SCOPE OF WORK:
Preventative Maintenance Services and Repairs on Generators at Camp Minden

Louisiana Army National Guard

GENERATORS PREVENTIVE MAINTENANCE

I. SCOPE OF MAINTENANCE AGREEMENT

A) Preventive maintenance and repair services shall be provided by the Contractor on all equipment and associated devices related to Generator systems as outlined within these specifications and attached equipment list. If funding is available for Preventive Maintenance and Repair Service in subsequent years (2ea.), there shall be an option of renewal pending agreeance by owner and vendor price.

B) The Contractor shall furnish all personnel, parts, material, test equipment, tools and services in conformance with the terms and conditions as outlined below.

C) It is the intention of this specification to establish and define those services that are to be performed.

D) The contractor shall not be removed from assuming all responsibility for properly estimating the difficulties and cost of performing the services required with this specification because of the failure to investigate the conditions or become acquainted with all the information concerning the services being performed.

E) The Contractor shall utilize computer generated preventive maintenance directions which indicate task functions to be performed on each scheduled service call, as determined by calendar periods, operating hours (runtime), manufacturer's recommendations, and historical data bank, as pertinent to each task.

F) As work is due, the Contractor shall issue, to his technician on the job, the necessary and appropriate recommended maintenance procedures and a listing of any special lubricants and tools that are required for proper maintenance of the equipment.

G) The Contractor's computer generated maintenance program shall provide for continuous updating of maintenance procedures and frequencies. Breakdown experience and frequency shall determine the on-site material inventory level and preventative maintenance frequencies.

H) The Owner assumes that the system(s) being quoted upon is in maintainable condition. The successful bidder shall inspect all of the equipment to ensure that all of the equipment is in working operable condition. The successful bidder shall have up to 30 days to report, in writing to the Archives Building Manager or designated representative, all deficiencies and cost of necessary repairs. If any deficiencies to the equipment are noted and repairs are needed, the owner reserves the right to determine who will make the necessary repairs.

EQUIPMENT MAINTENANCE SERVICE

II. Service Company Qualifications

A. The following requirements shall be considered as the minimum standards for the employees of the Service Company to be considered as qualified to provide services under this contract, and shall be prerequisite to award.

1. Certified, qualified and trained service personnel shall perform services that are to be provided. The Owner shall have the right to interview and approve all subcontractors before the work is started. Subcontractors approved shall continue their portion of maintenance work

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as long as the work remains acceptable to the Owner. The owner shall have the right to require that the contractor dismiss any and all unacceptable personnel for due and just cause as determined by the Owner. The Service Company shall maintain and update all personnel certifications for those personnel working on each equipment type, and certifications shall be provided to and reviewed by the Owner. Only certified personnel/technicians shall perform work on scheduled equipment and shall have a copy of his current certification filed with the Facility Maintenance Office.

2. The service company's preventive maintenance program shall be computer generated, based on run time, manufacturers recommendations, and historical data bank of similar equipment. Simple computer base, run time only, or hand scheduled programs, are not acceptable.

III. Equipment- Maintenance Service

A. Equipment- Not included

1. Maintenance services, including repair labor and parts replacement, for portions of the systems and equipment that are non-maintainable or non-moving, are not required and not included as part of this specification.

2. Excluded items shall be as: foundations, structural supports, domestic water lines, drains, plumbing, oil lines, gas lines, piping, oil storage, tanks, and cooling structure.

3. This specification covers only that equipment as listed herein, and in the event the system is altered, changed or equipment is added or not included in this specification, that portion shall be added or deleted as required, and shall be in accordance with this specification.

IV. Equipment Maintenance Service

A Preventive Maintenance Checks and Services

1. Equipment Schedule and locations are attached.

2. Schedule all visits with CFMO Regional Coordinator and the facility custodian.

3. Provide a written inspection report to the facility custodian (building user), Installation Commander and CFMO Regional Coordinator for each visit.

3. For each generator/every visit Contractor is to clearly state on the inspection that the generator IS or IS NOT functional and the date with deficiencies and recommended repairs.

4. For each generator which IS NOT functional, clearly state what is the cost to bring the generator(s) into operation? This shall include trouble shooting cost.

