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Mobile Area Water and
 Sewer System
 4725 Moffett Rd Suite A
 Mobile, AL 36618-2236
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INVITATION FOR BID
March 17, 2021

INVITATION FOR BID NUMBER	IFB 21-018
NAME OF BID	Replacement Generator and Automatic Transfer Switch (ATS)
BIDS WILL BE RECEIVED AT	MAWSS Bid Box Donaghey Business Entrance 4725A Moffett Road or PO Box 180249 Mobile, AL 36618
BID OPENING DATE	March 24, 2021
BID CLOSING TIME	10:30 am Central Time
AWARD WILL BE MADE BY	Total Cost
MATERIAL DELIVERED TO	Lift Station Department 1610 Shelton Beach Road Ext Mobile, AL 36618
ADDITIONAL INFORMATION CONTACT	Terry Herman (251) 378-3509 or therman@mawss.com
APPLICABLE DBE POLICY	None

Sealed bids must be in the Purchasing Department no later than the time specified in order to be considered. Submissions received after the deadline will not be considered. Envelopes must bear the name of the supplier, company address and the words "IFB 21-018 Generator and ATS for Pinto Island" or "IFB 21-018 NO QUOTE." Facsimile or email bids will not be accepted.

All bids must be submitted on the attached forms or your bid will be disqualified. Bidder shall furnish all the information required by the solicitation. The bidder's name must be typed or printed on the bid sheet, and signed by the bidder or appropriate authorized executive officer of the bidder's company. Bidders must initial any changes or erasures. Bidders should retain a copy of bids for their records.

Bidders shall acknowledge receipt of all addenda to this solicitation by signing and returning each addendum or by identifying the addendum number and the date on the bid form. Failure to acknowledge receipt of any addendum by a bidder will result in rejection of the bid if MAWSS determines that the addendum contains information that materially changes the requirements.

All bids shall be quoted FOB Destination, freight prepaid with no additional charges. Unless otherwise specified in the bid, all prices will be on a firm-fixed price basis and are not subject to adjustments based on costs incurred. MAWSS reserves the right to reject any or all bids submitted, to waive any informality in any bid or in the bid process, or to terminate the bid process at any time, if deemed by MAWSS to be in MAWSS's best interest.

A Purchase Order and this "Invitation for Bid" with "Specifications," "Conditions," "Bid Form," signed by the successful bidder's authorized representative, and all attached drawings and other documents furnished by MAWSS to the bidders with the Invitation for Bid in order to illustrate the contract requirements, will constitute a contract for the goods and/or services to be purchased.

Lisa Russell, Buyer II
 Board of Water and Sewer Commissioners

IFB 21-018 REPLACEMENT GENERATOR AND ATS CONDITIONS

The Board of Water and Sewer Commissioners of the City of Mobile will accept bids to **Replace Generator and ATS at Pinto Island** in our Purchasing Department located at 4725 Moffett Road Suite A, Mobile, AL 36618 at 10:30 a.m. local time on **March 24, 2021**. We will LIVE STREAM the bid opening beginning at 10:45am. You can watch by logging into our website at www.mawss.com. Hover your mouse over the link called, DOING BUSINESS. A dropdown menu will appear and at the bottom of that list click MEETINGS VIA LIVE STREAMING. You can also view the live streaming on our YouTube channel at www.youtube.com and search for Mobile Area Water & Sewer Systems Channel. Award will be by Total Cost. The bidder offers and agrees, if this bid is accepted, to furnish the items as defined in the specifications for the unit price set opposite each item. Pricing shall be FOB Mobile, Alabama. All items shall be delivered to our **Lift Station Department** located at **1610 Shelton Beach Rd Ext** or to the job site as needed. The bidder shall state the expected length of delivery time on the Bid Form.

Bidder understands and agrees that manufacturer and part numbers are provided for descriptive purposes only. Items of equal or better quality will be considered but must be approved by MAWSS in writing. Upon delivery, if the quality, durability or performance of any product represented as equal or better is determined by MAWSS to be unsatisfactory, MAWSS will require a suitable substitute or will require that the originally specified item be delivered, at the unit price originally offered by bidder. No substitution for items to be provided pursuant to this contract shall be permitted during the contract period without the express written consent of MAWSS. All items provided shall be for commercial use and for the purposes reflected in the contract documents.

No bid on closed out or discontinued item(s) will be accepted. Item(s) that have a determinable shelf life must be disclosed at the time of bid submittal. Bidder understands that his/her bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving bids.

