SECTION D – SPECIFICATIONS/SCOPE OF WORK

1.0 SCOPE OF WORK

A contract resultant of this IFB will provide for the performance of Time and Material Emergency/Electric Generator services at County owned/maintained facilities on both a scheduled and as needed basis. The resultant contract will provide for periodic inspection, testing, minor/major repair and modifications of specified and other associated equipment, in order to keep the generator sets operating equal to the performance standards as designed by the original equipment manufacturer. The work is divided into three general categories: (A) quarterly inspection, testing, and minor repairs; (B) additional work for major repairs and modifications, and (C) emergency services.

A. QUARTERLY INSPECTION, TESTING AND MINOR REPAIRS

Except for annual transfer switch inspection, all other inspection and test procedures must be performed quarterly. The first group of inspections and tests must commence within two (2) weeks of notice to proceed. Any filter, fluid or other device scheduled for yearly replacement must be replaced on the first inspection and then at the applicable specification stipulates. The next set of tests and all other tests must start at three (3) months (quarterly) intervals from the completion of the last set of tests.

All required materials needed to perform the inspection and tests must be provided by the Contractor at no cost to the County. These include lube oil, coolant, hoses, tubes, indicator lights, filters, belts, ignition plugs, etc.

The work must include but need not be strictly limited to the following:

1) **LUBRICATING OIL SYSTEM** - Sample and inspect oil. Upon request, run a spectrum analysis of old oil and report finding. Replace oil and filter annually. Add oil as necessary. Ensure oil heater is functional (if equipped). Correct leaks and make adjustments as necessary.

2) **COOLANT SYSTEM** - Inspect sample of coolant and change if necessary. Add coolant to maximum level. Ensure that all generators in unheated locations are protected to at a minimum -25 degrees F., correct leaks and make necessary adjustments.

3) **FUEL SYSTEMS** - Inspect accessible fuel system including carburetor (if applicable), fuel injectors, regulating valves, lines, filters, bowls, and all connections for evidence of water or failure. Annual fuel filter replacement. Make necessary adjustments and minor repairs. Verify that storage tank, if installed is a minimum 2/3 full and ensure fuel quality of tank. Test lines for sludge and/or water and flush if required.

4) **BELTS AND HOSES** - Inspect belts and hoses for tension and integrity. Adjust and/or replace as necessary. Standing block heater discharge/inlet hoses must be replaced with high temperature silicon hoses at no additional cost to the County.

5) **EXHAUST SYSTEM** - Inspect for leakage. Adjust as necessary. Condensation traps are to be drained. Check that exhaust is fully operational.

6) **AIR SYSTEM** - Inspect, test, fill and charge as necessary. Check, clean, adjust, and/or replace terminals when needed. Check that the battery trickle charging circuit is operating properly (if applicable).

7) **STARTER SYSTEM** - Inspect and make adjustments as needed. Inspect/adjust ignition timing and replace spark plugs/glo plugs annually.
8) **CONTROLS** - Inspect mechanical, electrical, pressure and thermal control and protection devices, including governor and the overspeed trip, to ensure dependable, safe service. Perform necessary adjustments. Replace defective indicator lights.

9) **GAUGES AND INSTRUMENTATION** - Check gauges and instrumentation for proper readings while generator is running and off-line. Calibrate and adjust as necessary.

10) **GENERATOR** - Inspect megger windings annually and compare to specifications.

11) **LUBRICATION** - Apply lubrication to all fitted moving linkages, valves and controls. Missing or damaged fittings must be replaced.

12) **LEAKS** - Check system for evidence of leakage. Tighten, replace, or repair as needed.

13) **VENTS** - Inspect, clean, adjust and/or replace as necessary.

14) **VIBRATIONS** - While starting and running during load testing, check for unusual vibrations or other noises not normally heard or felt.

15) **TRANSFER SWITCHES** - Perform visual checks of the following to detect unusual conditions:
   - Observe insulation for cracks and discoloration.
   - Observe visible main and arching contacts from excessive erosion, pitting and discoloration due to excessive heat.
   - Observe visible control relay contacts for excessive erosion.
   - Observe visible cable and control wire connections to transfer switch control and sensing panel and other system components.
   - Verify that all covers are tight and doors securely closed.