5. Service will consist of three (3) quarterly, one (1) annual service. Load Bank test shall be completed the quarter before the start of the Louisiana Hurricane Season (1 June)

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6. Generator must be maintained in a fully operational condition at all times, services for emergency call outs for repairs shall be available twenty-four (24) hours a day and furnished onsite within Eight (8) Hours of notification.
7. Contractor shall provide all required insurance and documentation to complete project. Subcontractor shall provide required documentation for work being performed.
8. Contractor will provide PM with work schedule. Work Schedule must be present 48 hours prior to start of work. Contractor shall provide list of employees and sub-contractors working on project through duration of project.
9. All employees must be a U.S Citizen or have a valid work visa. Copy of driver's license in color will be required to get a gate pass for working on facility.
10. Contractor must obtain authorization for storage location for any materials stored on site.
11. Contractor is responsible for all clean-up and debris removable for work being performed. Work area will be kept clean at all times. Job site will be cleaned up daily.
12. All work must comply with Safety and Environmental requirements. OSHA, NEC, Parish, City and State regulation will be as required.
13. Contractor will verify all dimension of work being performed. Contractor will contact CFMO Regional Coordinator to scheduled services or repairs. At completion of all service, repairs a signed Maintenance Service Report with findings and recommendation must be signed off by the CFMO Regional Coordinator, the Facility Manager or representative for that facility.
14. Contractor shall provide written Warranty and all Manufacture Warranties for materials & equipment installed. Contractor will provide all warranty documentation prior to finial payment submittal. Contractor will complete the entire process for equipment under warranty.
15. Contractor Service shall provide skilled personnel with the technical qualifications of (LEVEL III) to perform services which include trouble shooting and preventive maintenance, and testing on all Louisiana National Guard Commercial Emergency Backup Generators. If contractor cannot meet certification requirement, contractor

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must submit documentation to the satisfaction to the CFMO establishing their personnel qualifications.

16. Portal to portal and or parts house charges on Preventive Maintenance or Repairs included in the Services.
17. At Completion of Annual, Quarterly PM or Repair Services Contractor shall submit the invoices, with an itemized application and Certification for Payment to the CFMO Project Manager.

B. Emergency Generators Preventive Maintenance Checklist

Emergency Generators PM

- Coolant System
  - Check engine coolant level. Add coolant if level is low.
  - Inspect unit for a low coolant sensor. If unit is not equipped, not in recommendations.
  - Check Supplemental Coolant Additive (SCA).
  - Inspect radiator core/heat exchanger.
  - Inspect coolant line connections and hoses.
  - Check Fan/alternator belt tension and wear.
  - Inspect the fan idler pivot and grease Fan shaft Flex Disks. (if applicable)
  - Inspect cooling fan and grease the drive bearing, and inspect the fan hub for proper clearance.
  - Inspect the fan idler pulley assembly.
  - Inspect coolant block heaters' operation and record temperatures.
  - Inspect coolant pump.
- Fuel System
  Diesel fuel generators
  - Inspect main tank and day tank (if applicable)
  - Fuel filters-primary/secondary (Change Annually)
  - Check piping and correct minor leaks.
  - Check motor and wiring for overheat.
  - Check pump and float switch for continuity.
  - Check level indicator and indicated level in sight glass.
  - Condensation/water in fuel
  - Add fuel stabilizer
- Lubrication
  - Check engine crankcase oil level and filter system. (Change Annually)
  - Visually check for coolant contamination.
  - Oil analysis
  - Clean Crankcase breather,
  - Check Crankcase pressure.
  - Check hoses, connectors correct minor leaks.
  - Lubricate generator bearing
  - Lubricate fan drive barring
  - Check piping, valves, & fittings
- Air Induction and Exhaust
  - Check air cleaner and service indicator (Replace filter Annually)

