



Case Study:

PERFORMING AN EXTENSIVE ENGINEERING STUDY AND PROVIDING RECOMMENDATIONS FOR A LEADING CANADIAN UNIVERSITY

PROJECT OVERVIEW

One of Canada's largest and most prestigious universities contracted Spark Power to perform an extensive engineering study and report on its findings. This allowed the institution to act on identified areas of impending concern or immediate need.

Scope

On-site data collection for the entire electrical power distribution system at 115kV, 13.8kV, 4.16kV, and 600V and below.

- This also includes 208 equipment fed from a transformer equal or greater than 125kVA.

Using ETAP (versions 12.0 and 14.0) software to perform short circuit analysis, coordination study, and arc flash hazard analysis and mitigation for the entire electrical power distribution system.

- This comprised of a 115kV high voltage substation, campus-wide 13.8kV distribution system and emergency power distribution systems serving 49 buildings and 7 portables.

Label installation for all equipment included in the study.

Three training sessions that included site-specific examples. Additional training on understanding arc flash and shock hazard information found on installed labels, proper use of personal protective equipment (PPE), and discussions on following safe operating procedures.

Challenges

- The electrical power distribution system included 6 co-gen generators.
- The main 13.8kV distribution was running on a closed tie requiring the use of a current limited protector.
- There were 30 double-ended substations, of which could be fed from a campus-wide emergency power distribution system.
- Equipment fed from multiple sources required performing analysis for multiple scenarios to select worst-case arc flash hazard results.

Solutions

Within the two-year project timeline, Spark Power was able to deliver the following:

- 27 reports submitted and acted upon.
- 5,000+ arc flash hazard labels installed.
- 500+ pieces of equipment protected against arc flash hazards due to recommendations provided in the study.