ALLBRITE ELECTRIC SERVICE, INC.

4450 N.W. 126th AVE., SUITE # 101 ◆ CORAL SPRINGS, FL 33065
PHONE: (954) 583-6788 ◆ FAX: (954) 323-5513

Providing TEGG Electrical Services

Your Electrical System Specialist GUARANTEES

"Failure Is Not An Option"

TEGG SERVICE

SPECIALIZING IN ELECTRICAL SYSTEM RELIABILITY

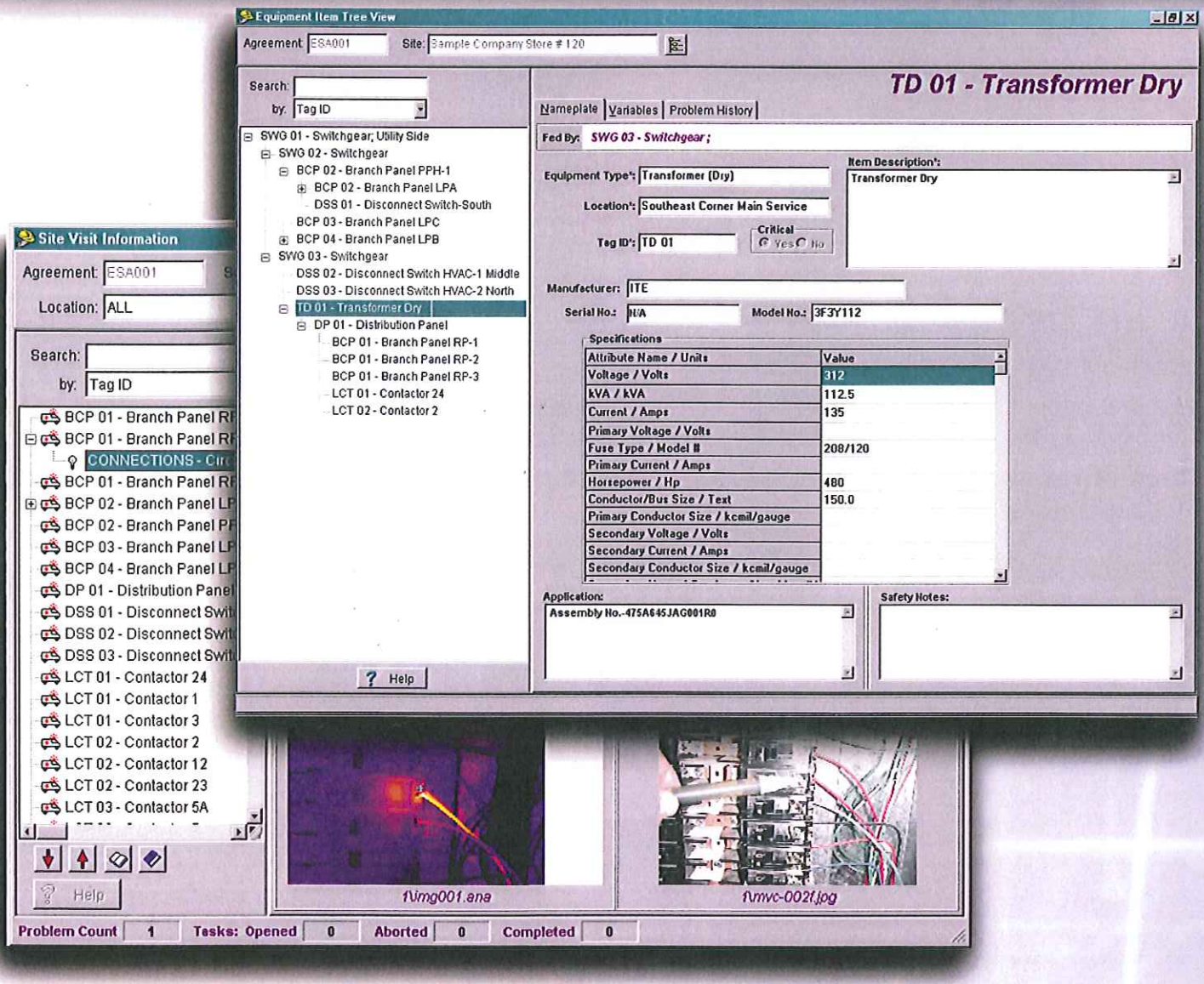
SERVICE ◆ PRODUCTS ◆ EDUCATION

TEGG® ELECTRICAL ASSET MANAGER

Comprehensive Electronic Documentation

100% Tracking, Electronic One-Line Tree View

User Friendly Customer Interface

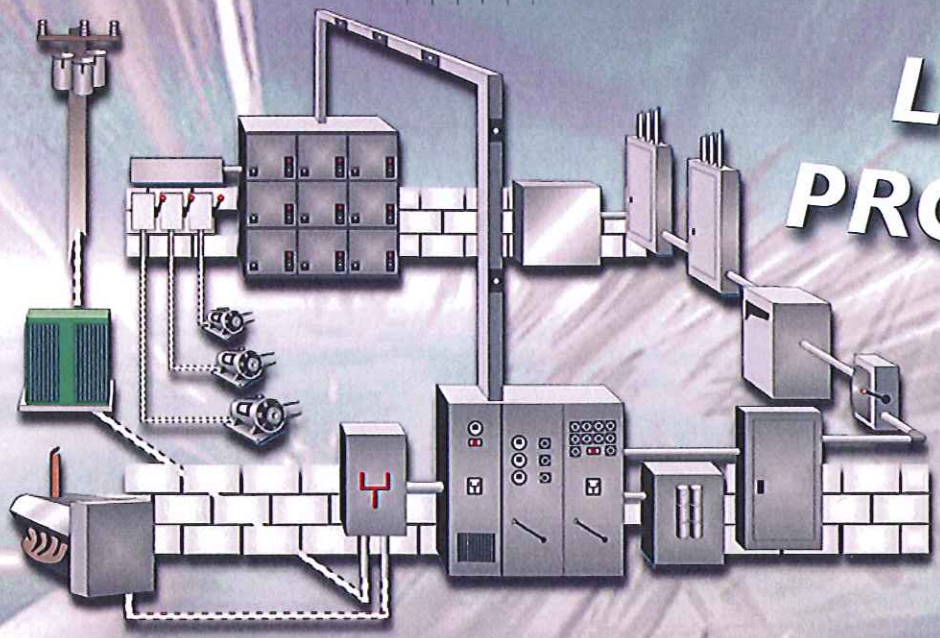


TOTAL PEACE OF MIND GUARANTEED

GUARANTEED PROGRAMS

TEGG® SERVICE

For Your
Electrical Distribution System



LIFETIME PROTECTION

TEGG PRIME

- ✓ Energized and de-energized testing
- ✓ De-energized preventive maintenance
- ✓ Guaranteed repair or replacement on components that suffer a sudden and accidental breakdown
- ✓ Provides overtime for guaranteed repairs
- ✓ Includes extra expediting service (express freight)
- ✓ Includes downstream resultant damage protection for EDS
- ✓ Includes temporary power
- ✓ Includes emergency generator if required

TEGG PREMIUM

- ✓ Provides full energized testing and analysis
- ✓ Minor services such as exterior cleaning of equipment
- ✓ Comprehensive Electrical Systems Analysis reporting
- ✓ Guaranteed repair or replacement on components that suffer a sudden and accidental breakdown
- ✓ Provides overtime for guaranteed repairs

TEGG BASIC

- ✓ Utilizes thermographic and ultrasonic technology for analysis of the electrical system
- ✓ 90-day guaranteed repair or replacement
- ✓ Guaranteed repair service during normal business hours

TEGG BUILDERS

- ✓ Begins at the end of the new construction regular warranty period
- ✓ Energized testing
- ✓ De-energized testing optional
- ✓ Guaranteed repair or replacement on components that suffer a sudden and accidental breakdown
- ✓ Provides overtime for guaranteed repairs
- ✓ Includes extra expediting service (express freight)
- ✓ Includes downstream resultant damage protection for EDS
- ✓ Includes temporary power
- ✓ Includes emergency generator if required