Bidder understands and agrees that quantities will be purchased by MAWSS on an "as needed" basis to replenish inventory. MAWSS shall not be committed to the purchase of a pre-established minimum quantity for any one item.

A bidder may not modify its bid after bid opening. Errors in the extension of unit prices stated in a bid or in multiplication, division, addition or subtraction in a bid may be corrected by the MAWSS Purchasing Buyer prior to award. In such cases, unit prices shall not be changed.

It is the responsibility of the bidder to determine prior to the bid opening whether any amendment, additions, deletions or changes of any type have been made to this Invitation for Bid, Conditions, Specifications, Bid Form or any of the or bid documents. Bid documents and any amendments made to this bid will be posted on our website at www.mawss.com.

END OF CONDITIONS

IFB 21-018 REPLACEMENT GENERATOR AND ATS SPECIFICATIONS

PART 1 – GENERAL

SCOPE

- A. The following references shall be followed for the design of the stand-by power generation system:
1. ANSI/NEMA 250: Enclosures for electrical equipment (1,000 volts maximum).
 2. ANSI/NEMA MG 1: Motors and generators.
 3. ANSI/NFPA: National electrical code.
 4. NFPA 110 Level 1.
 5. ANSI/NFPA 99: Health care facilities.
 6. ANSI/NEMA AB 1: Molded case circuit breakers.
 7. NEMA ICS 1: General Standards for industrial Control and Systems.
 8. NEMA ICS 2: Standards for Industrial Control Devices, Controllers, and Assemblies.
 9. NEMA ICS 6: Enclosures for Industrial Controls and Systems.

PART 2 – STAND-BY GENERATOR

GENERAL

- A. All material and equipment shall be new and shall be manufactured by a nationally known firm regularly engaged in the manufacture of the equipment herein specified.

ENGINE GENERATOR UNIT

A. General

1. The generator unit assembly shall consist of (a) a diesel driven alternator, (b) an engine cooling radiator, (c) control panel (d) a fuel supply system, (e) an engine exhaust system, (f) starting batteries, (g) weatherproof housing with sound attenuation, and (h) accessories required to assemble, install, and operate the facility.

2. The following items shall be supplied by and coordinated together through one single manufacturer:
 - a. Engine/Generator Unit with steel skid frame
 - b. Radiator Unit
 - c. Control Panel
 - d. Muffler
 - e. Flexible Exhaust Connection
 - f. Batteries and Rack
 - g. Line Circuit Breaker
 - h. Weatherproof and Sound Attenuated Housing
 - i. Sub-Base/"Pancake" Fuel Tank
3. The engine-generator unit shall be Caterpillar, Cummins, or Kohler.
4. The unit supplied for this contract shall be manufactured by one single company. Submittals covering units assembled by more than one manufacturer of components will not be considered satisfactory.
5. Generator unit installed under this work shall be a factory assembly that has been published as a marketed catalog number or model representing all identical corresponding components by one single manufacturer for at least three years. A prototype, special editions, or otherwise unique assembly will not be considered satisfactory.

**IFB 21-018 REPLACEMENT GENERATOR AND ATS
SPECIFICATIONS (Cont.)**

B. Engine

1. The engine shall be steel skid mounted with vibration isolators and shall be liquid cooled. The engine shall be four cycle design, and fuel shall be No. 2 diesel.
2. Engine Auxiliary List:
 - a. Lube Oil Filter, replacement element.
 - b. Intake air filter, washable dry-type element.
 - c. Fuel pressure regulator with by-pass.
 - d. Coolant pump, direct drive.
 - e. Charging alternator, direct drive with voltage regulator.
 - f. Speed governor, 3 Hz max., no load/full load at steady state.
 - g. Coolant drains, accessible and valved.
 - h. Lube oil drains, accessible and valved.
 - i. Coolant heater, 1 each at 3000 W, 240V, single phase, with adjustable direct acting thermostat.
 - j. Instrument Panel:
 - (1) Indicators:
 - (a). Fuel Pressure
 - (b). Lube pressure
 - (c). Coolant temperature
 - (d). Running time or revolutions
 - (e). Battery charging ammeter
 - (2) Engine Shut-Down Circuits and Alarm Lights, Manual Reset:
 - (a). Overspeed
 - (b). Low lube oil pressure
 - (c). High coolant temperature
 - (d). Overcrank
 - k. Panel illumination lights with switch.
3. The unit shall have remote starting and shut-down capability from separate equipment such as an automatic transfer switch.
4. "Off-line" exerciser shall provide regularly scheduled dry-run operation of the engine during normal electrical conditions.

