

Project Title

Optimize Battery Banks at a Telecom Site

Project Summary

Battery banks are utilized at telecom sites to provide backup power in the case of grid power failure. When the grid fails, the battery bank will automatically start discharging to support the site load until either a generator can be hooked up or the grid power returns. The battery bank must therefore be sized to support the entire load at the site for a set number of hours. These batteries are not built for constant cycling and lose efficiency the more they are cycled, decreasing their lifespan. Current operations recharge the depleted batteries until they reach 100% of their charging capacity, using either a generator or grid fed power. Ideally, the battery bank would be appropriately sized to be able to maintain the load if necessary and not prematurely fail prior to its end-of-life date, without being too big and expensive.

The goal of this project is to investigate and identify the best recharging strategies to prolong the battery bank lifespan. The client will identify a specific site and provide the corresponding data sets of its usage patterns.

Project Client

TELUS

Project Design Objectives

First Term (SEE 410W)

- Examine how battery banks are currently being sized for a telecom site
- Investigate and understand how batteries are currently being cycled
- Develop a model to determine the best size a battery bank for the given site
- Determine the best charging strategy to prolong and maintain battery lifespan

Second Term (SEE 411)

- Virtually simulate this charging strategy's implementation and its performance

Project Outputs