CASE STUDY

Critical Facilities Backup:
Mendocino Community Health Clinic

Project Name:
MCHC Hillside Solar Microgrid

Developer:
BoxPower Inc.

Customer:
MCHC (Mendocino Community Health Clinic)

Date Contracted:
July 2020

Date Commissioned:
June 2021 (est.)

Contact:
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Project Summary:

MCHC Health Centers, a collective of four community medical clinics in rural California, needed a backup power solution to provide critical care and prevent the loss of life-saving pharmaceuticals and vaccines during the intermittent Public Safety Power Shutoff (PSPS) events impacting the state. Leveraging funding made available by the State of California, MCHC installed a 247kW carport solar array and 464 kWh of battery storage on-site for their MCHC Hillside Health Center in Ukiah, California.

The Problem:

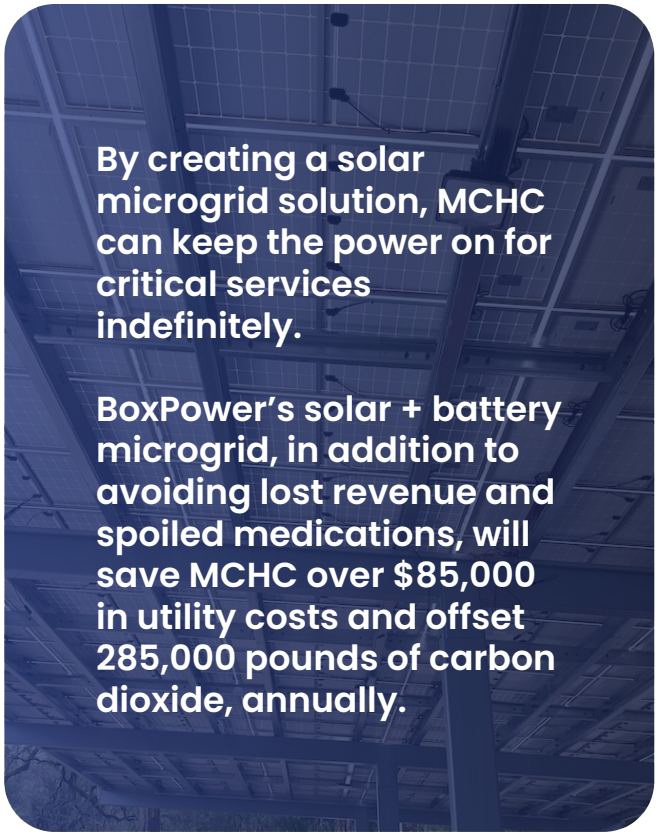
MCHC, like many medical clinics, has been severely impacted by unreliable power. During PSPS events or other interruptions of power, MCHC would lose their ability to provide critical care to patients and was vulnerable to the loss of life-saving pharmaceuticals and vaccines. When machinery, cold storage, or lighting is interrupted by outages, the safety of patients, staff, and the company is at risk.

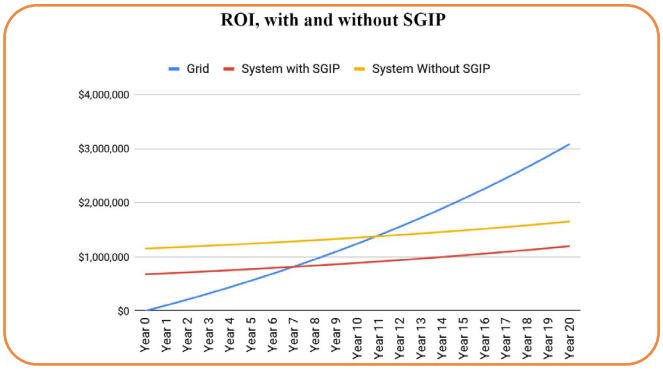
A common route for many critical facilities is to deploy backup generators. Traditional fossil fuel or natural gas generators can be prohibitively expensive: costs for transportation, installation, ongoing maintenance, fuel delivery, and the fuel itself can add up quickly. At the same time, companies are tasked with reducing their greenhouse gas emissions to meet state and global standards.

The Solution:

MCHC contracted BoxPower to design a solar microgrid for its Hillside Health Center to serve as emergency backup power and diversify their energy resources. The system can be used in tandem with utility grid power at all times; it can also operate fully islanded during short- or long-duration grid outages. In this way, the integrated solar and battery storage system provides both indefinite backup power and affordable clean energy throughout the year.

BoxPower performed the system design internally through its proprietary software program, EASI (Energy Audit System Integration). BoxPower developed the three-line diagram, system sizing, and identified and selected the appropriate technology equipment for the load centers, switchgear, conductors, and conduits. In four months, BoxPower installed a carport photovoltaic array of 247kW and a 116kW/464kWh Battery Energy Storage System.





Financial Performance:

BoxPower applied for California's Self-Generation Incentive Program (SGIP) on behalf of MCHC. The SGIP-approved funding ended up providing the storage component at no cost to MCHC.*

BoxPower modelled the financial return of the microgrid system for MCHC, with a focus on peak-rate reduction and resilience costs which yielded a less than 8-year return on investment. Thanks to the system's grid-tied capabilities, MCHC Hillside is drawing nearly $90,000 in annual savings from offset utility costs alone.

**Determined savings differ from project to project based on SGIP funding, investment tax credit (ITC), and project economics.*

Opportunities for Replication:

BoxPower is helping other medical clinics explore a similar microgrid application. SGIP has funding reserved for critical facilities backup power that can offset the costs of installing energy storage technology. As of 2021, there are over 400 federally qualified health centers in California without backup power that can take advantage of these incentives and apply for financing.

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