C. Alternator

1. The alternator shall be rated for 100 kW (125 KVA at 130 C° rise) stand-by duty at 0.8 PF, 240 Volt, 3 phase, 4 wire, 60 Hz, ac. The alternator shall have Class F insulated copper windings, revolving field, drip-proof construction type, with amortisseur windings, and shall be built to latest NEMA standards. Alternator shall include brushless exciter, temperature compensated solid state voltage regulator, and an automatic field flashing relay. Radio interference suppression meeting Commercial Standards shall be supplied. A direct drive centrifugal blower shall provide cooling for a temperature rise with NEMA, IEEE and ANSI standards for continuous duty operation at all output ratings. The alternator shall be single bearing type directly connected to the flywheel housing, with the rotor coupled to the flywheel. A terminal box with copper terminals shall be provided on the exterior of the alternator with ample working space for conductor connections and shall be suitable for entrance as shown on the plans.

**IFB 21-018 REPLACEMENT GENERATOR AND ATS
SPECIFICATIONS (Cont.)**

- a. Voltage Adjustment: +/- 5 % of rated voltage.
 - b. Voltage Regulation: +/- .5 % of rated voltage, no load/full load.
 - c. Voltage Recovery: 4 second (minimum) one step full load.
 - d. See manufacturer's statement of qualification hereinbefore specified.
2. Controls shall be provided on the generator unit for voltage drop, level, and gain; and meters, or other direct read-out indicators, with phase selection switching shall be provided for voltage, current and frequency.
 3. A line circuit breaker shall be provided for the alternator power output circuit rated at 225 A, 240Vac, 3-pole, 42 KAIC.
- D. Controller
1. The engine generator controller unit shall be in accordance with NFPA 110, Level I specifications, and shall be compatible with all functions of the associated automatic transfer switch. The controller shall have a 16-button operator keypad, a visual data readout window, and LED status indicators.
 2. The controller shall have circuitry and terminals for remote data exchange to local "lap-top" computer units and also to off-site PC stations for monitoring operational status, alarms, and diagnostic data for maintenance and repair purposes. The generator controller shall provide "dry" form C contacts to indicate generator running, generator common fault, and low fuel level for monitoring by a SCADA system as directed by MAWSS.
 3. The controller shall have RS-232 and RS-485 communication ports for communication with SCADA and alarm equipment.
 4. The controller shall maintain event history of all warning alarms up to 32 signals.
 5. The controller shall track oil and filter usage and alert operator when replacement is recommended.
 6. The controller shall provide the following minimum functions:
 - A. Status indications and monitoring.
 - (1) Engine
 - (a). Temperature
 - (b). Oil pressure
 - (c). Fuel pressure
 - (d). RPM
 - (e). Battery voltage
 - (f). Battery charging amps
 - (g). Run time or revolution count

**IFB 21-018 REPLACEMENT GENERATOR AND ATS
SPECIFICATIONS (Cont.)**

(2) Alternator

- (a). Output voltages
- (b). Output currents
- (c). Frequency
- (d). KW
- (e). KVA
- (f). KVAR

b. Controls

- (1) Output voltage adjustments
- (2) Voltage regulation
- (3) Cranking cycles
- (4) Programmed exercising
- (5) Remote starting and stopping
- (6) Time delayed starting
- (7) Engine cool down cycle

c. Shutdown Features

- (1) Over Temperature, Coolant
- (2) Over Temperature, Oil
- (3) Low Oil Pressure
- (4) Low Fuel Pressure
- (5) Over Speed
- (6) Over Crank
- (7) Over Current
- (8) Under/Over Voltage
- (9) Under Frequency

d. NFPA warnings and shutdowns shall be included as controller functions.

IFB 21-018 REPLACEMENT GENERATOR AND ATS SPECIFICATIONS (Cont.)

ENGINE COOLING SYSTEM

- A. An engine cooling radiator with engine driven blower type fan shall be provided and shall maintain safe engine operation at 110 °F maximum ambient temperature.

Coolant flow shall be controlled by automatic in-line thermostats, factory calibrated for the designed engine temperature operation. Radiator air flow restriction shall not exceed 0.5 inches of water. Radiator shall be equipped with a properly calibrated pressure type fill cap, drain valves for completely draining the radiator; and grease fittings shall be provided for fan shaft bearings lubrication. Coolant shall be non-corrosive water solution of 50 % ethylene glycol.

