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April 27, 2012  
**Electrical Reliability Services, Inc. Proposal: 3151264 REV.4**

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Truckee Meadows Water Reclamation Facility  
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Reference: TMWRF/City of Sparks 3 Year Electrical Maintenance Testing program.

## 1.0 INTRODUCTION

Several factors reduce the reliability of a facility's electrical power systems. As soon as equipment is installed, a process of normal deterioration begins. Unchecked, the deterioration process can cause equipment malfunction or an electrical failure. Deterioration can be accelerated by factors such as hostile environment, increased temperature or severe duty cycles. A well-designed Electrical Preventive Maintenance program identifies and recognizes these factors and provides cost effective mitigation techniques.

The maintenance of a facility's power system must be a planned effort. A well administered testing program can reduce accidents, save lives and minimize costly breakdowns and unplanned power outages.

Benefits of an effective electrical testing program fall into two categories: a) Direct measurable economic benefits are derived by reduced cost of repairs, reduced downtime and improved efficiency. b) Less measurable, but very real, benefits result from improved safety in the operation of the electrical system.

This proposal is designed using the National Fire Protection Association's NFPA 70B, Electrical Equipment Maintenance and the InterNational Electrical Testing Association's, Maintenance Testing Specifications to provide Truckee Meadows

Water Reclamation Facility these economic and safety related benefits. This program will also establish a base-line record to be utilized as an ongoing maintenance program to enhance safety, reliability and efficiency through future preventive maintenance.

## **2.0 SCOPE**

The following apparatus shall be tested in accordance with Section 3.0 of this proposal:

### **2.1**

#### **Year One**

Relays  
ATS  
Transformers  
Oil & DGA Samples  
Report

#### **Optional:**

#### **Year Two**

Oil and DGA Samples  
MV Vacuum Circuit Breakers  
MV Fused Switches  
Report

#### **Year 3**

Relays  
ATS  
Transformers  
Oil & DGA Samples  
Report

## **3.0 PROCEDURES**

### **3.1 Transformers – Liquid Filled**

#### **3.1.1 Visual and Mechanical Inspection**

- .1 Documentation of equipment nameplate data.
- .2 Inspection for physical damage, proper installation, anchorage and grounding.
- .3 Cleaning of all bushing and insulator surfaces.

- .4 Verification of dielectric liquid in tank and bushings for proper level and leaks.
- .5 Documentation of pressure gauge reading, if applicable.
- .6 Verification that final tap setting is as specified.
- .7 Verification that alarm, control, and trip settings on temperature indicators are as specified.
- .8 Verification of tightness of external bolted electrical connections.
- .9 Verification of proper auxiliary device operation such as fans, pumps, sudden pressure device, indicators, tap changer and gas pressurization system. Verification that fan and pump motors have correct overcurrent protection.
- .10 Verification of proper operation of alarm, control, and trip circuits from temperature and level indicators, pressure relief device, and fault pressure relay, as applicable.

#### 3.1.2 Electrical Tests

- .1 Insulation resistance testing winding-to-winding and winding-to-ground.
- .2 Turns ratio testing between windings for set tap position. Verification that winding polarities are in accordance with nameplate.
- .3 Measurement of resistance of each high-voltage winding in the as-found no-load tap-changer position. Measurement of resistance of each low-voltage winding at the as-found load tap-changer position, if applicable.
- .4 Dielectric absorption testing from winding-to-winding and winding-to-ground for ten minutes. Calculation of the polarization index.
- .5 Insulation power factor testing on all high and low voltage windings and bushings. Determination of overall dielectric-loss and power factor. Ungrounded specimen testing (UST) on any bushings equipped with power factor or capacitance taps.

- .6 Individual excitation current testing on each phase in accordance with Double Engineering test procedures.

### **3.1 Protective Relays**

#### **3.1.1 Visual and Mechanical Inspection**

- .11 Documentation of equipment nameplate data.
- .12 Inspection of relays for physical damage.
- .13 Inspection for presence of foreign material, moisture, corrosion.
- .14 Verification of tightness of case connections. Inspection of cover for correct gasket seal. Inspection of shorting hardware, connection paddles, and/or knife switches. Removal of any foreign material from the case.
- .15 Verification of target reset.
- .16 Cleaning of cover glass and relay components as required.
- .17 Setting of relays in accordance with coordination study supplied by client.

#### **3.1.2 Electrical Tests**

- .1 Testing of the following:
  - Pickup parameters on each operating element.
  - Timing at three points on time characteristic curve.
  - Pickup target and seal-in units, as applicable.
  - Verification of operation of indicators.
  - Special tests as required to check operation of restraint, directional and other elements.
- .2 Verification that each of the relay contacts operates its associated device.
- .3 Phase angle and magnitude contribution testing on all polarity sensitive relays after energization to vectorially prove proper polarity and connection.

### **3.1 Medium Voltage Vacuum Circuit Breakers**

### 3.1.1 Visual and Mechanical Inspection

- .18 Documentation of equipment nameplate data.
- .19 Inspection for physical damage.
- .20 Cleaning and lubrication of operating mechanism.
- .21 Inspection of breaker for cell alignment, anchorage and grounding.
- .22 Verification of operating mechanism for alignment and clearances.
- .23 Documentation of as-found and as-left operation counter readings.
- .24 Inspection of indicator for contact wear and measurement of critical distances such as contact gap in accordance with manufacturer's instructions.