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  - Check/clean dust collector cap
  - Inspect manifold, and air piping
  - Inspect intake hoses and clamps
  - Inspect intake and exhaust openings
  - Exhaust manifold, piping, connections and muffler
  - If equipped with automatic louver system, verify automatic louver system operation. Ensure louvers are wired to generator
- Electrical System
  - Check battery electrolyte
  - Load Test batteries and record findings
  - Clean and inspect battery cables, posts and electrical connections
  - Inspect alternator drive belt
  - Check shutoff controls
  - Inspect starter
  - Check cold weather starting aids
  - Check battery charge operations. Make sure light indicator is correct and "green" is on
  - Record high and low rate volts. Voltage tests are to be taken for battery charger (low) in OFF mode and for alternator charging (high) while the generator is running
  - Clean voltage regulator (if needed)
  - Record battery date and date of battery replacement
- Engine and alarm
  - Record engine crank time
  - Record engine RPM voltage and adjust if necessary
  - Record no load frequency and adjust if necessary
  - Check and record engine oil pressure
  - Check and record engine operating temperature
  - Check and record engine charge system
  - Check and Record: Generator instruments
    - Frequency Reading
    - Voltmeter Reading
    - OEM Test
- Automatic transfer switch (not a NFPA 110 Inspection)
  - Utility and emergency Voltage – Monitoring voltage
  - Time delay engine start verification operation
  - Time delay transfer operation
  - Time delay re-transfer operation
  - In phase monitor operation if applicable
  - Aux contacts operation
  - Exerciser clock operation and back-up battery replacement if applicable
  - Cabinet lamp operation
  - Remove debris from cabinet and lube easily accessible access points
- General Conditions Maintenance Inspection Report
  - Inspect all belts and ensure proper adjustments
  - Inspect control panel for frayed or damaged wires
  - Visually inspect the vibration damper for rips, tears, broken springs or leaks in liquid isolators
  - Inspect the generator and engine hold down bolts
  - Inspect the engine oil and coolant leaks and note
  - Record run hours
  - Report condition of generator enclosure and exhaust system including leaks, holes, rust, etc.

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- Report overall condition of the area surrounding the generator
- Record whether ethylene or propylene glycol and the ratio

- Maintenance Inspection Report
  - Record run hours

C. Quarterly and Annual Maintenance Checklist

Quarterly: All 4 Quarters

Check all fluids and fluid levels. (Add if needed)
Check starting battery and battery blanket (if installed) clean and treat terminal posts.
Clean interior and exterior of generator housing.
Start and run generator and switch load in and out.
Check all gauges and indicators.
Exercise generator from remote panel(s).
Measure phase voltage output.
Measure phase current output.
Notate fuel level (as required).
Add fuel additive (stabilizer).
Check belts and change as required.
Check hoses and change as required.
Touch up any exterior and interior paint as required.
Inspect exhaust system and silencer for leaks, holes broke missing bolts and rust.
Check all conduit and connectors for tightness.
Check transfer switch for proper operation and programming.
Note exercise schedule.
Check and exercise all alarms as applicable.
Check tie-down bolts for tightness.
Grease/lube all fittings.
Provide a written report of all services and findings to CFMO Regional Coordinator, POC of the facility/generator an automated copy to CFMO Project Manager.

Annual: 1 of 4 Quarters (prior to hurricane season)

Change Oil and Filter, Air Filter, Water Filter (if applicable).
Check all fluids.
Check starting battery and battery blanket (if installed) clean and treat terminal posts.
Clean interior and exterior of generator housing.
Touch up any exterior or interior paint as required.
Adjust all doors/access panels to open, close and latch.
Start and run generator and switch load in and out.

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Check all gauges and indicators.
Exercise generator from remote panels.
Insure programming schedule for weekly generator exercise
Measure phase voltage output.
Measure phase current output.
Notate fuel level (as required).
Add fuel additive (stabilizer).
Check belts and change as required.
Check hoses and change as required.
Inspect exhaust system and silencer for leaks, holes, broke missing bolts and rust.
Check all conduit and connectors for tightness.
Check transfer switch for proper operation and programming, clock operation and back-up battery replace if applicable.
Check and exercise all alarms as applicable.
Check tie-down/motor mounts bolts for tightness and integrity.
Grease/lube all fittings.
Perform load test of generator – 2 hours under 150 KW, 4 hours over 150 KW, report all findings.
Provide a written report of all services and findings to CFMO Regional Coordinator, POC of the facility/generator an automated copy to CFMO Project Manager.

V. Maintenance Procedures and Records

A. The contractor shall utilize computer generated preventive maintenance directions, which indicate task functions to be performed on each scheduled service call, as determined by calendar periods, operating hours, (runtime), manufacturer's recommendations, historical data bank, as pertinent to each task . Detailed written service reports shall be submitted to the maintenance superintendent at the time of service.

B. The contractor shall issue, to the mechanic on the job, the necessary and appropriate recommended maintenance procedure, tools, etc., that are required for proper maintenance.