WEATHERPROOF AND SOUND ATTENUATED HOUSING

- A. The engine-generator unit shall be provided with an overall weatherproof housing to prevent entrance of rain, sleet, snow and flying debris. The housing shall be louvered to provide an air flow across the alternator and engine and out the radiator grill. Rodent screens shall be provided to prevent insects and animals from entering the interior of the housing at any location. Hinged, latchable, access door shall be provided to allow relatively unobstructed access to the unit for maintenance and routine adjustments. The housing shall be of sufficient dimension to include accessories and enclosed engine starting batteries provided with the engine-generator assembly. Storage facilities for storing tools and spare parts shall be provided. Special structural features shall be provided for supporting items such as exhaust piping, muffler, control panel, etc. The housing shall be sheet steel with deformed strengthening ribs and angle reinforcement frame. The housing shall be a regular cataloged product of the engine-generator supplier. Corrosion protection shall be provided by inside and outside application, after phosphated cleaning, of a minimum of one prime and two finish coats of enamel paint, "Electrocoat", applied conforming to ASTM D-2794-93 for impact resistance and ASTM B-117-90, D714-87 salt spray resistance.
- B. The housing shall also include sound attenuation on all generators not enclosed within a building. The sound attenuation enclosure shall be critical grade. Noise level 69DBA at 30 feet.

ENGINE EXHAUST SYSTEM

- A. The muffler provided for silencing engine exhaust noise shall be sized by the engine manufacturer and shall attenuate the sound to a level for "residential" silencing. Muffler shall be a Maxim Silencer Style M-41 or equal by Kittell with entrance and exit as shown on the plans and shall have a valved condensate drain.
- B. Flexible exhaust connection shall be provided to isolate vibration and engine movement. The flexible connection shall be 304 or 316 stainless steel sized by the engine manufacturer and coordinated with the exhaust piping provided. Supporting brackets shall be provided on the top exterior of the weatherproof housing for securing the muffler and exhaust piping.

BATTERIES

- A. Batteries provided for engine starting and auxiliary equipment operation shall be lead-acid type, heavy duty rated. Batteries shall be secured within the weatherproof housing on a battery rack.
- B. Batteries shall provide sufficient "cold weather" engine cranking for a sustained period of three cranking cycles of 15 seconds cranking followed by 15 seconds rest each at zero degrees F while maintaining 1.2 volts per cell without recharging.
- C. All cables, straps, clamps, etc. shall be provided with proper sizes in order to provide a complete battery to engine electrical system that will function as intended.

IFB 21-018 REPLACEMENT GENERATOR AND ATS SPECIFICATIONS (Cont.)

BATTERY CHARGER

- A. A battery charger shall be provided and shall be wall or surface mounted type, SCR solid-state type, rated for 120 Volt ac input and 10 amperes (max) output at the engine system battery voltage. Charger shall be \pm 1% constant regulated voltage suitable for float - equalize full time connection to the system, current limiting type to prevent overloading during engine cranking, temperature compensated, and after attaining full battery charge shall maintain full battery charge by automatic trickle float operation. Unit shall be UL listed and shall have: (a) output voltmeter; (b) ammeter; (c) on-off switch; (c) line fuse; and (d) input power cord with plug.

SUB-BASE/"PANCAKE" FUEL STORAGE TANK

- A. The fuel storage tank shall be double wall "pancake" style, minimum 24 hour capacity at full load, rectangular shaped, welded steel construction, manufactured in accordance with Underwriters Laboratories, Inc., Specification UL 142 for storage of NFPA Class II liquids (Diesel Number 2-D). The tank shall be provided as an integral part of the overall assembly and shall be manufactured for sub-base supporting duty for the generator unit provided unless specified otherwise.
- B. The tank shall bear Underwriters Laboratories, Inc. UL 142 listing mark for indication of manufacturing compliance. The installed tank and lines shall be pressure tested for tightness with 5 psi air pressure for at least 10 minutes as per NFPA 30, 3-8 (1995).
- C. The tank shall have a brass condensate drain valve at the lowest position of the tank. Fuel supply and return lines shall have brass block valves at the tank. A fuel level gauge shall be provided and shall be UL listed, direct reading, float operated type, calibrated to show fuel in gallons. The fill cap shall be a gasketed pad-lockable type. Fuel fill pipe shall have an "overflow prevent device". The main tank shall have an approved pressure venting valve to prevent overpressure in accordance with API Standard 2000 and shall have a UL approved vent cap. The secondary containment chamber shall be vented and monitored. The tank and steel frame shall be grounded.