### 3.1.2 Electrical Tests

- .1 Measurement of contact resistance.
- .2 Circuit breaker tripping by operation of each protective device.
- .3 Closing and tripping of the breaker with the local control switch and verification of trip, close, trip-free, and antipump functions.
- .4 Insulation resistance testing phase-to-ground, phase-to-phase and across open contacts.
- .5 Vacuum bottle integrity testing on each phase in accordance with manufacturer's instructions.

## 3.1 Molded Case Circuit Breakers

### 3.1.1 Visual and Mechanical Inspection

- .25 Documentation of equipment nameplate data.
- .26 Inspection of circuit breaker for physical damage.

.27 Verification of circuit breaker smooth operation.

### 3.1.2 Electrical Tests

- .1 Measurement of contact resistance by millivolt drop method at trip unit rated current or by digital low resistance ohmmeter method.
- .2 Measurement of long-time delay by primary current injection at three times long-time pickup current.
- .3 Measurement of instantaneous pickup current by primary current injection.
- .4 Verification of trip unit reset operation.
- .5 Insulation resistance testing from pole-to-pole and from each pole-to-ground with breaker closed and across open contacts of each phase.
- .6 Dialing of final settings in accordance with coordination study supplied for the project.

## 3.1 Insulated Case Circuit Breakers

### 3.1.1 Visual and Mechanical Inspection

- .28 Documentation of equipment nameplate data.
- .29 Inspection of circuit breaker for physical damage.
- .30 Verification of circuit breaker smooth operation.
- .31 Verification of proper rating plug type and rating for breaker frame and trip unit type.

### 3.1.2 Electrical Tests

- .1 Measurement of contact resistance by millivolt drop method at rated current or by digital low resistance ohmmeter method.
- .2 Measurement of long-time delay by primary current injection.
- .3 Measurement of instantaneous pickup current by primary current injection.

- .4 Verification of trip unit reset operation.
- .5 Insulation resistance testing from pole-to-pole and from each pole-to-ground with breaker closed and across open contacts of each phase.
- .6 Insulation resistance testing on all control wiring. This test is not performed on wiring connected to solid-state components.
- .7 Measurement of short-time pickup and time delay by primary current injection.
- .8 Measurement of ground fault pickup and time delay by primary current injection.
- .9 Dialing of final settings in accordance with coordination study supplied for the project.

### **3.1 Transformers - Dry Type**

#### **3.1.1 Visual and Mechanical Inspection**

- .32 Documentation of equipment nameplate data.
- .33 Inspection for physical damage, proper installation, anchorage and, grounding.
- .34 Cleaning of interior and bushing and insulator surfaces.
- .35 Verification that as-left tap connections are as specified.
- .36 Examination for shipping brackets or fixtures that may not have been removed during installation. Insured that resilient mounts are operational.
- .37 Verification of tightness of accessible bolted electrical connections.
- .38 Verification of proper auxiliary device operation such as fans and instrumentation. Verification that fan motors have correct overcurrent protection.
- .39 Verification that control and alarm settings on temperature indicators are as specified.

- .40 Verification of operation of alarm control and trip circuits from temperature indicators.

### 3.1.2 Electrical Tests

- .1 Insulation resistance testing winding-to-winding and winding-to-ground.
- .2 Dielectric absorption testing winding-to-winding and winding-to-ground for ten minutes. Calculation of the polarization index.
- .3 Turns ratio testing between windings at set tap position. Verified that winding polarities are in accordance with nameplate.
- .4 Secondary voltage measurements phase-to-phase and phase-to-ground with the transformer energized.
- .5 Measurement of resistance of each high and low voltage winding in each tap-changer position if applicable.
- .6 Secondary voltage measurements phase-to-phase and phase-to-ground with the transformer energized if possible.

## 3.1 Automatic Transfer Switches

### 3.1.1 Visual and Mechanical Inspection

- .41 Documentation of equipment nameplate data.
- .42 Inspection for physical damage and anchorage.
- .43 Verification of proper manual transfer operation.
- .44 Verification that manual transfer instructions and warning labels are installed and visible.
- .45 Cleaning and lubrication of transfer mechanism, as required. Verification of alignment and operation in accordance with manufacturer's instructions.

### 3.1.2 Electrical Tests



- .1 Verification of operation and timing of the following items as applicable:
  - "Normal" voltage sensing relays.
  - "Alternate" voltage sensing relays.
  - Test switch.
  - Engine start sequence.
  - Time delay upon transfer.
  - Alternate voltage sensing relay.
  - Time delay and re-transfer upon normal power restoration.
  - Engine cool-down time delay and shutdown.
- .2 Contact resistance measurements on each pole.
- .3 Insulation resistance testing of phase-to-phase and phase-to-ground with switch in both source positions.

#### **4.0 RESPONSIBILITIES**

- 4.1 Truckee Meadows Water Reclamation Facility shall perform all switching.
- 4.2 Electrical Reliability Services, Inc. shall provide test power.
- 4.3 Truckee Meadows Water Reclamation Facility shall supply all available electrical drawings and instruction manuals.
- 4.4 Truckee Meadows Water Reclamation Facility shall provide all labor to satisfy any jobsite union requirements.
- 4.5 Truckee Meadows Water Reclamation Facility shall supply all protective device settings.
- 4.6 Truckee Meadows Water Reclamation Facility shall arrange and pay for the utility outage as required by the scope of work.

