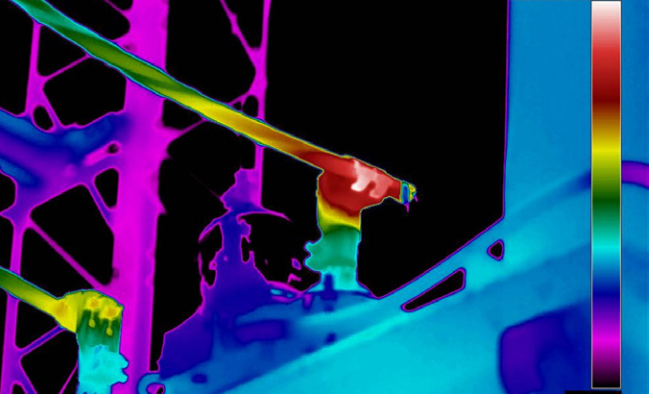
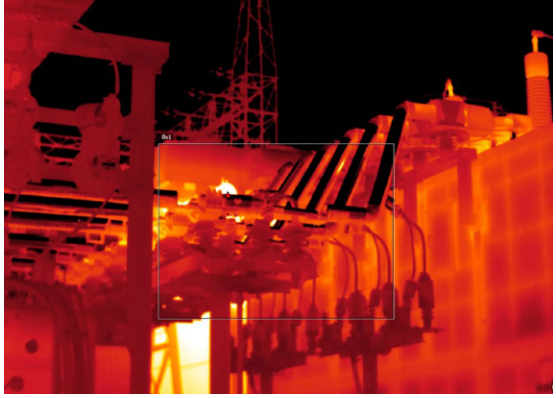
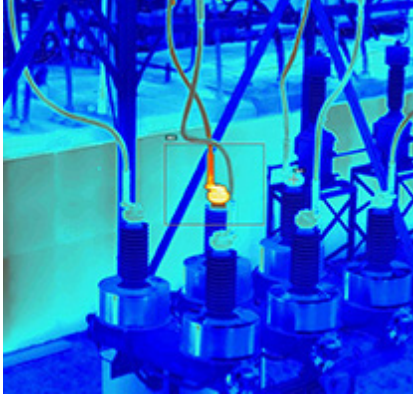

Thermography Scans and Analysis

Powertech conducts infrared image analysis to detect electrical equipment issues before failure occurs.

The risk of blackouts is increasing on the power grid due to aging infrastructure. For example, transformer fluid leaks or internal insulation breakdown can cause overheating, leading to failures. Moreover, a single critical electrical equipment failure may cascade into a series of failures. Subsequent restoration costs have the potential to be significant.

Infrared (IR) scans and analysis involve the use of an infrared imaging camera to measure the thermal energy emitted from equipment. Thermal infrared energy is the light that is not visible to the human eye. It is part of the electromagnetic spectrum that we perceive as heat. Infrared scans locate the "hot spots" in the electrical infrastructure, which can represent the deterioration of electrical components due to corrosion, vibration, electrical resistance, and short circuits. These "hot spots" show up in infrared scans, allowing operation and maintenance personnel to see which components have degraded and pose a risk to facility integrity.

Electrical equipment whose thermal signature are precursors to failure include:

- Power transformers (low oil levels)
- Load tap changers (low oil levels)
- Insulator bushings (bad connections)
- Surge arrestors (moisture)
- Circuit breakers
- Disconnect switches (bad connections)
- Cable condition monitoring (XLPE and oil filled)
- Panel boards (worn components)
- Control cabinets (worn components)
- Battery banks (failed units)

Powertech services include the following:

Image Collection

Powertech ASNT (American Society for Nondestructive Testing) thermal/infrared certified staff work with qualified electricians to identify equipment where an infrared scan and analysis are required, and take high-quality thermal images using high-resolution infrared cameras for the identified electrical system. Our cameras are capable of scanning both high-voltage outdoor substation equipment and low-voltage indoor electrical equipment at safe working distances. These thermal images capture key information on the equipment operation condition.

Analysis

Analysis of the thermal imaging data and temperature measurements provides improved understanding of electrical equipment issues. A final report to facilities owners summarizes findings, conclusions, and recommendations.

The report helps owners to improve their electrical systems, support equipment condition monitoring, mitigate failures, and significantly reduce operations and maintenance costs.

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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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