Increasing the hosting capacity analysis refresh rate continues to be a high priority item that the JU will continue to evaluate with each release.

Piloting Additional Map Functionality with Scenic Hudson

- The JU worked with Scenic Hudson to share hosting capacity displays that can be overlaid with their own public solar PV mapping tool.

- This allowed the utilities to pilot their approach to providing additional map functionality via a REST URL.

- Scenic Hudson's solar PV mapping tool is aligned with the JU's solar PV developer guide use case and provides an example of how similar access can be provided to other third-parties.

Scenic Hudson Presentation

Load Capacity Maps

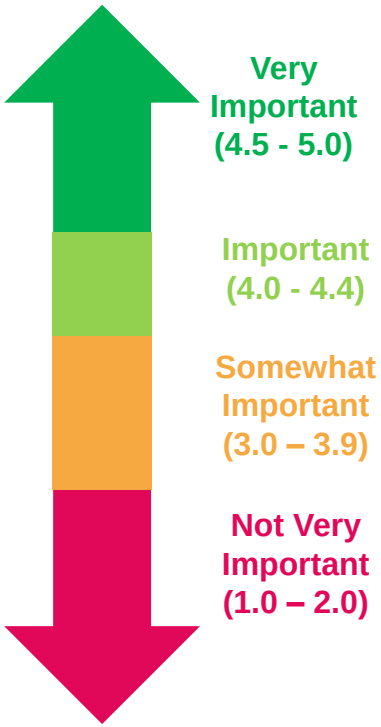
- The JU are in the process of developing a load capacity map tailored to electric vehicle charging infrastructure per the EV Order.
- The EV load capacity map will be released by December 31st, 2020.
- The EV and Hosting Capacity stakeholder engagement groups will remain separate; this group will continue focusing on engaging solar PV and energy storage stakeholders.
- This initial load capacity map will provide a starting point for further refinement and development per the hosting capacity roadmap.
- The JU are encouraging stakeholder feedback as part of that development process.

Near-to-Medium Term Priorities

- Consistent with the stakeholder survey results, the JU see the following as high priority and value-added enhancements to continue focusing on.

- **Very Important 4.5 - 5**
  - Additional Map functionality (e.g. downloadability/filterability, API) – **In-progress**
  - Hosting Capacity Analysis for Energy Storage – **Partial progress per the EV Order**
  - Hosting Capacity for Hybrid Solar + Storage
  - Upstream Substation/Bank-Level Constraints – **Progress made in Stage 3.1**
  - Forecasted Hosting Capacity

- **Important 4.0 – 4.4**
  - Increased Analysis Refresh Rate – **In-progress**
  - Circuit Equipment Ratings
  - Hosting Capacity - Data Validation Efforts – **Progress made in Stage 3.1**
  - Dynamic Hosting Capacity



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A summary of the stakeholder survey results can be found in the May 2020 Stakeholder slides.

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Longer-term Items Requiring Further Discussion

- The following items are viewed as longer-term items to continue considering in the context of the broader hosting capacity roadmap:
  - Hosting Capacity for Energy Storage
  - Hosting Capacity for Hybrid Solar + Storage
  - Upstream Substation/Bank-Level Constraints **(Progress made in Stage 3.1)**
  - Forecasted Hosting Capacity
  - Circuit Equipment Ratings
  - Hosting Capacity - Data Validation Efforts **(Progress made in Stage 3.1)**
  - Dynamic Hosting Capacity

Q&A

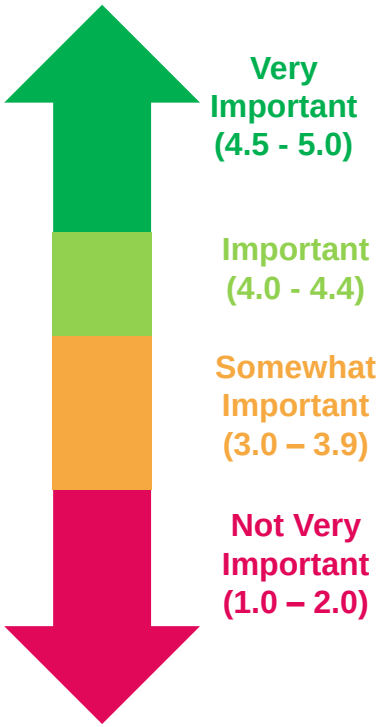
Appendix

Stage 3.X Survey Prioritization (1/2)

- **Stakeholders were asked to rate the level of importance of each of the following proposed enhancements to your business, using a five-point scale where 1 is "not at all important," and 5 is "very important."**

- **Very Important 4.5 - 5**
  - Additional Map functionality (e.g. downloadability/filterability, API) – **Progress made in Stage 3.1**
  - Hosting Capacity Analysis for Energy Storage
  - Hosting Capacity for Hybrid Solar + Storage
  - Upstream Substation/Bank-Level Constraints – **Progress made in Stage 3.1**
  - Forecasted Hosting Capacity

- **Important 4.0 – 4.4**
  - Increased Analysis Refresh Rate
  - Circuit Equipment Ratings
  - Hosting Capacity - Data Validation Efforts – **Progress made in Stage 3.1**
  - Dynamic Hosting Capacity

