CASE STUDY

Utility Standalone Power Systems: PG&E Remote Grid

Project Name:
Briceburg Remote Grid

Developer:
BoxPower Inc.

Customer:
Pacific Gas & Electric Company (PG&E)

Contracted via:
Request for Proposals (RFP)

Date Contracted:
October 2020

Date Commissioned:
April 2021

Contact:
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Project Summary:

BoxPower was contracted through a competitive request for proposals (RFP) to design and install a hybrid solar, battery, and generator standalone power system (SPS) for Pacific Gas & Electric (PG&E) in Briceburg, California. The SPS will support PG&E's wildfire mitigation and grid resilience efforts. The remote grid will also reduce maintenance costs compared to traditional electrical distribution lines once servicing this small, rural community in Northern California.

The Problem:

Traditional wires-and-poles infrastructure carries the risk of transmission-sparked wildfires – a major concern across California, and particularly in areas like Briceburg, a remote community located at the end of a long set of distribution lines that ran through forested terrain. Communities served by the grid are also subject to Public Safety Power Shutoff (PSPS) events as part of wildfire mitigation efforts.

In 2019, a major fire destroyed the lines that served Briceburg. Installing an integrated solar, battery, and generator SPS represented an opportunity to not only address the utility-related wildfire concerns, but also to increase grid resilience and to reduce greenhouse gas emissions in line with California SB100's path to 100 percent renewable electricity by 2045.

The Solution:

BoxPower designed, installed and operates the Briceburg remote grid system for PG&E, California's largest investor-owned utility. For this project, BoxPower developed a dual solar array – one ground mounted and one container mounted – with a nominal PV power of 36.5kW and a 69.12 kWh lithium ferro phosphate battery bank. It can provide up to 27.2kW of continuous power output and a surge capacity of up to 48kW. The system has two integrated 35 kVA propane prime power generators as backup and a fire suppression system to protect the hardware – an especially important feature in this high fire-risk area. PG&E and BoxPower will be able to remotely monitor and control the system via satellite, with performance monitoring, reporting, and automated propane delivery capabilities.

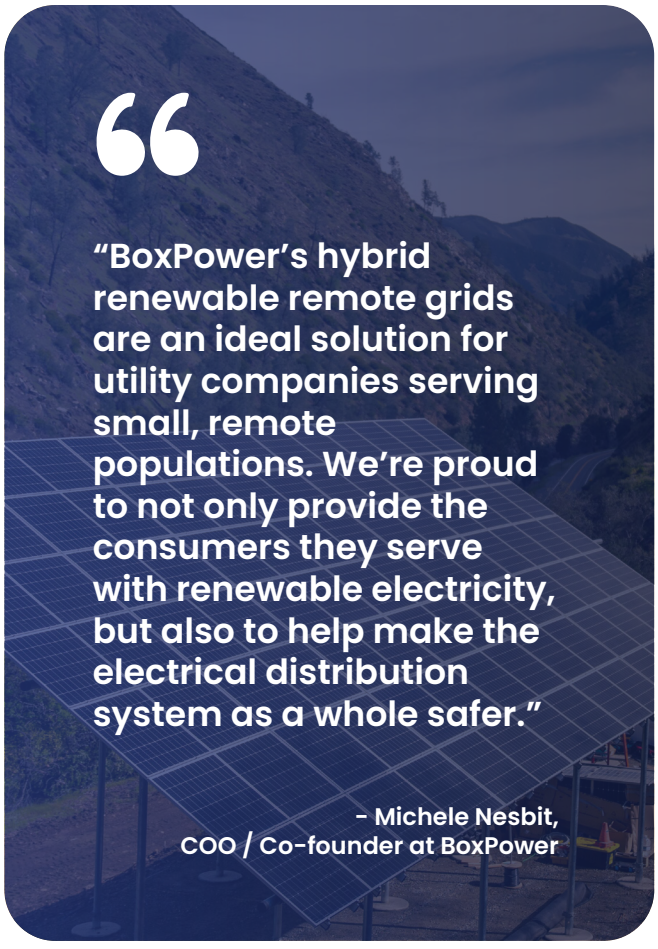
Financial Performance:

BoxPower's solar power with battery storage solution offers PG&E significant savings over continuing to power the Briceburg site with a diesel generator (the utility's temporary solution) or rebuilding and improving the distribution lines that were destroyed in the 2019 fire season. Grid hardening efforts alone – which can include upgrades to transmission equipment and poles, insulating lines, and intensive vegetation management – can cost utilities an estimated $1 million per mile. Distributed energy resources like BoxPower's standalone solar system represent an increasingly attractive, cost-effective non-wires alternative for some segments of utility company's markets.

Opportunities for Replication:

The Briceburg system will be the first operational remote grid for PG&E as part of its 2021 Wildfire Mitigation Plan (WMP). The utility set a projected target of 20 operational remote grid sites by the end of 2022, according to its plan submitted to the California Public Utilities Commission, and has identified the potential for several hundred remote grid systems like this one in the future.

In late 2020, BoxPower completed a similar project for Liberty Utilities in the Sierra Nevada Mountains outside of Truckee, California.



"BoxPower's hybrid renewable remote grids are an ideal solution for utility companies serving small, remote populations. We're proud to not only provide the consumers they serve with renewable electricity, but also to help make the electrical distribution system as a whole safer."

- Michele Nesbit,
COO / Co-founder at BoxPower

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