

# BUS SYSTEM

## INSPECTION, MAINTENANCE & REPAIR

### **EXTEND THE LIFE OF YOUR BUS SYSTEM:**

During inspection and maintenance, we'll provide engineered solutions to any concerns that are presented. Our goal is to improve the condition of your system and extend its serviceable lifespan. Upgrades may include retrofitting new technology into an aging system to improve future reliability, without the cost and labor of a full replacement.



**MSENERGY.COM**  
**1.844.200.3774**



## **BUS SYSTEM FAILURE PREVENTION**

Bus systems need periodic maintenance and insurance providers require them. The primary causes of bus system failures are due to age and lack of ongoing maintenance.

Online and Offline 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, or during a planned outage.

### **COMMON BUS FAILURES**

- Moisture Intrusion
- Moisture Causing Cracks
- Seal Off Bushings Failure
- Expansion Bellow Cracking
- Torn Bellows
- Debris Accumulation
- Damaged Gaskets
- Damaged Insulators & Flex Links
- Bolted Connection Failures

### **ONLINE INSPECTION**

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

**EMSA Testing:** EMSA (Electromagnetic Signature Analysis) testing can be performed to locate electrical partial discharge and arcing, loose connections, and broken insulators while online.

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

### **OFFLINE INSPECTION**

**General Condition Assessment: (LEVEL 1)** A condition assessment inspection is a minimally invasive inspection used to follow up after 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 if carbon from arcing is present, cryogenic cleaning can be performed to thoroughly clean the interior of the bus.

**24/7 EMERGENCY  
SERVICES**

**For repair and maintenance  
of critical power  
equipment**

# MAINTENANCE

## SECURE PEAK OPERATIONS

Neglecting to perform regular inspections and maintenance of bus duct systems can lead to costly repairs and unplanned outages. Be proactive with regularly-scheduled maintenance.

### IDENTIFY & REPAIR

Regular inspections are the key to maintaining peak operating conditions that help avoid expensive repair work and downtime.

### COMMON ISSUES IDENTIFIED INCLUDE:

- Moisture Intrusion
- High Temperatures
- Dust & Dirt
- Equipment Failures



### RETROFIT & REPAIR SOLUTIONS MAY INCLUDE:

- New transformer bushing boxes and modifications for transformer replacement.
- Bus design and platforms for replacement or retrofit of Generator Circuit Breakers.
- Design and Installation of tap boxes for addition of auxiliary equipment.
- Additions of heaters, access ports, or online monitoring equipment.
- Iso-Phase bus retrofits for access to transformer and seal off bushings.
- Design for maintenance; allowing for bushing removal for replacement or regasketing, and iso-phase removal for generator repairs.

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**MORE POWER TO YOU.**

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