#### **5.0 PROJECT COST**

- 5.1 The work specified in this proposal can be performed on a Time and Material basis at Class II (Standard) rates in accordance with Electrical Reliability Services, Inc.'s current published Fee Schedule.
- 5.2 The 1 year Maintenance Testing price listed below is for 1 year with an option to extend the contract for up to two additional years. We are asking for Truckee Meadows Water Reclamation Facility written approval.

1 Year Maintenance Testing budget 1st Year \$43,850.00

**Option:**

Maintenance Testing budget 2<sup>nd</sup> Year \$43,850.00

Maintenance Testing budget 3<sup>rd</sup> Year \$43,850.00

**Total Package Price \$ 162,150.00**

- 5.3 Any unplanned crew standby time necessitated by Truckee Meadows Water Reclamation Facility operating conditions will be additionally billed in accordance with Class II (Standard) rates in Electrical Reliability Services, Inc.'s current published Fee Schedule.
- 5.4 The work in this proposal covers the maintenance outlined in Section 2.0. Any equipment repairs found to be needed will be undertaken on a Time and Material basis in accordance with the attached Fee Schedule after receiving client's written approval to proceed.

## **6.0 TERMS AND CONDITIONS**

- 6.1 This proposal contains proprietary information and is considered confidential to Electrical Reliability Services, Inc. It is submitted upon the expressed condition that the information contained herein will not be released to competitors or otherwise used directly or indirectly in a detrimental way to the interest of Electrical Reliability Services, Inc.
- 6.2 All work shall be done in accordance with Electrical Reliability Services, Inc. Terms and Conditions, which are attached to this proposal. No other terms and conditions are acceptable unless agreed to by Electrical Reliability Services, Inc. in writing.
- 6.3 This proposal shall remain valid for 60 days from the date of issue.

## **7.0 SUMMARY**

This proposal provides maintenance, testing program for your consideration. Electrical Reliability Services, Inc. is an independent testing firm and will provide Truckee Meadows Water Reclamation Facility with unbiased test results to verify the condition of the equipment included in this proposal. Results and recommendations for actions to be taken will be supplied in a formal test report.

Personnel experienced in the maintenance operation of power systems will conduct this project. All Electrical Reliability Services, Inc. employees have

completed electrical safety training in accordance with OSHA Standards and will perform according to accepted safety practices.

Electrical Reliability Services, Inc. uses state-of-the-art equipment to ensure the accuracy of the test results. All equipment utilized in this project will be in calibration, which will be traceable to the National Institute of Standards and Technology.

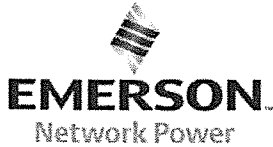
We trust that in review of this proposal you will find a program that provides the highest value for your maintenance testing dollar by extending the mean time to failure rates and ensuring optimum power reliability.

We look forward to working with Truckee Meadows Water Reclamation Facility on this project.

Sincerely,

**Electrical Reliability Services, Inc.**

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## Electrical Reliability Services, Inc.

# FEE SCHEDULE

(EFFECTIVE JANUARY 1, 2012)

### GENERAL INFORMATION

Electrical Reliability Services, Inc. is a service organization of highly trained engineers and technicians. We offer field, laboratory, educational and engineering services for the electrical power industry.

**FIELD SERVICES** include electrical acceptance testing, preventive and predictive maintenance testing, relay and circuit breaker upgrades, and emergency response. Field Service engineers are fully equipped with vehicles and are available for 24-hour emergency assistance.

**PROFESSIONAL SERVICES** include power system studies, short circuit / coordination studies, arc flash studies, partial discharge testing and monitoring, relay and logic settings, power quality, code compliance and field evaluation, cable testing and diagnostics, and other engineering related services.

**EDUCATIONAL SERVICES** include customized and standard on-site, online and classroom training programs on topics ranging from basic electrical theory and safety to complex power equipment and systems.

**LABORATORY SERVICES** include failure analysis, performance and compliance testing, instrument repair and calibration.

### CLASSIFICATION OF TECHNICAL SERVICES

**CLASS I Forensic Services** include failure and accidental investigations and forensic support activities.

**CLASS I Consulting Services** include skill assessment, policy review, and performance studies

**CLASS I Professional Services** are those requiring expertise in the field demanding a high degree of training and experience. Typical Class I Professional Services include system studies, system trouble-shooting, complex startup, senior and lead engineers, complex laboratory services and evaluation of electrical products.

**CLASS II Standard Services** are less complex in nature than Class I services. Normal commissioning, acceptance, maintenance and repair are considered typical Class II services.

**CLASS III Shop Technician Services** include routine work performed on Electrical Reliability Services premises.

**CLASS IV Support Services** include project support and administrative services.

### BILLING RATES

		STRAIGHT TIME (hourly rate)	OVERTIME (hourly rate)	PREMIUM (hourly rate)
<b>CLASS I</b>	Forensic	\$376	\$564	\$752
<b>CLASS I</b>	Consulting Services	\$268	\$402	\$536
<b>CLASS I</b>	Professional Services	\$228	\$342	\$456
<b>CLASS II</b>	Standard	\$196	\$294	\$392
<b>CLASS III</b>	Shop Technician	\$166	\$249	\$332
<b>CLASS IV</b>	Support	\$ 86	\$129	\$172