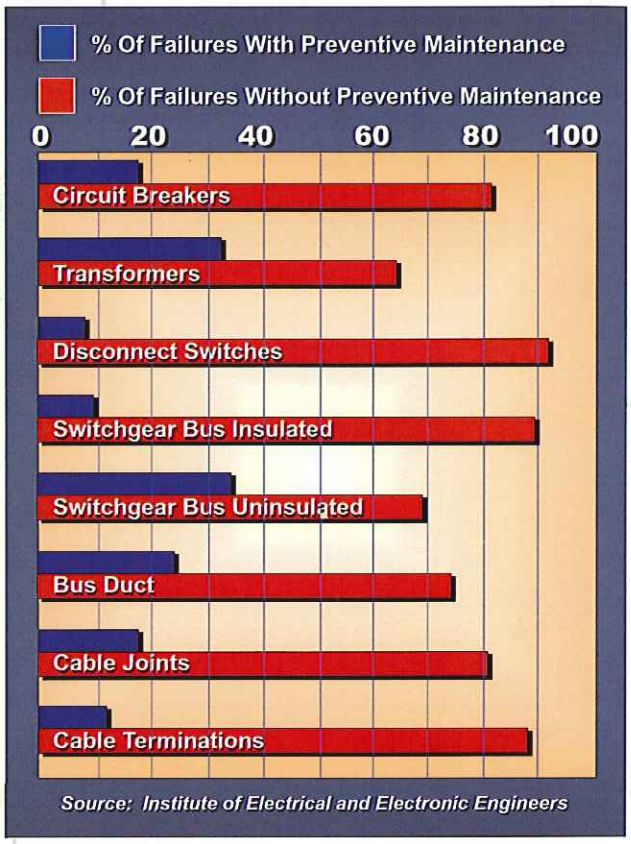
FEATURES	BASIC	PREMIUM	PRIME
Visual Inspection	Yes	Yes	Yes
Infrared Thermographic Inspection	Yes	Yes	Yes
Ultrasonic Inspection	Yes	Yes	Yes
Comprehensive IR Report	Yes	Yes	Yes
TEGGTask View	Yes	Yes	Yes
Predictive and Proactive Service	No	Yes	Yes
Electronic Equipment Inventory	No	Yes	Yes
Energized Testing and Analysis	No	Yes	Yes
De-Energized Testing & Analysis	No	Optional	Yes
De-Energized Preventive Maintenance	No	Optional	Yes
GUARANTEED SERVICE	**Yes**	**Yes**	**Yes**
Guaranteed Repair and Replacement	90 Days	Life	Life
24 X 7 Emergency Call Out	Yes	Yes	Yes
Overtime for Repairs on Guarantee	No	Yes	Yes
Downstream Resultant Damage Repairs	No	No	Yes
Express Shipments for Repairs	No	No	Yes
Temporary Power (Wiring)	No	No	Yes
Emergency Power (Generator)	No	No	Yes

How To Care For The Electrical Distribution System Within An Industrial Facility

TEGG SERVICE

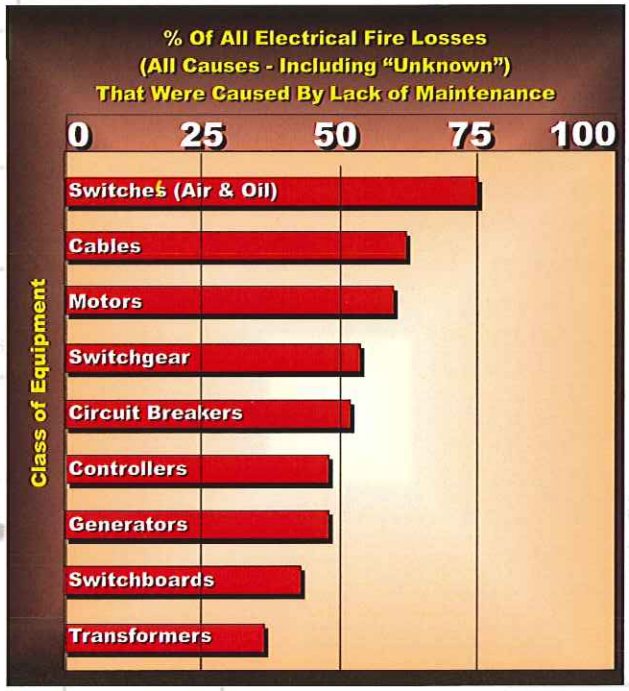
Common Problems

- Overloaded circuits.
- Code violations.
- Poor power quality.
  - Harmonics affecting critical systems caused by:
    - Variable speed drives.
    - Welding.
    - Electrical discharge machinery.
    - Laser cutting.
    - Controllers/PLCs.
- Improper grounding due to:
  - The addition of new, automated machinery and equipment.
  - Original electrical infrastructure was not designed for current uses.
- Harsh environment:
  - Electrical equipment should be de-energized, cleaned, tightened and lubricated on a regular basis.
  - Oil misters, coolants, metal filings, powdered metal dust, carbon, carbide, graphite, etc., infiltrate electrical components, which can cause tracking.
- Heavy energy usage:
  - This generates excessive amounts of heat that causes connections to loosen due to shrinkage and expansion. Loose connections cause arcing that generates extreme heat and high resistance, which is a major safety concern and also results in an inefficient use of power.
- Budget constraints.
- Maintenance department has many responsibilities.



