Delivering adaptability and engineering expertise

Client's energy role	EPC
Market segment	Utility
Project location	Washington, USA
Project size	194 MWp, 150 MWac
Project COD	Dec 2022
AlsoEnergy solution	Custom-built rack with multi-mode PPCs and RTAC-based data acquisition offering, custom-built weather station
AlsoEnergy services	Project management, engineering design, project engineering, remote commissioning, and onsite commissioning

"As a large EPC, we look for vendors that can provide high efficiency with efficient cost. During the selection process, AlsoEnergy rose to the top by understanding the intricate requirements and scopes of work needed for this complex site."

- EPC Senior Project Manager

Completing a large utility-scale solar project in Washington during a global pandemic

The team behind a 194 MW plant in Washington was eager to begin planning the complex details for what would become a sustainable gamechanger for the State of Washington and its community. The project owners knew they needed a sophisticated power plant controller with an extensive control library for obtaining the needed grid power control requirements. The solution also needed to integrate the unique elements of the project, including owner requirements and site capabilities, to ensure the project would operate as soon as possible. What the team didn't know was that they would have to navigate multiple challenges, including the 2020 global pandemic, to achieve success.

Rising to global energy and infrastructure challenges, the team took on the 1,800-acre solar energy project, which would become one of the largest solar projects in Washington. The solar site would consist of 444,024 solar panels and 53 inverters, connected 1-1 with an MV transformer with energy generated through a system of 34.5 kV underground and overhead lines to a collector substation where voltage steps up to 230 kV. Starting construction in 2019, the project was well underway when the 2020 global pandemic hit, creating global procurement and labor challenges.

SCADA Adaptability

Adaptability to meet complex SCADA project requirements and deliver a utility-scale project on-time

During preconstruction, AlsoEnergy approached the project management and SCADA design by taking a deep dive into the owner requirements, identifying the complicated scopes of work, and creating a solution with voltage droop control and real power curtailment. AlsoEnergy's solution aggregated all site data into a SEL RTAC and hosted that data in a single interface from which the owner's SCADA could pull data. The single interface provided ease of seamless communication with the 350+ field devices on site.

"At our PV site, AlsoEnergy's professional and engineering expertise enabled the coordination of two interfaces, ensuring all devices were communicating with each other. Confirming all the data was flowing correctly was extremely important and valuable, especially with the size of the site."

- EPC Senior Project Manager

The project could not have been completed on time without AlsoEnergy's adaptability, long-term industry relationships, and engineering expertise. With the AlsoEnergy team leveraging its vendor procurement relationships, the semiconductor chip shortages the project faced were overcome, and hardware was able to arrive onsite to still meet the project deadlines. AlsoEnergy's ability to seamlessly integrate into the owner's SCADA interface supported the project's schedule and owner requirements. For data acquisition, the network was designed with SEL RTACs data converters at each pad to minimize the SCADA system's bandwidth burden.

"This was an important project to many stakeholders and it took a great team to face the engineering, procurement, and labor challenges the COVID-19 pandemic caused. The team was dedicated to ensuring the project continued in construction and ultimately be successful."

-EPC
General Manager, Business Development

Expansive Control Library

AlsoEnergy's expansive control library minimized risk and created additional value

Designed to provide a generic implementation of control algorithms, the AlsoEnergy-engineered control library provided features to benefit the long-term efficiency and ROI of the project.

Dynamic Limiting, a unique feature within AlsoEnergy's control library, allowed for optimized control on both plant output and ramp rate for a plant with slower communication or inverter response. This improved the energy and financial performance for the project. Additionally, AlsoEnergy provided controls for 47 MVAr capacitor banks on site. The AlsoEnergy control library has four control modes for capacitor banks to provide multiple options depending on what is best for a site.

AlsoEnergy tailors the control scheme to best fit project specific needs, such as utility requirements, PV plant electrical design, offsetting inverter reactive power burden, and how to best coordinate with other plants on the same distribution network. This was particularly beneficial to the project since there is a wind power plant on the same line as the PV. Working with the owner, AlsoEnergy worked different schemes to ensure the capacity banks operated according to the owner's preference. The site was also implemented with a voltage droop control to meet the local utility requirements, since there was a specific reactive power control scheme needed. An Individual Inverter Manual control for both P and Q in the AlsoEnergy control library was also implemented to allow the O&M provider to take an inverter out of automatic control for maintenance work while the plant could still meet the POI requirements.

Reducing Risk

Completing the project by reducing risk with phased commissioning

To meet the owner's requested operational date, AlsoEnergy used a phased commissioning approach, getting controls and SCADA running on sections of the project at a time. This minimized the negative effects of the global supply chain and labor shortage caused by the pandemic. By using this approach, sections were able to be online, and thus profitable, before the full plant was complete.

The project was completed in January of 2023, and immediately after, AlsoEnergy began the next project with the same client, a 162-MW project, with energization later in 2023.

"Grid requests and demands were definitely unique, and AlsoEnergy gave excellent support during construction, meeting all target dates, despite the global pandemic. Instead of waiting until the very end, AlsoEnergy completed commissioning block-by-block, which helped identify any problems in advance."

- EPC Senior Project Manager