Critical Supply – Cadillac Fairview, RBC Centre

Background

A focal point of Toronto's landscape, this 1.2 million square-foot building meets LEED NC Gold Standards. ESAC worked as a subcontractor during the development of this building. The installed system consists of main 13.8kV distribution and unit substations with essential and non-essential circuits requiring three 13.8kV emergency generators for full load capacity. Each 13.8kV and low voltage breakers protection and metering are integrated for EPLU loads management to ensure building essential supply. The project resulted in reliable system operation which is critical for banking data centre integrity.

Approach and Methodology

The EPLU is located in the switchgear room, close to building central control. Schneider power monitor software integrates EPLU, switchgear protections and metering. Distributed fiber communications design for central and switchgear interface panels that are UPS supplied. Building non-essential circuits are tripped on loss of normal power prior to transfer to emergency generator(s) supply to ensure no overloading. Pending current emergency generator(s) loading, non-essential circuits are added or subtracted based on designated priorities.

Key Challenges

Encountered challenges included non-essential load application relative to number of 13.8kV generators synchronized as sequence is 1st unit immediately, then 2nd followed by 3rd units synchronizing. Loading was applied in a manner to not impact the staged generators synchronizing process that would fluctuate current bus voltage and frequency prolonging, if not failing, to have all 3 units connected in minimal time.

Ongoing Support

ESAC provides ongoing technical support and service with scheduled load testing programs. Additionally, ESAC assists operations staff in accessing loading and power quality reports.