16) **ANNUAL LOAD TEST** - Using installed test switches or by manual operation of electrical devices, de-energize normal power to the emergency bus to test automatic start-up and loading of the emergency generator set. Operate the generator under load for a minimum of one (1) hour. Inspect for proper performance of all engine and electrical systems, including all items above. Make necessary adjustments and minor repairs, including adjustments for optimum electrical frequency and voltage control.

Within five (5) days of completion of every annual test, and inspection, the Contractor will submit to the Contract Administrator a detailed written report of the results, including recommendations for major repairs, broken down into tasks with individual "Not-To-Exceed" cost and time estimates for the repairs. When in the opinion of the Contractor, a condition is found to be existent which could be hazardous to persons or to County equipment an immediate verbal report and a Not-To-Exceed" estimate shall be provided. If the work is authorized by the Contract Administrator, it shall be conducted and billed as described under "Additional Work", (see Section D, item B.). One (1) copy of this report will be kept as part of the generator log at every location serviced. The Contractor shall provide the logbook.

A. **ANNUAL AUTOMATIC TRANSFER SWITCH (ATS) INSPECTION**

Within four (4) months of the beginning of each contract year, an inspection and test will be performed on each ATS listed in the Quote Sheet. This inspection and test may be performed in conjunction with the annual load bank test of the associated generator. Due to unacceptable interference with building operations, approximately 40% of these inspections will have to be done at night or on weekends. The
Contract Administrator will make necessary arrangements with building occupants. Each inspection will include the following steps as a minimum. Any major repairs required will be done as additional work (see Section D, item B.) during a planned outage.

- De-energize normal source and emergency sources to the ATS.
- Remove the arc chutes and pole covers.
- Inspect all main and arcing contacts from excessive erosion, pitting and discoloration due to excessive heat.
- Inspect all visible control relay contacts for excessive erosion and pitting.
- Check all cable and control wire connections for the transfer switch and associated components and tighten as necessary.
- Inspect all visible insulation for cracks and discoloration.
- Inspect for moisture and wetness.
- Vacuum and clean any accumulated dust and debris from the switchgear and accessory panel.
- Re-energize normal and emergency sources and conduct a test by simulating a normal source failure.
- Observe and record on report, the time delay of transfer from normal source to emergency source. Recalibrate relays when necessary.
- Observe and record on report the time delay of transfer from emergency source to normal source. Recalibrate relays when necessary.
- Observe and record on report the cool down cycle duration and time out relay duration. Recalibrate relays when necessary.

Within five (5) days of completion of every annual ATS test, and inspection, the Contractor will submit to the Contract Administrator a detailed written report of the results, including recommendations for major repairs, broken down into tasks with individual "not to exceed" cost and time estimates for the repairs. When in the opinion of the Contractor a condition is found to exist which could be hazardous to persons or County equipment an immediate verbal report and a "not to exceed" estimate shall be provided. If the work is authorized by the Contract Administrator, it shall be conducted and billed as described under "Additional Work", (see Section D, item B.). One (1) copy of this report will be kept as part of the generator service log at every location serviced. The Contractor shall provide the logbook.

B. ADDITIONAL WORK

When as a result of periodic inspection and testing as described in Section D, Item A., or for other reasons, major repairs, alterations or services on the listed generator units (or other County units) are found to be necessary, the Contractor shall inspect the work needed and provide a "Not-To-Exceed" written cost estimate to perform the work and a time schedule for completion.

The Contractor shall provide rental equipment to include delivery, pickup, assembly, rigging and cabling as additional work when requested by the County. The County reserves the right to invoke emergency requests for rental units as necessary. Written estimates must be signed by the Contractor and approved: a brief description of the work; estimated labor hours, material costs and estimated completion date. Upon approval of the estimate by the Contract Administrator, the Contractor shall proceed with the work. Final billing for the work shall include only the actual labor and materials used for the work. Labor shall be billed at the hourly rates provided by the Contractor in the "Additional Work" Quotation Sheet. Payment for additional work will be approved when the Contract Administrator has established that the work was accomplished acceptable in light of the requirements set forth above.

If the "Not-To-Exceed" (NTE) estimates are determined to be excessive in cost or completion dates, the County may solicit in accordance with the Procurement Regulations. Alternately, the County may perform the work using in-house resources.
On request from the County, the Contractor shall provide hands-on instruction to County personnel in the operation, safety precautions, and recommend supplementary inspections of the generator equipment. The instruction will be requested by the Contract Administrator and be done in accordance with the procedures for “Additional Work”.

