

EV CHARGING

Level 3 EV Charging Station with Battery Energy Storage System



CLIENT CHALLENGE

The demand for EV charging infrastructure is growing rapidly. With this, electricity consumption costs and transformer overloading have become big concerns to infrastructure owners. Our client in California, US sought to utilize solar PV and energy storage system to reduce the demand stress on grid and make bill savings by reducing grid usage during peak periods.

The charging station has Level 3 EV chargers that can charge EVs in a short period of time due to high charging power. The power demand of a Level 3 charger is normally higher than 30 kW and in cases above 100 kW as well. So, usage of Level 3 charger during peak hours has significant impact on electricity bills of the client. The integrated solar PV and BESS has given a smart charging solution to our client without overloading the existing system and eliminated the inconvenience of charging EVs during peak hours.

BACKGROUND

TROES is a Canadian company specializing in advanced distributed energy storage technologies, product and solutions. TROES is developing a Level 3 EV Charging Station with Battery Energy Storage System (BESS) to serve as a power source for electric vehicles in commercial & residential buildings. It will be pivotal in relieving the burden of excess power demands on the grid by charging the BESS during off-peak time & using the BESS to charge the EVs during peak period.

RESULTS



US\$120,000

Initial Cost



8 Hours

Daily Usage



US\$43,000

Annual Savings



~3 Years

Payback Period

FINANCIALS & BENEFITS

The system cost is US\$120,000. We assume 8-hour daily use as an ideal situation, and the EV charging fee as US\$0.33 per minute (US\$0.40/kWh). Considering charging cost from grid as US\$0.10/kWh, the annual revenue will be US\$43,000, and payback period will be around 3 years.

ABOUT THE SYSTEM

The system comprises of a Level 3 EV charger, powered by the grid and a battery backup system of 130 kWh. This setup will be able to charge an ordinary EV up to 80% in just 30 minutes. The battery backup system allows charging of EVs, avoiding the costly peak hours of grid electricity.



*SGIP in California offers 85% rebates for BESS under equity category.



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