The primary causes of bus system failures are due to age and lack of ongoing maintenance. Over time, seals and gaskets break down causing moisture and debris intrusion, loss of insulating properties causes tracking and grounding issues, and bad connections lead to overheating. Bus system manufacturers recommend periodic maintenance, and often, insurance providers required them.

# RMS ENERGY

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# BUS INSPECTION, MAINTENANCE AND REPAIR

## ONLINE TESTING

Online inspection and testing allow plant operators to better prepare for maintenance of bus systems by evaluating the condition of the bus while the system is online, prior to an outage.

**IR Inspection:**
Thermography can be performed to locate any potential heating issues and circulating ground currents.

**Visual Inspection:**
Visual inspection of the bus system exterior is performed to determine general condition and locate areas of concern for further inspection.
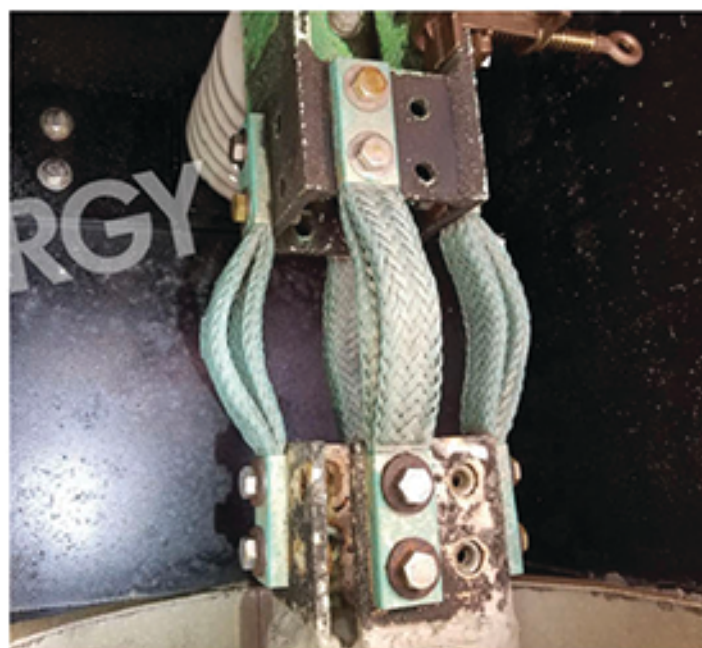

Cracked insulator.


Thermal scan example.

35.2 ℃  ε 0.80


Frayed flex laminates.


Corrosion damage.

# BUS INSPECTION, MAINTENANCE AND REPAIR

## OFFLINE INSPECTION

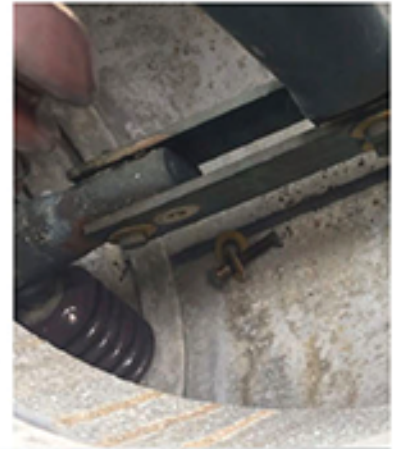### General Condition Assessment: (Level 1)

A condition assessment inspection is a minimally invasive inspection used to follow up online testing if no major areas of concerns are found.

### Offline Inspection & Maintenance: (Level 2)

During a full offline inspection, all accessible interior and exterior areas of the bus are inspected and primary components cleaned by hand, including insulators, flexible braids, and bushings.

### Cryogenic cleaning: (Level 3)

If significant buildup of debris and contamination is expected, or carbon from arcing is present, cryogenic cleaning can be performed to thoroughly clean the interior of the bus.

## LIFE EXTENSION

If concerns are uncovered during inspection and maintenance, an engineered solution to mitigate the problems can be developed to improve the condition of the system and extend the serviceable life. Upgrades to retrofit new technology into an aging system can provide better reliability for the future without a full replacement.

Signs of overheating.

Water intrusion examples.

Partial discharge and tracking.

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