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PG&E Updates Data Portal to Reflect Increased Distributed Energy Resources Integration Capacity

By Paul Doherty

PG&E's Distribution Resource Planning (DRP) data access portal recently received a major refresh, reflecting a significant increase in the Integration Capacity Analysis (ICA) results of PG&E's electric distribution system.

Since 2016, PG&E along with California's other Investor Owned Utilities, San Diego Gas and Electric and Southern California Edison, have provided contractors and developers with online access to maps designed to help them determine optimal project sites for Distributed Energy Resources (DERs) such as solar and battery energy storage. The maps are accessible at PG&E's DRP data access portal, and provide integration capacity, grid needs, and other information about PG&E's electric distribution system. The ICA map is designed to help contractors and developers find potential project sites for DERs.

The portal provides transparency around distribution capacity and planning, including automated capabilities and assessments of hourly demands and DER impacts. Integration capacity quantifies the capability to integrate DERs within PG&E's distribution system.

"ICA is a complex modeling study that uses detailed information about the electric distribution system, which includes items such as physical infrastructure, load performance, and existing and queued generators. The analysis simulates the ability of individual distribution line sections to accommodate additional DERs without potentially causing issues that could impact customer reliability and power quality. These issues could result in the need for distribution line upgrades that would impact costs and/or timelines for DER interconnections," explained PG&E's Quinn Nakayama, director, integrated grid planning & innovation.

PG&E's Integration Capacity Analysis (ICA) map showing downtown Bakersfield. Yellow and green lines indicate distribution system line sections with reported integration capacity above 1 MW. Orange lines indicate line sections with reported integration capacity of up to 1 MW. Red lines indicate circuits with no reported integration capacity.

In late 2018, PG&E completed its first system-wide iterative ICA, but quickly realized that a refresh was needed to improve the quality of results.

Last year, PG&E worked with platform-as-a-service and cloud analytics company GridUnity to conduct a system-wide refresh intended to improve the accuracy of results and better operationalize the ICA data by re-analyzing all valid circuits. The PG&E engineering team utilized GridUnity's Grid Model Management (GMM) software to drive automated analyses and management-by-exception workflows to ensure completeness of model data and resolve power flow issues in a methodical, collaborative, and consistently repeatable process. As a part of this effort, GridUnity's GMM software capabilities were expanded and improvements were made to 1) PG&E's forecasting software, 2) PG&E's distribution power flow software and ICA algorithm, and 3) PG&E's Electric Distribution GIS.

As of April 2020, PG&E has completed the refresh, with the result being a nearly 400 percent increase in posted integration capacity.

Before the refresh, the system average of distribution line section integration capacity was 126 kilowatts (kW). After the refresh, the system average of line section capacity increased to 500 kW.

"Providing DER developers with a high-quality visualization tool that effectively shows where distribution constraints may be allows them to help drive cost effective, optimal siting of DERs through precise analysis," Nakayama said. "With this refresh, we've improved the quality and usability of data in the portal giving developers more reliable, actionable information on potential project sites."

PG&E's electric distribution system is dynamic, with circuits changing as a result of upgrades, new loads, new DERs, new circuits, and seasonal switching. Over time, a single location may have different results due to these changes.

PG&E will continue to analyze circuits monthly, automatically triggered by changes the GMM software detects, and will post the new results to the maps within the portal as they become available.

Email Currents at Currents@pge.com.

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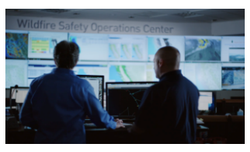

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