1. Straight time rates apply to all time worked or traveled during a normal eight-hour work day. The normal eight-hour work day is defined as any consecutive eight-hour day shift period (Monday through Friday - holidays excepted) with an allowance for lunch time.
2. Overtime rates apply to all hours worked in excess of eight hours on weekdays, all nighttime work, and all time worked on Saturdays, up to twelve (12) hours.
3. Premium rates apply to all hours worked in excess of 12 hours, and all time on Sundays and holidays.
4. Hourly and daily rates are exclusive of all living and travel costs. Where customers specify or require daily rates for field services inclusive of living and travel expenses, a flat charge will be made for all time worked per eight-hour weekday or fraction thereof (Monday through Friday). All hours worked in excess of eight hours per weekday and all hours on Saturdays, Sundays and holidays, will be billed at the applicable hourly overtime rates. Charges for living and travel expenses will be billed at cost plus a handling charge of 25%.
5. Fees for long-term projects or continuous-term annual renewable contracts are subject to negotiation.
6. Mileage is charged at the following rates: Test vehicles less than 3/4 ton at \$2.00 per mile; 3/4 to one ton at \$2.50 per mile; and large trucks at \$4.00 per mile.
7. A fuel surcharge may apply as the result of unexpected fluctuations in regular gasoline prices tied to world events and subsequent market speculation. Fuel charges will be applied based on the Department of Energy's (DOE) Regular Gasoline Fuel Price (US Average). The fuel surcharge will be 1¢ per mile per service vehicle for every 4¢ per gallon, or portion thereof, by which the Regular Gasoline Fuel Average Price for the period of service exceeds \$2.70 cents per gallon.
8. Minimum Field Service Billing: One-half workday or less – 4 hours; over one-half workday – 8 hours. For all work performed outside the United States the minimum field service billing is Three (3) eight (8) hour straight time service days plus travel and expenses.
9. Domestic Rates: The above rates apply to work performed in the United States excluding the Alaskan North Slope. Rates for work outside the United States are billed according to the domestic rate schedule plus 25%.
10. Travel time within the United States will be billed at applicable rates. International Travel: All time spent traveling to and from the job site outside the United States will be billed at the straight time rate. Business Class Airfare will be billed for all air travel greater than 8 hours in duration and will be based on a round trip fare from the United States to the jobsite and back to the same embarkation point in the United States.
11. Deposition and court time will be billed at the premium rate for Class I Forensic service.
12. Freight and handling charges will apply to material shipments.
13. Standby Time: When service personnel are on the job site but are unable to perform services requested due to circumstances beyond ERS or ERS sub-contractor control, the customer will be charged hourly or daily applicable rates.
14. Job Delay / Cancellation Charges: If a job is delayed, postponed or cancelled 5 days or less prior to scheduled service, ERS reserves the right to assess a fee between 25% of the purchase order value up to the full purchase order value.
15. Off-site services: The off site labor hours required to perform the requested services will be billed at applicable rates. These hours may include job preparation; report writing, preassembly and other services as appropriate.
16. All materials and third party labor services will be billed at cost plus 25% mark-up.

## LABORATORY SERVICES

### INSTRUMENT REPAIR AND CALIBRATION SERVICES

- o Digital and analog multimeters; panel meters; high-voltage meters
- o Oscilloscopes; signal generators; electronic and mechanical counters
- o Temperature indicators and controllers; resistance bridges; reactive bridges
- o Wave analyzers; distortion analyzers
- o Low resistance meters; pressure gauges; pressure transducers
- o High current test sets; relay test sets; earth testers
- o Process controllers; loop calibration
  - Contract services available – Quotation furnished upon request
  - All calibrations are traceable to the National Institute of Standards and Technology or acceptable physical standards

### LABOR RATES

- o Standard Laboratory Services: Class II - minimum 1 hour
- o Specialist Laboratory Services: Class I - minimum 1 hour

### PARTS AND MATERIALS

- o Manufacturers' list price plus mark-up

### TRACER GAS TESTING SERVICES

- o Quotation and contract services furnished upon request

### MOBILE OIL VACUUM PROCESSING AND RECLAMATION SERVICES

- o Quotation and contract services furnished upon request

## SPECIAL EQUIPMENT CHARGES

DESCRIPTION	TYPICAL EXAMPLE	DAILY	WEEKLY	MONTHLY
<b>Circuit Breaker Test Equipment</b>				
High Current Test Set	40KA or 50KA .....	\$ 125.00	\$ 500.00	\$1,500.00
Mid Current Test Set	20KA.....	100.00	400.00	1,200.00
Low Current Test Set	5KA.....	75.00	300.00	900.00
Secondary Injection Test Set	Manufacturer Test Kit .....	50.00	200.00	600.00
<b>Integrated Test System (ITS)</b>				
Control Unit (ITS-C)	Relay Test Source ..... Base Cost	50.00	200.00	600.00
High Current Module (ITS 1KA)	0-1000 Amperes..... Add to Base	50.00	200.00	600.00
A.C. Hypotential (ITS-AC)	0-50KV AC ..... Add to Base	50.00	200.00	600.00
D.C. Hypotential (ITS-DC)	0-80KV DC ..... Add to Base	50.00	200.00	600.00
CT/PT Module	CT/PT Accessory ..... Add to Base	50.00	200.00	600.00
<b>Relay Test Equipment</b>				
Variable Voltage/Current Supply	Model PS-2 .....	50.00	200.00	600.00
Recloser Test Set	McGraw-Edison MET 573 .....	65.00	260.00	780.00
Relay Test Set Active Source	Single Phase .....	150.00	600.00	1,800.00
Relay Test Set Active Source	Three Phase.....	300.00	1,200.00	3,600.00
<b>Load Simulator</b>				
Resistive Load Bank	600 KW.....	250.00	1,000.00	3,000.00
Resistive Load Bank	400KW 208/480V .....	200.00	800.00	2,400.00
Resistive Load Bank	200KW 208/480V .....	150.00	600.00	2,000.00
Resistive Load Bank	80KW 208V only .....	125.00	500.00	1,500.00
Resistive Load Bank	6KW 120V .....	50.00	200.00	600.00
Reactive Load Bank	208/480V 75KVAR.....	200.00	800.00	2,400.00
<b>High Potential Test Instruments</b>				
80KV	DC .....	\$ 75.00	\$ 300.00	900.00
100KV	AC .....	100.00	400.00	1,200.00
300KV	DC .....	300.00	800.00	2,400.00
10KV	DC .....	50.00	200.00	600.00
5KV	DC .....	25.00	100.00	300.00

