

CHP APPLICATION

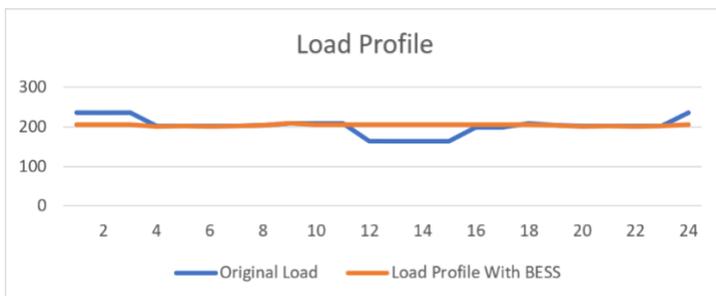
Combined Heat & Power with Battery Energy Storage System



CLIENT CHALLENGE

Our client in Southern Ontario has a CHP system to support the loads in an agricultural farm with the goals to decrease electricity costs. However, as is the case with solitary CHP plants, there are size limitations with the system as it has to be smaller than the load at all times to avoid any power feedback to the grid. Therefore, the client is unable to maximize savings and the smaller sized CHP has a higher cost on installation per kW.

With BESS integration, the demand of electricity load can be shifted to keep the CHP output power at a higher flat rate as shown below:



BACKGROUND

TROES is a Canadian company specializing in advanced distributed energy storage technologies, product and solutions. TROES is developing a new solution to upgrade the size of Combined Heat & Power System (CHP) by integrating the CHP plant with Battery Energy Storage System (BESS).

This BESS charges when CHP generates more power than the load and supports the CHP to meet the load at other times. The larger size CHP allows for greater on-site generation and the combined setup increases the efficiency of the CHP system.

RESULTS



US\$525,000

Initial Cost



4,800kWh

kWh Generated



US\$87,600

Annual Savings



6 Years

Payback Period

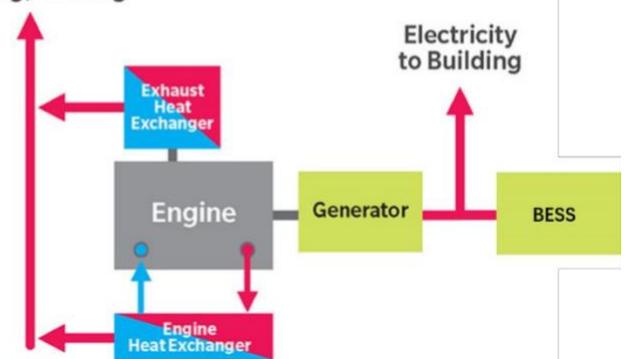
FINANCIALS & BENEFITS

The system cost is based on the client's requirements. While the average electricity cost within Ontario is \$0.15/kWh, the average cost of electricity from CHP will be \$0.10/kWh. In the case of the load profile, the CHP will generate 4,800kWh energy with annual savings of \$87,600. Considering per kW costs of CHP as \$2,000, the system costs will be \$525,000 and the payback period will be 6 years.

ABOUT THE SYSTEM

The system will comprise of a CHP plant and a Battery Energy Storage System. The generator and Power Conversion System (PCS) from BESS are AC coupled to support the electricity load.

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