Critical Areas

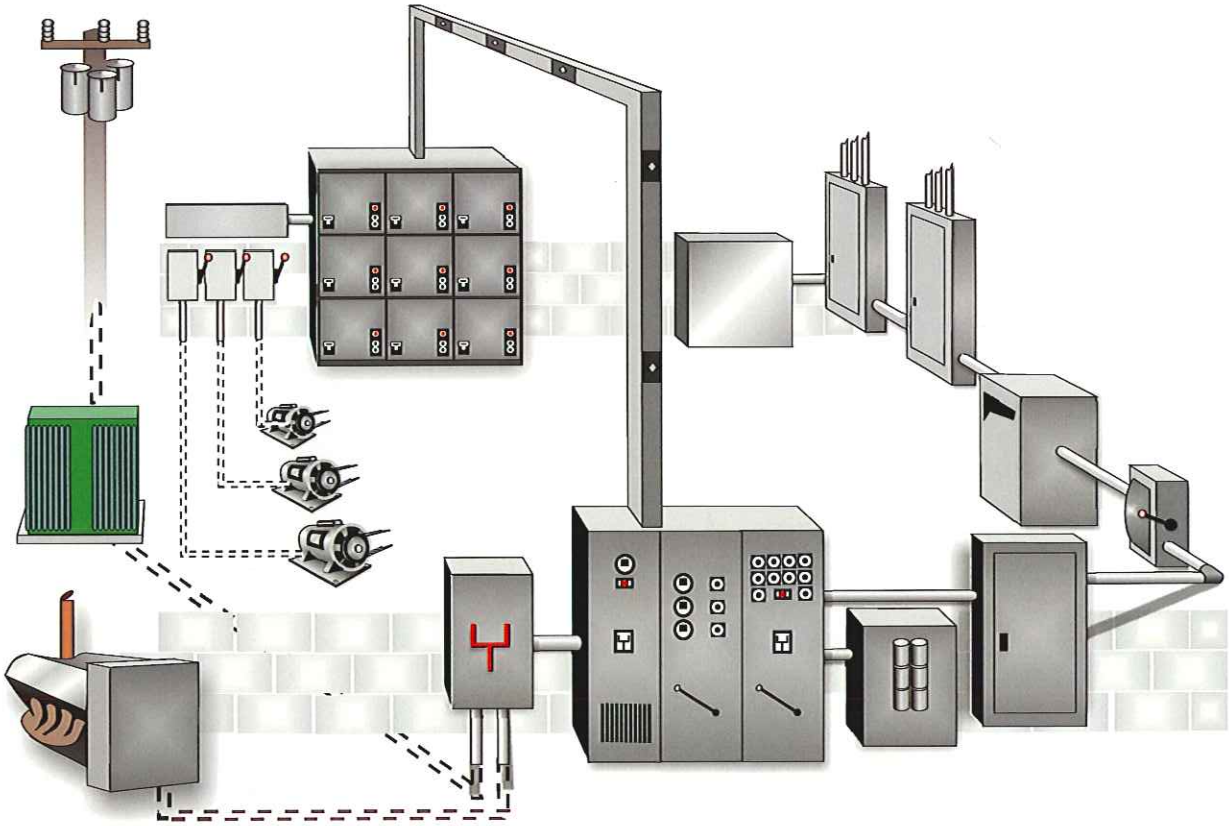
- Incoming service.
- Main transformer(s) oil & dry.
- Bus duct.
- Production and manufacturing areas:
  - Automated production lines.
  - CNC machinery.
  - Testing and inspection areas.
  - Welding areas.
  - Electric furnaces.
  - Metal forging.
  - Stamping.
  - Fabrication.



Financial Benefits of Electrical Preventive Maintenance

- Predictive budget.
- Minimize or eliminate unexpected outages and untimely repair costs.
- Reduce the risk of business interruptions.
- Extend the EDS life/lower replacement costs.
- Lower liability risks.
- Greatly reduce electrical fires.
- Computerized documentation for your electrical distribution system.