DESCRIPTION	TYPICAL EXAMPLE	DAILY	WEEKLY	MONTHLY
<b>General Instrumentation</b>				
Dew Point Indicator	EG&G .....	75.00	300.00	900.00
Power Factor Test Set	2500V .....	100.00	400.00	1,200.00
Power Factor Test Set Active Source	10KV .....	200.00	800.00	2,400.00
Phase Angle Meter (Digital)	.....	50.00	200.00	600.00
Volt/Amp/Freq. Meter (Digital)	.....	50.00	200.00	600.00
Infrared Camera	.....	175.00	700.00	2,100.00
Infrared Viewer	.....	125.00	500.00	1,500.00
Infrared Thermometer	.....	50.00	200.00	600.00
Transformer Turns Ratio Test Set	1 Phase .....	50.00	200.00	600.00
Transformer Turns Ratio Test Set	3 Phase .....	75.00	300.00	900.00
Leak Detector-Ultrasonic	.....	50.00	200.00	600.00
Low Resistance Ohmmeter (Ductor)	DLRO .....	50.00	200.00	600.00
HV Phasing Meter	.....	100.00	400.00	1,200.00
Meter Calibrator, Watt hour	Standard .....	50.00	200.00	600.00
Earth Resistance Tester	.....	50.00	200.00	600.00
Winding Resistance Test Set	.....	50.00	200.00	600.00
CT Tester	.....	50.00	200.00	600.00
<b>Recording Instruments</b>				
Power quality Recorder	.....	150.00	600.00	1,800.00
Data Acquisition Equipment	Data Logger .....	200.00	800.00	2,400.00
Load Recorder	.....	100.00	400.00	1,200.00
<b>Mechanical Testing Equipment</b>				
Sound Meter	.....	100.00	400.00	1,200.00
<b>Miscellaneous Equipment</b>				
Oil Filtration Equipment	30 gpm Filter Press .....	200.00	800.00	2,400.00
Vacuum Pump	Portable .....	100.00	400.00	1,200.00
Portable Generator	5KW 120/240V .....	50.00	200.00	600.00
Portable Generator	100KW 480V .....	500.00	2,000.00	6,000.00
Oil Dielectric Tester	.....	50.00	200.00	600.00
EMF Meter	.....	50.00	200.00	600.00

**Note:**

1. Instruments are not available for outside rental without field personnel.
2. All Electrical Reliability Services, Inc. owned instruments have calibration traceable to the National Institute of Standards and Technology (N.I.S.T.) or acceptable physical standards.
3. Equipment subject to change. Electrical Reliability Services, Inc. continually updates the instrumentation inventory.
4. This Fee Schedule is applicable to Electrical Reliability Services, Inc.-owned equipment only.
5. If Electrical Reliability Services, Inc. equipment is unavailable; rental charges will be billed at cost plus mark up.

## SERVICES TERMS AND CONDITIONS

Electrical Reliability Services Inc. is herein referred to as the "Seller" and the customer or person or entity purchasing Services ("Services") and parts required for Services ("Parts") from Seller is referred to as the "Buyer." These Services Terms and Conditions, any applicable Fee Schedule, quotation, acknowledgment, Seller's scope of work, or invoice from Seller relevant to the provision of Services and all documents incorporated by specific reference herein or therein, constitute the complete and exclusive statement of the terms of this agreement ("Agreement") governing the sale of Services and Parts by Seller to Buyer. Any discrepancies between the terms of the above referenced documents shall be resolved by Seller. Seller's acceptance of Buyer's purchase order is expressly conditional on Buyer's assent to all of the terms of this Agreement, including terms and conditions that are different from or additional to the terms and conditions of Buyer's purchase order. Buyer's acceptance of the Services and Parts will manifest Buyer's assent to the terms of this Agreement. Seller reserves the right in its sole discretion to refuse orders.

**1. PRICES:** Unless otherwise specified in writing by Seller, the price quoted or specified by Seller for the Services shall remain in effect for ninety (90) days after the date of Seller's quotation. Seller's scope of work or acknowledgment of Buyer's order for the Services, whichever occurs first, provided an unconditional authorization from Buyer for the performance of the Services is received and accepted by Seller within such time period. If authorization is not received by Seller within such ninety (90) day period, Seller shall have the right to change the price for the Services. All prices are exclusive of taxes, which are to be borne by Buyer. Unless otherwise specified by Seller, Parts will be furnished at Seller's then prevailing prices.