C. The contractor's administration system shall provide for continuous updating of maintenance procedures and frequencies. Breakdown experience and frequency shall determine the on-site material inventory level and preventive maintenance frequencies.

D. The contractor shall communicate with the Owner/PM on a daily or as needed basis by utilizing E-mail as communication in addition to telephone and Fax. Contractor shall respond accordingly by same means of communication within 24 hours.

E. During the course of the service program, the contractor shall advise and assist in the determination of improvements to the mechanical system that shall conserve energy and minimize utility expenditures.

F. The service company's routine preventive monthly maintenance shall be provided and completed no later than the first ten (10) normal work days of operation of each month work period Tuesday-Friday

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7:30AM -5:00 PM monthly preventive maintenance shall be scheduled at least one (1) month in advance with the maintenance superintendent/ CFMO representative.

G. Contractor shall perform an annual vibration analysis on Generators and submit a documented report within fifteen (15) days to the maintenance superintendent/ FMO office defining any problems found and recommended corrective action.

H. Parts to Generator. Equipment vital to the operation of the building that are in need of immediate repair shall be ordered same day and shipped "Next Day Air". All repairs deemed vital by the maintenance superintendent/CFMO shall be completed without delay.

1. Generator equipment vital include, but not limited to: *belts*, *hoses* and *electrical.*

VI. Preventive Maintenance and Emergency Service Calls

A. The Service Company shall provide quarterly preventive maintenance service and schedule a month in advance with Owners Project Manager.

1. After each service call, a detailed service report a detailed service report shall be completed and left with the CFMO representative/ Project manager or Area Coordinator.

2. Two (2) of the scheduled service calls shall include the system startup and the system shut down, for the appropriate season.

B. The Service Company shall provide emergency service on an as-required basis. Emergency services shall be considered as called in, in addition to the scheduled preventative maintenance calls, but included in this agreement.

1. This emergency service shall be provided as often as needed, on a 24 hour basis, nights, weekends, and legal holidays included.

2. The service company shall be capable of responding to an emergency situation within two (2) hours.

3. The emergency service response system shall system shall be a professionally manned telephone answering service. Automatic telephone answering/ recording machines or home telephone numbers are not acceptable.

C. Service Company shall schedule, in advance monthly, quarterly, semi-annual, and annual preventive maintenance services with the CFMO.

1. PM Services shall start date of award - September 30th of the following year.

VII Contract Guarantee

A. The contractor shall maintain all instrumentation devices and systems in complete operating condition subject to the approval of the Owner. The contractor, in effect, will guarantee these systems for the term of this operations and maintenance contract.

B The contractor shall provide full maintenance and service of the entire system including replacement of the parts and materials for the entire term of the contract for any failures with the exception of those proven to be beyond the contractor's control and as a direct result of but not limited to acts of government,

strikes, lockouts, fire explosion, theft, riot, civil commotion, war, malicious mischief, flood, and other acts of God. The cost of this maintenance and service program shall be included in the cost of this contract.

VIII Service Performance Guarantees

A. Performance Review

1. The Owner's agent may review at any time, the services provided and reports submitted, to verify that the preventive maintenance is, in fact, being properly and adequately performed. Any lack of maintenance service shall be submitted to the service company in writing for correction.
2. Problems or deficiencies of significant importance or of continual nature shall constitute cause for termination of the services and/ or withholding of payment.

B. Non-Performance:

1. Failure to repair vital Generator equipment within two (2) days, (with the exception of prior consent from the CFMO)
2. Failure to answer calls and respond within two (2) hours.
3. Falsifying records.
4. Failure to correct recurring problems of not more than three (3) attempts.
5. Failure to submit service records at time of service.
6. Failure to submit test analysis reports within thirty (30) days.
7. Failure to perform annual vibration analysis on equipment specified.
8. Failure to complete routine preventive monthly maintenance within the first ten (10) normal work days of operation each month.
9. Failure to schedule and complete scheduled monthly, quarterly, semi-annual and annual preventive maintenance.
10. Failure to replace filters as scheduled.
11. Failure to communicate with CFMO as needed by E-mail, telephone or fax.