What to look for...

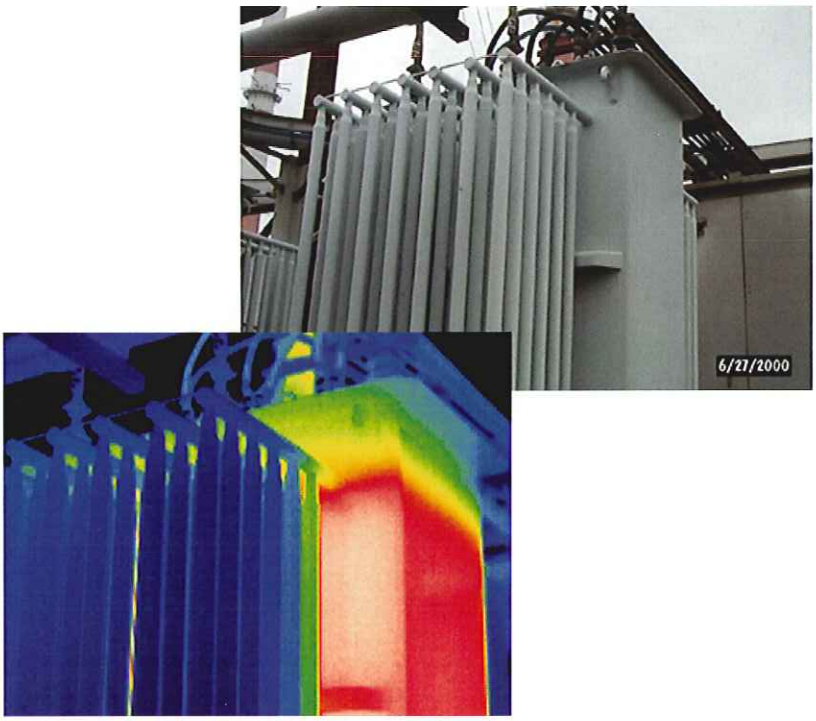


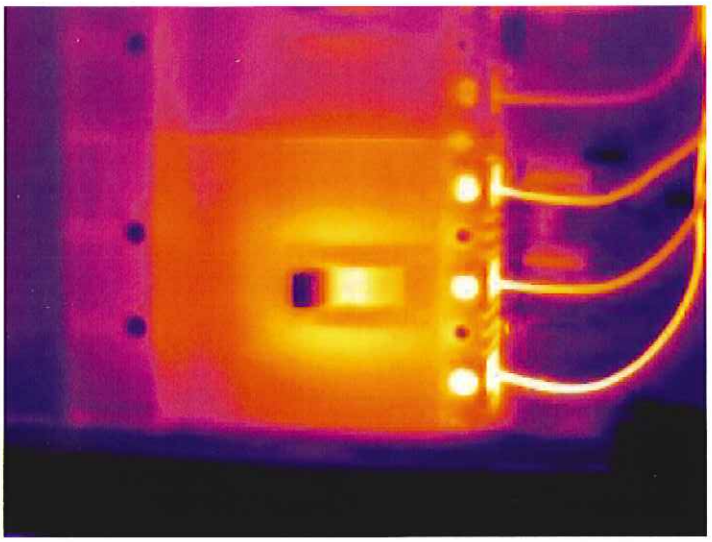
Electrical Distribution Systems
Electrical systems are mission critical to manufacturing operations. These systems include transformers, electrical switchgear, distribution panels, bus duct and cable structures. Manufacturing operations often produce dust and dirt or corrosive agents that can accumulate on electrical connections and can cause damaging short circuits and arcing. Aging and under maintained systems can overload or short out. Breakdown of electrical systems can frequently mean the loss of production and customers.

Production Machinery
Production equipment is vital to any manufacturer. Modern production equipment is computer controlled or uses sophisticated and sensitive electronic technology. These machines' electronic circuits can be destroyed by power surges, sags and harmonic distortion. The cost of a new logic board may be minor but the cost of lost production is not. Since production equipment is heavily used - in some cases around the clock - it is prone to breakdown. Breakdown of custom or foreign made equipment or components may require more time for fabrication or additional cost to rush delivery of replacements.

What to look for...