**2. TAXES:** Any current or future tax or governmental charge (or increase in same) affecting Seller's costs of Services or costs of production, sale, delivery or shipment of Parts, or which Seller is otherwise required to pay or collect in connection with the provision of Services and Parts, shall be for Buyer's account and shall be added to the price or billed to Buyer separately, at Seller's election.

**3. TERMS OF PAYMENT:** Buyer shall be billed monthly. Seller, at its discretion, may require monthly progress payments for services requiring more than thirty (30) days to complete. Terms of payment are net 30 days from date of Seller's invoice. Seller shall have the right, among other remedies, either to terminate this Agreement or to suspend further performance under this Agreement and/or other agreements with Buyer in the event Buyer fails to make any payment when due, which other agreements Buyer and Seller hereby amend accordingly. Buyer shall be liable for all expenses, including attorney's fees, relating to the collection of past due amounts. If any payment owed to Seller is not paid when due, it shall bear interest, at a rate to be determined by Seller, which shall not exceed the maximum rate permitted by law, from the date on which it is due until it is paid. Seller may preserve its interests in payment by enforcing any applicable mechanic's, construction or similar lien rights. Should Buyer's financial responsibility become unsatisfactory to Seller, cash payments or security satisfactory to Seller may be required by Seller for future performance of Services or provision of Parts. If such cash payment or security is not provided, in addition to Seller's other rights and remedies, Seller may discontinue performance of Services and provision of Parts.

**4. SHIPMENT AND DELIVERY:** While Seller will use all reasonable commercial efforts to maintain the performance dates acknowledged or quoted by Seller, all performance dates are approximate and not guaranteed. Seller, at its option, shall not be bound to tender delivery of any Parts for which Buyer has not provided shipping instructions and other required information. If the provision of Services or shipment of the Parts is postponed or delayed by Buyer for any reason, Buyer agrees to reimburse Seller for any and all storage costs and other additional expenses resulting therefrom.

**5. LIMITED WARRANTY:** Seller warrants to Buyer that the Services will be performed by trained personnel using proper equipment and instrumentation for the particular service. Seller warrants that any analysis of data, subsequent recommendations and other services will be in accordance with applicable established industry standards and practices. Seller warrants the proper performance of the Services for a period of ninety (90) days from the completion of the Services. Warranties applicable to third party equipment, parts or materials furnished by Seller shall be that of the manufacturer of such Parts and only to the extent assignable to Buyer. EXCEPT AS SPECIFIED ABOVE, THIRD PARTY SERVICES AND/OR PARTS ARE FURNISHED AS-IS, WHERE-IS, WITH NO WARRANTY WHATSOEVER. THE WARRANTY SET FORTH IN THIS SECTION IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY SELLER WITH RESPECT TO THE SERVICES AND PARTS AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO SELLER IN SPECIFICATIONS, DRAWINGS OR OTHERWISE.

This warranty does not extend to any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence (other than Seller's), unauthorized modification or alteration, use beyond rated capacity, unsuitable power sources or environmental conditions, improper installation, repair, handling, maintenance or application or any other cause not the fault of Seller. To the extent that Buyer or its agents have supplied specifications, information, representation of operating conditions or other data to Seller that is used in (i) the selection of the Services and/or Parts and (ii) the preparation of Seller's quotation and/or scope of work, and in the event that actual operating conditions or other conditions differ from those represented by Buyer, any warranties or other provisions contained herein that are affected by such conditions shall be null and void.

If within thirty (30) days after Buyer's discovery of any warranty defects within the warranty period, Buyer notifies Seller thereof in writing, Seller shall, at its option, repair, correct or replace F.O.B. point of manufacture, or refund the purchase price for that portion of the services or equipment found by Seller to be defective. Failure by Buyer to give such written notice within the applicable time period shall be deemed an absolute and unconditional waiver of Buyer's claim for such defects. Equipment repaired or replaced during the warranty period shall be covered by the foregoing warranties for the remainder of the original warranty period or thirty (30) days from the date of shipment, whichever is longer.

Buyer assumes all other responsibility for any loss, damage, or injury to persons or property arising out of, connected with, or resulting from the use of Services or Parts, either alone or in combination with other parts.

**6. LIMITATION OF REMEDY AND LIABILITY:** THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER SHALL BE LIMITED TO, AT SELLER'S SOLE OPTION, EITHER CORRECT PERFORMANCE FOR THAT PORTION OF THE SERVICES FOUND BY SELLER TO BE DEFECTIVE OR REFUND OF THE PRICE PAID FOR SERVICES.

SELLER SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND THE REMEDIES OF BUYER SET FORTH IN THIS AGREEMENT ARE EXCLUSIVE. IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY BUYER FOR THE SPECIFIC SERVICES OR PARTS PROVIDED BY SELLER GIVING RISE TO THE CLAIM OR CAUSE OF ACTION.

BUYER AGREES THAT SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS SHALL NOT EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES. The term "consequential damages" shall include, but not be limited to, loss of anticipated profits, business interruption, loss of use, revenue, reputation and data, costs incurred, including without limitation, for capital, fuel, power and loss or damage to property or equipment.

Buyer expressly acknowledges and agrees that Seller has set its prices and entered into this Agreement in reliance upon the limitations of liability and other terms and conditions specified herein, which allocate the risk between Seller and Buyer and form a basis of this bargain between the parties. It is expressly understood that any technical advice furnished by Seller with respect to the use of the Parts and/or Services is given without charge, and Seller assumes no obligation or liability for the advice given, or results obtained, all such advice being given and accepted at Buyer's risk.

