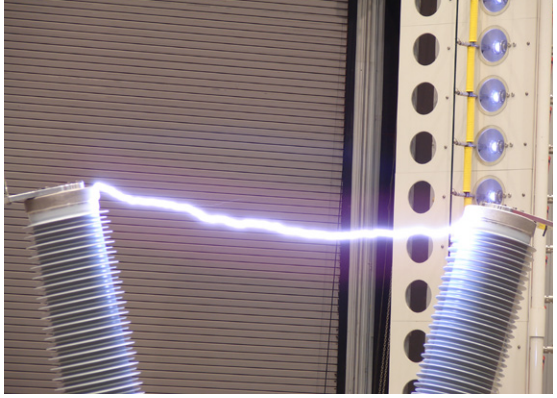

Insulation Coordination

Powertech Labs conducts studies to achieve cost-effective station equipment insulation requirements.

Insulation coordination is the process of selecting the most cost-effective equipment dielectric strength and its application to avoid equipment insulation damage or affect continuity of service. The economic design of a reliable substation requires a study of the various overvoltages to which the insulation will be subjected such as switching transients, fault conditions, power frequency resonance conditions, or lightning impulses. At the planning stage, this analysis is a very effective way to identify cost-saving opportunities when specifying equipment ratings. Identifying the location and levels of maximum overvoltages stresses helps the design of the facilities to take into account minimum clearances and space requirements for placement of overvoltage protection equipment, and to achieve a safe operation of the facilities under normal or contingency scenarios.

Powertech services include the following:

Simulation Studies

Insulation in service must reliably withstand overvoltages of different magnitudes, shapes, and duration. Our team can perform detailed power system simulations to determine the maximum overvoltage stresses for existing and new substations, for both normal and contingency conditions at the moment of commissioning of the equipment and considering future system configurations.

Insulation Coordination & Station Planning

Powertech's engineers can develop station planning one-lines considering construction staging, integration to existing equipment, interconnection requirements, and proper insulation coordination as per CSA, IEC, ANSI, and IEEE standards.

Equipment Specification

We can produce equipment specification sheets, including the definition of the equipment Basic Insulation Levels (BIL) and Switching Impulse Levels (SIL). This information assists customers to develop tender documents, evaluate bids, and implement cost-effective overvoltage protection and mitigation solutions. We can also specify the required ratings and optimal location of surge arresters to optimize the capital investment while meeting insulation coordination requirements.

Insulation Coordination Solutions

Typical protective solutions implemented by our team include:

- Coordinated BIL & SIL equipment ratings
- Surge arresters
- CVT at line terminals
- Controlled switching
- Overhead groundwires at line terminals

Verification of Dielectric Strength

Powertech High Voltage and High Power testing laboratories can conduct dry and wet switching impulse and lightning impulse tests to verify the performance of insulators, circuit breakers, and transformers.

Certified System ISO 9001 QMI-SAI Global

Certified System ISO 14001 QMI-SAI Global

ENGINEERS & GEOSCIENTISTS BRITISH COLUMBIA OQM CERTIFIED

ABOUT POWERTECH LABS:

Powertech Labs Inc. is one of the largest testing and research laboratories in North America, situated in beautiful British Columbia, Canada. Our 11-acre facility offers 15 different testing labs for a one-stop-shop approach to managing electrical utilities, and testing gas components, pressure vessels and systems.

Outside of the utilities industry, Powertech provides routine testing capabilities, product development, research and consulting services to support an array of industrial-type operations, electrical equipment manufacturers and automotive original equipment manufacturers.

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