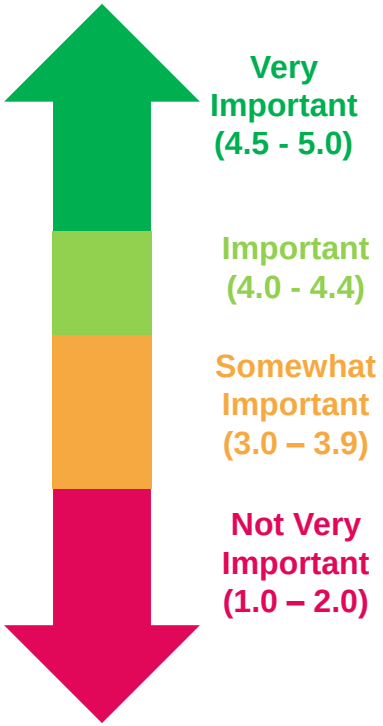


Stage 3.X Survey Prioritization (2/2)

- **Stakeholders were asked to rate the level of importance of each of the following proposed enhancements to your business, using a five-point scale where 1 is "not at all important," and 5 is "very important."**

- **Mid 3.0 – 3.9**
  - Better Communication of Available Reference Materials and Supporting Documentation – **Progress made in Stage 3.1**
  - Time-Varying Hosting Capacity (increased temporal granularity)
  - Hosting Capacity Analysis Criteria Violation Transparency
  - EPRI DRIVE Utility Inputs, Analyses Used, and Study Parameters Transparency – **Progress made in Stage 3.1**

- **Low 1.0 – 2.9**
  - Hosting Capacity for Electric Vehicles*
  - Hosting Capacity for Combined Heat & Power**



*Survey did not include EV stakeholders

**Survey did not include CHP advocates

Topics and High-Level Follow-up items from May Stakeholder Meeting

- **Substation data availability and downloadability in the attribute tables – Verified consistent availability and functionality between utilities.**
- **Differences in approach on substation mapping – Previous utility preferences remain.**
- **Assigning a utility GIS representative to attend future meetings to address mapping questions, e.g. rest API access, live link URL – Utility GIS reps now included in meeting invites and attendance.**
- **The use of hourly data and criteria violations to provided hybrid solar + storage hosting capacity – Further discussion required.**
- **Including real estate developers and building loads as stakeholders to the load capacity maps – Included for consideration as part of the load capacity roadmap.**
- **Validation and QA&QC efforts of the hosting capacity values – Additional reference materials provided.**

Meeting Notes

November 2020 Stakeholder Webinar Overview

Topic	Discussion Points	Follow-ups
Increased Analysis Refresh Rate	Stakeholders raised the question if criteria other than increases in connected DG should also be included as a significant circuit change in this context, as major changes in load and circuit reconfigurations will also impact hosting capacity.	The JU agree other criteria impact hosting capacity. Most of the utility's planned circuit upgrades or reconfigurations occur before the October refresh and would be captured in the annual refresh of the analysis. The JU will review if other criteria, like major changes in load, or circuit reconfigurations, should also be considered as a significant circuit change in the context of the hosting capacity analysis refresh.
REST URL Access	Stakeholders requested clarification if a single REST URL will be provided for the JU or if it will be individual REST URL per each utility.	The JU confirmed that each utility will provide their own REST URL with a similar level of access.

November 2020 Stakeholder Webinar Overview

Topic	Discussion Points	Follow-ups
Load Capacity Maps	Stakeholders requested clarification if the load capacity maps will also follow an annual refresh rate and if so why. Stakeholders requested clarification on the level of data that will be provided initially. Stakeholders requested clarification on what kind of effort will be undertaken to validate the load capacity map data. Experience from other jurisdictions has highlighted the need for QA/QC.	The JU confirmed the load capacity maps will be provided at a feeder-level and will be updated on an annual basis. This follows a similar incremental approach to the solar PV hosting capacity maps, that allows for more frequent updates and more detailed granularity over time. The JU agrees that data validation is a major concern. The JU will apply similar QA/QC of the results as with the solar PV hosting capacity maps. The JU will also apply lessons learned from the QA/QC of the solar PV hosting capacity maps to the load capacity maps.

November 2020 Stakeholder Webinar Overview

Topic	Discussion Points	Follow-ups
Load Capacity Maps	Stakeholders requested clarification if the load capacity map will support other technologies like storage or if they will be separate? Stakeholders noted their preference is to combine the EV stakeholder group with the solar and storage hosting capacity stakeholder group. Stakeholders noted that there are many overlapping issues between the two and that there are efficiencies to be gained by combining them. Stakeholders noted their preferences is for the load capacity maps to be technology agnostic.	The JU confirmed that the initial EV load capacity map will lay the foundation for future releases that are inclusive of energy storage and other technologies. The JU agree that there is some overlap between the two stakeholder groups' interest. However, any technical discussions on mapping the analysis results will occur within the hosting capacity stakeholder group. DPS Staff noted that certain aspects of the stakeholder groups could eventually be combined, but that the groups are sufficiently distinct and have their own objectives to currently address first.

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Topic	Discussion Points	Follow-ups
Color Coding	Stakeholders asked if there has been any consideration on using different shades of blue for line segments with greater hosting capacity. Stakeholders noted it can be difficult to distinguish between the shades of blue.	The JU will get additional feedback from other users and will review internally if its worth updating the color shading.