Ohio site says: hello storage, goodbye coal

The retirement of a coal power plant in New Richmond, Ohio created a unique opportunity for Duke Energy in 2015. By placing the storage system at the retired coal plant, Duke is able to leverage the available transmission capacity at the site while providing ancillary services in PJM’s (Pennsylvania - New Jersey - Maryland) frequency regulation market—creating a new revenue stream.

*Energy storage is becoming increasingly important to help strengthen the reliability and flexibility of the grid and integrate more renewable power onto the system. We are pleased to have partnered with Greensmith to support our Ohio Beckjord project, an innovative storage solution that provides tangible benefits to the grid operator and local customers.*

Phillip Grigsby, Senior Vice President for Commercial Transmission at Duke Energy
High performance grid services

After 62 years of commercial operations on the Ohio River, aging infrastructure had rendered the final operating units of Duke Energy’s W. C. Beckjord power plant economically obsolete. During a multiyear decommissioning process, Duke Energy continued to operate a transmission substation on the property. The solution: divert resources to energy storage, using Beckjord’s strategic location to enter the PJM ancillary service market with a fast-response system regulating grid frequency.

Duke Energy and Greensmith announced a 2 MW storage system in May 2015. This project, known as Beckjord II, commenced construction in August and passed PJM’s rigorous frequency response test on the first try, entering service immediately in November. Rapid deployment enabled Duke to start generating revenue quickly. The system continues to achieve a high performance score from PJM, close to 96 percent, a result that also translates into higher revenues.

Solution: optimization
Greensmith provided end-to-end service for the Beckjord II project, designing and configuring the system with flexible software that can integrate any combination of batteries and power control systems, incorporating balance-of-plant components and commissioning the site. For this use case, Duke Energy acquired advanced lithium-ion batteries from LG Chem and inverters from Parker Hannifin. Greensmith’s GEMS (Greensmith Energy Management System) energy management platform delivers precise and synchronized response to PJM signals dispatched every two seconds while simultaneously minimizing battery degradation.

Results: exceeding expectations
This system delivers power in seconds, as opposed to a traditional power plant that could take up to 10 minutes or more to ramp up.

Technology-neutral
GEMS has been integrated with 16 different batteries and 10 power conversion systems.

Maximize system ROI
Advanced algorithms maximize battery performance and longevity.

Increased value
Enables additional value streams such as frequency regulation, spinning reserve or VAR support.

Efficient O&M
GEMS provides a comprehensive view of expected performance over the system’s lifetime.

KEY DATA

CUSTOMER
Duke Energy

SITE SIZE
2 MW/800 kWh

SITE LOCATION
New Richmond, Ohio, U.S.

APPLICATION
Frequency regulation in PJM