Mike Heng, Itron

Poster Title: Realizing the Full Capacity of Energy Storage Data: Critical Steps in Evaluating Behind-the-Meter Battery Data

Abstract: Advanced energy storage (AES) devices have seen increased proliferation in California, Hawaii, Massachusetts, and many other jurisdictions. AES devices are filled with promise – the ability to charge/discharge behind-the-meter (BTM) AES devices allows for potential layering of benefits to customers, distribution utilities, and transmission system operators. In California, the Self-Generation Incentive Program (SGIP) provides rebates for qualifying distributed energy technologies including AES. To date, the program has issued incentives to almost 1,000 AES projects, with increased funding on the horizon.

SGIP impact evaluation efforts have unearthed a trove of AES performance data collected at the sub-second level. To uncover meaningful insights such as environmental impacts, bill impacts, and distribution system deferral opportunities, metered data from multiple sources must be standardized and verified to ensure the accuracy and reliability of impact estimates. Through SGIP impact evaluation, algorithms were developed and tested to investigate the myriad issues that can arise. These algorithms combine the physical characteristics of AES technologies and the relationship between storage systems and customer load to identify suspicious observations.

The visual display will comprise text, tables, graphs, and interactive dashboards conveying how the various sources of data are manipulated and how the associated quality control process flows. Data sources include project tracking information and sub-hourly interval data from energy storage devices and utility AMI. The visualization will describe the data validation process: verifying data sources against each other, correcting timestamps to ensure time syncing, and stitching data from multiple sources throughout the evaluation period. The interactive dashboards will allow users to display the metrics used to ascertain the quality of data after extensive cleaning exercises are conducted.

As more utilities begin to deploy BTM AES technologies, evaluators must understand the possible pitfalls existing in the data and learn how to overcome them in order to provide sound policy recommendations. Failure to address these data issues can and will hinder the adoption of this promising technology. This interactive display will show in detail the critical steps required when sampling, metering, validating, and analyzing BTM AES performance data.