FIRE EXTINGUISHER

- A. A fire extinguisher shall be provided and shall be portable, multi-purpose dry chemical, 10-pound charge, complete with wall mounting weatherproof cabinet manufactured for the purpose, and shall be permanently mounted near but not on the generator in a conspicuous and readily accessible location. Fire extinguisher shall be U. S. Coast Guard rated for 2A20BC duty.

PART 3 – AUTOMATIC TRANSFER SWITCH

A. General

1. The transfer switch unit shall be an integral design to include:
 - a. transfer switch mechanism,
 - b. sensor networks,
 - c. stand-by generator "run" command,
 - d. automatic return with fail safe override,
 - e. indications and switches for voltage and current, and
 - f. NEMA 4X enclosure.

IFB 21-018 REPLACEMENT GENERATOR AND ATS SPECIFICATIONS (Cont.)

2. All busses, contacts, and wiring shall be copper.
 3. The ATS assembly shall be approved by the Underwriters Laboratories, Inc., in accordance with UL-1008. Switching assembly shall be rated in accordance with UL-1008, paragraph 25 for a minimum of 20 times the continuous rating for short circuit duty.
 4. The automatic transfer switch unit shall be fully compatible with the operation of the associated stand-by generator unit.
 5. The automatic transfer switch shall be provided with "dry" form C contacts to indicate both the normal (utility) and emergency (generator) positions of the switch as well as when the utility and emergency sources are available for monitoring by a SCADA system as directed by MAWSS.
- B. The automatic transfer switch shall be open before transition, break before make, and unless otherwise required by the power service characteristics shall be rated at 400 amps, 240 volts, 3-pole, 4 wire with the following additional features included:
1. Microprocessor based sensor network for system electrical status monitoring and switching control.
 2. In-phase monitoring for source to load transfer connection within 15 percent of synchronism to avoid out-of-phase transfer.
 3. Field adjustable time delay settings for start-up and shut-down.
 4. Automatic restoration to normal utility source.
 5. Off-line engine exerciser set to suit the Owner's operational schedule.
 6. Status reporting outputs for remote computer monitoring reports.
 7. Internal space heater with thermostat control.
 8. Voltmeter and ammeter indicators with associated switching, monitoring, fuses, etc.
 9. A "test" switch shall be provided for off-line simulation to start the unit without actual transfer.
 10. Internal manual operating handle.

MISCELLANEOUS ITEMS

- A. All devices, equipment, and materials not definitely specified or noted, that are required for complete installations shall be furnished, shall be manufactured for the purpose intended, and shall be installed in conformance with good accepted practice for the conditions encountered. All hardware such as straps, supports, bolts and nuts, shall be 304 or 316 stainless steel unless otherwise noted.

WARRANTY

- A. Warranty of the composite unit shall be made by the single manufacturing concern performing assembly of components and not by the component part manufacturer. The warranty shall be unrestrictive as to quality and performance. Warranty claim inspections required by the manufacturer shall be made on site at the unit in questions Testing will be performed by a manufacturer's representative.

**IFB 21-018 REPLACEMENT GENERATOR AND ATS
SPECIFICATIONS (Cont.)**

- B. During test, record the following at 30-minute intervals:
 - 1. Kilowatts
 - 2. Amperes
 - 3. Voltage
 - 4. Coolant temperature
 - 5. Ambient temperature
 - 6. Frequency
 - 7. Oil pressure
- C. Test alarm and shutdown circuits by simulating conditions.
- D. Manufacturer's representative should be present to prepare, start, test, and adjust systems. Adjust generator output voltage and engine speed.
- E. Equipment manufacturers, or their representative, shall complete the Equipment Certification statement below for those items of equipment noted in paragraphs E above.

Authorized Signature

Printed Name

Company and Job Title

This is to certify that we have examined the installed Equipment for this Project and have ascertained that this equipment is installed correctly and is suitable for the purpose and use intended.

END OF SPECIFICATIONS

**IFB 21-018 REPLACEMENT GENERATOR AND ATS
BID SHEET**

Cost for Generator _____

Cost for ATS _____

Total Cost \$ _____

Delivery (ARO):
(After receipt of order) _____

Payment Terms _____

Company Name _____

Address _____

City, State, Zip _____

Submitted By _____ **Title** _____

Please Print

Phone _____ **Fax** _____

Email Address _____

Please Print

The signer declares under penalty of perjury that she/he is authorized to sign this document and bind the company or organization to the all of the terms and conditions of this agreement.

Signature _____ **Date** _____