Automotive Dealership EV Charging Station Microgrid

Project Overview

As the transportation sector becomes electrified in efforts to reduce emissions contributing to climate change, the resiliency of the nation's, and the world's, electricity networks become paramount. Since each electric vehicle (EV) represents the equivalent load of a new house, utilities often cannot accommodate these loads without additional resources. Many non-utility developers of on-site solutions do not have the expertise to engineer and integrate DERs into a viable and self-sustaining microgrid.

Challenge

For commercial car dealerships whose inventory is now leaning toward the growing number of EV options across all car manufacturers, maintaining a reliable source of clean electricity is also crucial to demonstrate and sell motor vehicles. Among the challenges to this specific project were supply chain shortages and delays for key components to create an islanding microgrid that did not break the bank. The original developer for the projects did not have the engineering chops to design a microgrid nor a network to call upon for speedy delivery of key switching technology necessary for safe islanding functionality. The car dealership also wanted the new microgrid to pay for itself.

Solution

Encorp is installing a microgrid for incorporating solar PV and battery storage at a car dealership – Vail Buick - in Westchester, New York. The microgrid, which is now operating today, was coordinated with upgrades to add 95 kW of EV charging capacity to support the charging of the full OEM spectrum of new EV models being featured at the car dealership

The heart of the microgrid is 50 kW of solar PV supported by a battery system representing 186 kWh of stored energy capacity. The resiliency of the system is bolstered by a mobile, roll-up generator that can be moved to where its value can be maximized. Along with resiliency services, the microgrid controls can shed loads to extend battery life in the event of an extended outage and the microgrid goes into island mode.

The use of the battery can also reduce demand charges, which are a major component of the company's efforts to reduce its electricity bills. Encorp was able to leverage government incentives included in the Inflation Reduction Act (IRA) to reduce the capital costs of the solar PV and battery systems. Relying upon its network of suppliers, it was able to find and deliver key switching technology in about 2 months instead of the 12 months) the original developer had promised. The initial proposed control scheme failed to satisfy the local utility's (Consolidated Edison) standards. The project was also the first of Encorp's "microgrid for the masses" solutions featuring a dashboard whereby potential customers could see real-time data on the microgrid's operations.