Failure to meet the preceding requirements shall give the Owner the right to suspend payments for that period of time at regular monthly billing rates and/ or terminate the contract. The owner reserves the right to have a consultant examine and provide a written report on conditions as found. If such conditions are not corrected within ten (10) days or the Generator contractor cannot furnish a valid documented reason for the delay, the owner reserves the right to employ another Generator contractor to complete the work. The accumulated cost of such expenditures will be billed to the current Generator contractor.

IX Special Condition

A The successful bidder's responsibility for injury or persons or property that may be caused by, or arise through the maintenance, service, functioning, or use of the system, shall be limited to injury caused directly by the Service Company's obligations as set forth in this specification.

B The successful bidder shall not be made liable for any loss, delay, injury or damage whether direct or consequential, that may be caused by proven conditions beyond the Service Company's direct control

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including, but not limited to proven acts of government, strike, lockouts, fire, explosion, theft, riot, civil commotion, war, malicious mischief, flood and other acts of God.

X. Bidding

A. Bids shall be good for one (1) full year following bid opening date.

B. Contractor is to contact Owner's POC (noted below) immediately following receipt of "Notice-to-Proceed" to set up scheduling.

C. Each piece of equipment will have 1ea. full annual PM Service in the spring of FY17 as specified through SOW.

D. Each piece of equipment will have 3ea. quarterly PM Services as specified through SOW, beginning immediately after "Notice-to-Proceed" has been issued and schedule has been agreed upon.

POC for this Scope of Work is:

Project Manager: Alan Reisdorph
LANG-CFMO-FM
100 Louisiana Blvd
Minden, LA 71055
Office: (318) 382-4287
Fax: (318) 382-4156
Regional Coordinator CFMO-FM (Construction Facility Management Office Facility Maintenance)

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INSTALLATION: Camp Minden. 4 Quarters of PM; 1 Quarter of FULL SERVICE PM remaining 3 Quarters as specified by SOW

PO LINE	Quarterly PM	Generator Manufacture	Model	Serial Number	Size	ATS Model	ATS Serial Number	Engine Model	Engine Serial Number	Entity & location	Type Of Fuel & Level
LINE 1	Full Service	Katolight	SE400FRX-4T3	160707-0408	400KW	G300320000 1XC	443068-FP	8DDXL14.0VLD	06R1000470	CMTS - A100	Diesel
LINE 2	3 Quarters										
LINE 3	Full Service	Katolight	N30FDG4	365406864425-0103	30KW	D00165A20200F30F	484128-016 RE	VORTEC 4.3L	4.3L / 15688	CMTS - A15S	Nat. Gas
LINE 4	3 Quarters										
LINE 5	Full Service	Onan	400L6TL24510A	C880119434	40KW	E940226066XC	344667001	L634T-1/10148C	L873299757	CMTS - Fire Station-5114	Diesel
LINE 6	3 Quarters										
LINE 7	Full Service	MTU Onsite Energy	DS0035006S-AH1574	355214-1-1-1212	350 KW	J00300030600 1X0	940181 WE	8V1600G70S	16501001628	CMTS - STP	Diesel
LINE 8	3 Quarters										
LINE 9	Full Service	Cummins	DOGAA-1205299	E120343288	1250 KW	OTPCG-A043C031C	G120368570	QSK50	25375784	AFRC	Diesel
LINE 10	3 Quarters										
LINE 11	Full Service	Cummins	DFEG-4482083	E101118642	350KW	OTPCB-4482085	D100111928	QSX15-G9	34012195	RTI - 197	Diesel
LINE 12	3 Quarters										
LINE 13	Full Service	Cummins	DFEG-3478065	B100098421	350KW	OTPCC-3478035	B100098250	QSX15-69	34006172	RTI - 191	Diesel
LINE 14	3 Quarters										
LINE 15	Full Service	Generac	10817690100	2102027	300KW	h003003120Oc100	539320 we	6090HF484	RG6090L058654	RTI - 181A	Diesel
LINE 16	3 Quarters										
LINE 17	Full Service	Generac	11676540100	2105290	150KW	11676540200V	101463	6068HF285	PE6068L093214	RTI - 181B	Diesel
LINE 18	3 Quarters										
LINE 19	Full Service	Cummins	DQFAC-3610029	D100110858	900KW	OTPCF-3733029	B100097542	QSXT30-G5	37242953	RTI - 195	Diesel
LINE 20	3 Quarters										