2.0 EMERGENCY CALL BACK SERVICE

The Contractor shall respond to request for emergency service as defined herein. The County reserves the right to specify what constitutes the emergency situation. Emergency services will comply with all requirements of the Specifications and/or Scope of Work. Labor shall be billed at the hourly rates provided by the Contractor in the "Additional Work" Quotation sheet.

- **Critical Emergencies**: Critical emergencies are incidents which require quick generator repair and pose an immediate detrimental impact on the function of electrical systems, components or dependant services. The Contractor will be required to respond on-site within two (2) hours of the emergency call being made to the Contractor.

- **General Emergencies**: General emergencies are generator breakages that require quick repair, but do not pose an immediate electrical problem. The Contractor will be required to respond on-site within six (6) hours of the call being made to the Contractor.

3.0 REGULAR WORKING DAYS AND HOURS

Service shall be on an as-needed basis and upon direction of the Contract Administrator or designee. All work will be performed by competent Engine Mechanics and Transfer Switch Technicians, experienced in generator service. All work shall be first class in accordance with good commercial practice. Regular working hours will be 7:30 a.m. to 4:00 p.m., Monday through Friday, excluding weekends and Contract Holidays. Any changes in these working hours must be approved in advance. The Contractor must have sufficient resources to respond to more than one job at any given time should the need arise. Contract holidays are as follows:

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<tr>
<th>New Year’s Day</th>
<th>Memorial Day</th>
<th>Labor Day</th>
<th>Independence Day</th>
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<tr>
<td>Thanksgiving Day</td>
<td>Christmas Day</td>
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4.0 QUALITY ASSURANCE

Contractor shall be an established Emergency Generator Contractor experienced in providing Electric Generator services of the types and to the extent outlined in these specifications.

5.0 QUALIFICATION OF CONTRACTOR

Contractor must provide supervision and qualified personnel to insure competent performance of the work. The bidder will provide evidence of experience in providing Emergency Generator maintenance/repair services to the type of Generator items as outlined in the specifications. The bidder must be an established entity with experience in providing Electric Generator services of the types and to the extent as defined in these specification and evidence that the Contractor has successfully conducted such operations for a period of not less than two (2) years within the last five (5) years.

Contractor shall be responsible for the proper conduct of all Contractor personnel while on the premises. Contractor shall not employ any person or persons in or about the premises who shall use improper language or act in a loud or boisterous manner. Contractor agrees to dispense with the services of any employee whose conduct the Contract Administrator confirms is detrimental to the best interest of the County.

The **Contract Administrator reserves the right to approve of or request the removal of any person assigned by the Contractor to perform work under the Contract. The Engine Mechanic and Transfer Switch Mechanics must be able to communicate clearly in the English language. No change of personnel shall be made without the approval of the Contract Administrator.**
6.0 **COMMUNICATION**
The Contractor must provide a business phone that is available for communication between the County and Contractor week days during regular working hours.

The Contractor must have daily, direct access to a fax machine.

7.0 **STORAGE**
No material or equipment will be stored at any of the County facilities, unless authorized by the Contract Administrator.

8.0 **PERFORMANCE**
The Contractor shall work from verbal and/or written instructions, sketches, or drawings. The Contractor is to have sufficient resources to be able to respond to more than one (1) job at any given time.

The Contractor shall submit daily time ticket(s) with their invoices to the Contract Administrator. The daily time ticket(s) shall contain the name(s) of Engine mechanics and Transfer Switch Technicians. The hours they worked, and a brief description of the daily activities and a list of all materials used for that day.

9.0 **PARTS FURNISHED**
Only new standard parts (Manufactured by the maker of the original equipment or parts authorized by the original equipment manufacturer) shall be furnished by the Contractor. All parts shall be of current manufacturer and shall have full versatility with presently installed equipment.

10.0 **EMERGENCY CALL-BACK SERVICE**
The County reserves the right to specify what constitutes the emergency situation. Emergency services will comply with all requirements of the Specifications and/or Scope of work, except that verbal estimates and approvals are acceptable. See Section D, Item 2.0, for Emergency Call-Back response times and conditions.

11.0 **DEBRIS**
Removal and disposal of debris, caused by the Contractor, shall be the responsibility of the Contractor. Contractor must transport used anti-freeze and engine oil off site for deposit at a recognized recycling collection center.

**END SECTION D - SPECIFICATIONS AND/OR SCOPE OF WORK**