**7. EXCUSE OF PERFORMANCE:** Seller shall not be liable for delays in performance or for non-performance due to acts of God; war, epidemic, fire; flood; weather; sabotage; strikes or labor disputes; civil disturbances or riots; governmental requests, restrictions, allocations, laws, regulations, orders or actions; unavailability of or delays in transportation; default of suppliers or unforeseen circumstances; acts or omissions of Buyer, including, without limitation, any events or causes beyond Seller's reasonable control. Performance of Services and deliveries of Parts may be suspended for an appropriate period of time or canceled by Seller upon notice to Buyer in the event of any of the foregoing, but the balance of this Agreement shall otherwise remain unaffected as a result of the foregoing. If Seller determines that its ability to supply the total demand for the Services or Parts or to obtain material used directly or indirectly in the manufacture of the Parts is hindered, limited or made impracticable due to causes set forth in the preceding paragraph, Seller may delay performance of Services or allocate its available supply of the Parts among its purchasers on such basis as Seller determines to be equitable without liability for any failure of performance which may result therefrom.

**8. CANCELLATION:** Buyer may cancel orders only upon reasonable advance written notice and upon payment to Seller of Seller's cancellation charges which include, among other things, all costs and expenses incurred and to cover commitments made by the Seller, and a reasonable profit thereon. Seller's determination of such cancellation charges shall be conclusive.

**9. CHANGES:** Buyer may request changes or additions to the Services. In the event such changes or additions are accepted by Seller, Seller may revise the price and performance dates. Seller reserves the right to change designs and specifications for the Parts without prior notice to Buyer, except with respect to Parts being made-to-order for Buyer. Seller shall have no obligation to install or make such change in any Parts manufactured prior to the date of such change.

**10. NUCLEAR/MEDICAL:** SERVICES AND PARTS SOLD HEREUNDER ARE NOT FOR USE IN CONNECTION WITH ANY NUCLEAR, LIFE-SUPPORT AND RELATED APPLICATIONS. Buyer accepts Services and Parts with the foregoing understanding, agrees to communicate the same in writing to any subsequent purchasers or users and to defend, indemnify and hold harmless Seller from any claims, losses, suits, judgments and damages, including incidental and consequential damages, arising from such use, whether the cause of action be based in tort, contract or otherwise, including allegations that the Seller's liability is based on negligence or strict liability.

**11. ASSIGNMENT:** Buyer shall not assign its rights or delegate its duties hereunder or any interest herein without the prior written consent of Seller, and any such assignment or delegation, without such consent, shall be void.

**12. INSPECTION:** Buyer shall have ten (10) days from the date of completion of each portion of the Services to inspect the Services, and in the event of any non-conformity, Buyer must give written notice to Seller within said period stating why the Services are not conforming. Failure by Buyer to give such notice constitutes unqualified acceptance of the Services.

**13. BILLABLE SERVICES:** Additional charges will be billed to Buyer at Seller's then prevailing labor rates for any of the following: a) any Services not specified in Seller's quotation, Seller's order acknowledgment, Seller's scope of work, or other documents referenced herein and therein; b) any Services performed at times other than Seller's normal service hours; c) if timely and reasonable site and/or equipment access is denied the Seller service representative; or d) Seller's performance is made more burdensome or costly as a result of Buyer's failure to comply with its obligations herein.

**14. NON-SOLICITATION:** Buyer shall not solicit, directly or indirectly, or employ any employee of Seller during the period any Services are being provided to Buyer and for a period of one (1) year after the last provision of Services. In the event that an employee of Seller is hired or leaves the employ of Seller in such circumstances, the Buyer shall pay Seller, as compensation for the cost incurred by Seller in recruiting and training the employee, the sum equivalent to six (6) months pay for each employee hired from or leaving the employment of Seller.

**15. GENERAL PROVISIONS:** These Services Terms and Conditions supersede all other communications, negotiations and prior oral or written statements regarding the subject matter of these Services Terms and Conditions. No change, modification, rescission, discharge, abandonment, or waiver of these Services Terms and Conditions shall be binding upon the Seller unless made in writing and signed on its behalf by a duly authorized representative of Seller. No conditions, usage of trade, course of dealing or performance, understanding or agreement purporting to modify, vary, explain, or supplement this Agreement shall be binding unless hereafter made in writing and signed by the party to be bound, and no modification or additional terms shall be applicable to this Agreement by Seller's receipt, acknowledgment, or acceptance of purchase orders, shipping instruction forms, or other documentation containing terms at variance with or in addition to those set forth herein. Any such modifications or additional terms are specifically rejected and deemed a material alteration hereof. If this document shall be deemed an acceptance of a prior offer by Buyer, such acceptance is expressly conditional upon Buyer's assent to any additional or different terms set forth herein. Seller reserves the right to subcontract Services to others. No waiver by either party with respect to any breach or default or of any right or remedy, and no course of dealing, shall be deemed to constitute a continuing waiver of any other breach or default or of any other right or remedy, unless such waiver be expressed in writing and signed by the party to be bound. All typographical or clerical errors made by Seller in any quotation, acknowledgment or publication are subject to correction.

The validity, performance, and all other matters relating to the interpretation and effect of this Agreement shall be governed by the law of the state of Ohio without regard to its conflict of laws principles. Buyer and Seller agree that the proper venue for all actions arising in connection herewith shall be only in the county of Franklin, state of Ohio, and the parties agree to submit to such jurisdiction. No action, regardless of form, arising out of transactions relating to this contract, may be brought by either party more than two (2) years after the cause of action has accrued. The U.N. Convention on Contracts for the International Sales of Goods shall not apply to this Agreement.