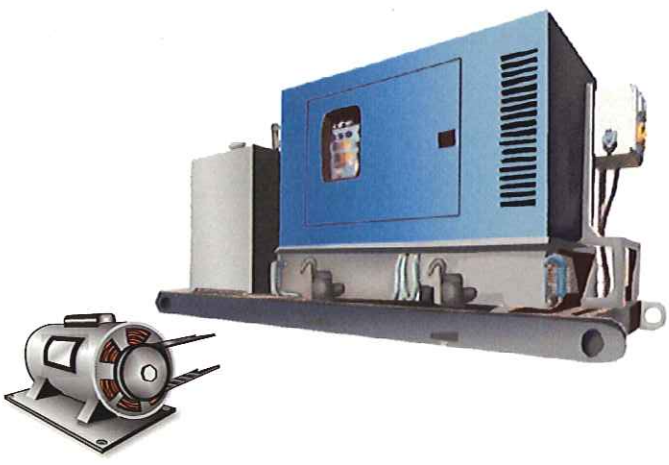
Power Transformers
Manufacturing facilities have transformers to step electrical power down to a level that can be used within the building. They are expensive to repair or replace and are subject to breakdown due to power surges, short circuits and aging insulation. The failure rate of transformers in the United States is expected to rise in the coming years as units installed years ago reach the end of their useful lives.





Electrical Panels
Electrical panels are an integral element of any industrial electrical distribution system. The frequent cycling on and off of electrical loads creates heating and cooling, which can loosen connections in electrical panels and cause electrical arcing (or short circuits). Arcing can damage not just electrical equipment, but also result in surges and electrical disturbances that can damage other expensive equipment on the premises. Because of the critical function of electrical systems in any industrial environment, and the presence of fragile electronic controllers and PLCs, this type of facility should have an Electrical Preventive Maintenance (EPM) program that includes regular predictive maintenance.

Electric Motors and Generators
DC and AC motors often have solid-state power supplies which are vulnerable to power surges. Rotating electrical equipment, such as process drive motors and pump motors, can be damaged by mechanical breakdown and electrical power disturbances.



Power Quality

Welding, variable speed drives or any device that converts AC to DC can negatively affect power quality. These devices do generate higher frequency, current harmonics. In excessive levels, damaging heat will be generated affecting system components: motors overheat, automatic transfer switches may not function, transformers overheat, nuisance breakers trip or fuses fail, microprocessor based equipment can malfunction, causing data loss and reduction in available system capacity.

HOW OFTEN SHOULD YOUR ELECTRICAL EQUIPMENT RECEIVE SOME FORM OF PREDICTIVE/PROACTIVE MAINTENANCE?

		Poor Condition/Older Equipment	Average Condition/Older Equipment	High Condition/Older Equipment
WHAT IS THE CRITICALITY/ RELIABILITY OF THE LOADS FED BY THIS EQUIPMENT?	***Required reliability is LOW***	Annually	Every 2 Years	Every 2.5 Years
	Required reliability is MEDIUM	Twice/Year	Annually	Every 1.5 Years
	Required reliability is HIGH	Quarterly	Twice/Year	Every 9 Months

SOURCE: based on: Manufacturer's Recommendations; Recommendations from the National Fire Protection Association Standard NFPA-70B; and Recommendations from the International Electrical Testing Association Maintenance Testing Specifications for Electrical Power Distribution Equipment and Systems (MTS-01, Page 188).

NOTE: The exact type and frequency of predictive/proactive maintenance activities must be adjusted by a number of factors, including: equipment type, location, environmental conditions, service/loading, duty cycle, fault service, availability of back-up, equipment replacement cost and availability, your budget constraints and experiences with the equipment, etc. Your TEGG Contractor will provide you with a preliminary system evaluation and maintenance recommendations specific to your situation.

Equipment Loss Examples: Industrial and Manufacturing Facilities

A power surge damaged two computer circuit boards, halting a metal shearing operation for nearly a week. Materials and workers were sent to another plant several hundred miles away to meet production requirements.
Total Loss: $ 52,026

An AC coil in a transformer shorts out, causing a plastic manufacturer to lose power. HSB specialists helped the insured obtain a rental generator unit to reduce the interruption.
Total Loss: $180,629

A faulty circuit in a water pump caused a manufacturer's fire tube boiler to dry fire. The boiler was severely damaged.
Total Loss: $ 90,600

Sawdust in an electrical distribution panel of a furniture manufacturer caused electrical arcing that severely damaged the interior of the panel. Overtime was required to make up lost production.
Total Loss: $ 35,687

- Hartford Steam Boiler