**16. ADDITIONAL SERVICE CONDITIONS:** The Buyer shall furnish to Seller, at no cost, suitable working space, storage space, adequate heat, telephone, light, ventilation, regulated electric power and outlets for testing purposes. The facilities shall be within a reasonable distance from where the Services are to be provided. Seller and its representatives shall have full and free access to the equipment in order to provide the necessary Services. Buyer shall provide the means to shut-off and secure electric power to the equipment and provide safe working conditions. Buyer shall not require Seller or its employees, as a condition to site access or otherwise, to enter into any agreement, which waives, releases, indemnifies or otherwise limits or expands any rights or obligations whatsoever. Any such agreements shall be null and void. Seller is under no obligation to remove or dispose of Parts or equipment unless specifically agreed upon in Seller's scope of work. Seller removed Parts become the property of Seller. Seller shall not perform any electrical power switching unless specifically requested by Buyer, under the supervision of the Buyer, and subject to procedures jointly agreed to in advance. Notwithstanding Buyer's request, Seller may refuse to perform power switching, if in the opinion of Seller, such action would be unsafe. IN THE EVENT THAT SELLER PERFORMS POWER SWITCHING, TO THE FULLEST EXTENT PERMITTED BY LAW, BUYER SHALL INDEMNIFY, DEFEND, AND HOLD SELLER HARMLESS FROM ANY AND ALL LIABILITY, ACTIONS, SUITS, CLAIMS, DEMANDS, DAMAGES, COSTS, AND EXPENSES ("LOSSES") ARISING OUT OF OR IN ANY WAY CONNECTED WITH OR RESULTING FROM SELLER'S PERFORMANCE OF POWER SWITCHING, REGARDLESS OF WHETHER THE LOSSES RESULT FROM SELLER'S NEGLIGENCE (WHETHER ACTIVE OR PASSIVE, AND WHETHER SOLE, JOINT, OR CONCURRENT), AND EVEN THOUGH CAUSED IN WHOLE OR IN PART BY A PRE-EXISTING DEFECT, STRICT LIABILITY, OR OTHER LEGAL FAULT OF SELLER. THIS INDEMNITY SHALL APPLY TO ANY ACTS OR OMISSIONS OR NEGLIGENT CONDUCT, WHETHER ACTIVE OR PASSIVE, ON THE PART OF EITHER THE SELLER OR THE BUYER. If OSHA or any other federal, state or local government, trade association, or contractual regulations or standards require a "safety person" to be on site during the performance of services, or in the event of a trade union jurisdictional dispute where trade union represented personnel are required to assist or stand by during the performance of services by Seller, Buyer shall be responsible for providing for and paying for any charge or wages for such person(s), as applicable. Buyer shall immediately inform Seller, in writing, at the time of order placement and thereafter, of any unsafe or hazardous substance or condition at the site, including, but not limited to, the presence of asbestos or asbestos-containing materials, and shall provide Seller with any applicable Material Data Safety Sheets regarding the same. Any losses, costs, damages, claims and expenses incurred by Seller as a result of Buyer's failure to so advise Seller shall be borne by Buyer. Seller, in its sole discretion and without cost or penalty, reserves the right to cancel its performance under this Agreement or any order immediately upon written notice to Buyer following Seller discovery of unsafe or hazardous site substance or condition or any other circumstance altering Seller performance of Services. Buyer shall appoint a representative familiar with the site and the nature of the Services to be performed by Seller to be accessible at all times that Seller personnel are at the site. Seller shall not be liable for any expenses incurred by Buyer in removing, replacing or refurbishing any Buyer equipment or any part of Buyer's building structure that restricts Seller access. Buyer personnel shall cooperate with and provide all necessary assistance to Seller. Seller shall not be liable or responsible for any work performed by Buyer.

**17. INSURANCE:** Seller shall maintain the following insurance or self-insurance coverage: Worker's Compensation in accordance with the statutory requirements of the state in which the work is performed. Employer's Liability with a limit of liability of \$1,000,000 per occurrence for bodily injury by accident or bodily injury by disease. Commercial General Liability (CGL) for bodily injury and property damage with a limit of \$1,000,000 per occurrence and aggregate. CGL includes Contractual Liability. CGL does not include Products and Completed Operations coverage. Automobile Liability insurance that covers usage of all owned, non-owned and leased vehicles and which is subject to a combined single limit per occurrence of \$1,000,000. Automobile Liability insurance includes Contractual Liability, but no special endorsements.

**18. INDEMNITY:** Each party shall indemnify and hold the other party harmless from loss, damage, liability or expense resulting from damage to personal property of a third party, or injuries, including death, to third parties to the extent caused by a negligent act or omission of the party providing indemnification or a party's subcontractors, agents or employees during performance of services hereunder. Such indemnification shall be reduced to the extent damage or injuries are attributable to others. The indemnifying party shall defend the other party in accordance with and to the extent of the above indemnification, provided that the indemnifying party is: i) promptly notified by the other party, in writing, of any claims, demands or suits for such damages or injuries; ii) given all reasonable information and assistance by the other party; iii) given full control over any resulting negotiation, arbitration or litigation, including the right to choose counsel and settle claims, or the indemnifying party's obligations herein shall be deemed waived.