MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY

NOTICE

INVITATION FOR BIDS

to

PURCHASE 50 kW MOBLE DIESEL GENERATOR SET

Notice is hereby given that sealed bids will be received at the Finance Department, until August 16, 2016 local time, at which time they will be publicly opened and read for the furnishing of equipment, labor, and performing all work necessary and incidental to acquire, deliver and install a:

50 kW Mobile Diesel Generator Set

in accordance with the MRWPCA plans, specifications and contract documents.

Bids shall be delivered and addressed to the MRWPCA, Dan Deeth, 5 Harris Court Building D, Monterey, CA, 93940, and shall be labeled "50 kW Diesel Generator Set, August 16, 2016. Any Bidder who wishes his bid to be considered is responsible for making certain that his bid is received in the Finance Department by the proper time. No oral, telegraphic, electronic, facsimile, or telephonic bids or modifications will be considered unless specified. Bids received after the scheduled Bid Submittal Deadline will be returned unopened. It is the responsibility of the Bidder to see that any bid submitted shall have sufficient time to be received by the Procurement Specialist before the Bid Submittal Deadline. Late bids will be returned to the Bidder unopened.

The receiving time in the Finance Department will be the governing time for acceptability of bids. Bids will not be accepted by telephone or facsimile machine. Bids must bear original signatures and figures.

Specifications. Specifications may be examined and obtained at no charge at the Finance Department, or by calling (831) 645-4612**.**

INSTRUCTIONS TO BIDDER

BID FORMS. Bid must be submitted on preprinted Bid Forms supplied by the Finance Department.

BID OPENING AND BID RESULTS. Bids are opened publicly in the **Regional Treatment Plant Conference Room, 14811 Del Monte Blvd., Marina, CA 93933**. **Bids are scheduled to be opened at 1:00 pm on August 18, 2016**. Interested parties are invited to attend the bid opening. A tabulation of bids received will be available within a reasonable time after the bid opening. Bid results will be faxed or mailed to interested parties upon request.

BID SUBMITTAL DEADLINE. **The Bid Submittal Deadline is August 16, 2016 at 2:00 pm.** Bid must be submitted in sealed envelopes and should be properly identified with the bid number and Bid Submittal Deadline. **Bids must arrive in the Finance Department, 5 Harris Court Building D, Monterey, CA 93940, by August 16, 2016, 2:00pm.** Telephone, telegraphic, facsimile, electronic, and late bids will not be accepted or considered. It is the Bidders' responsibility to see that their bids have sufficient time to be received by the Finance Department before the Bid Submittal Deadline.

BID WITHDRAWAL. Bidders' authorized representatives may withdraw bids only by written request received by the Procurement Specialist before the Bid Submittal Deadline. After that time, Bidders may not withdraw their bids for a period of ninety (90) days from the Bid Submittal Deadline. At no time may the successful Bidder(s) withdraw his bid.

INFORMED BIDDERS. Before submitting bids, Bidders must fully inform themselves of the conditions, requirements and specifications of the work or materials to be furnished. Failure to do so will be at Bidders' own risk and they cannot secure relief on the plea of error.

LATE BIDS. Bids not received by the Bid Submittal Deadline are late. Late bids will be returned to Bidders unopened.

PRICES, NOTATIONS, AND MISTAKES. All prices and notations must be in ink or typewritten. Mistakes may be crossed out and corrections typed or printed adjacent to the mistake and initialed in ink by the person who signs bid. Prices shall be stated in units and quotations made separately on each item. In case of conflict, unit prices will govern. Where there is a conflict between words and figures, words will govern.

INSTRUCTIONS TO BIDDER - Continued

QUESTIONS, INTERPRETATION, OR CORRECTION OF QUOTE DOCUMENTS. Bidders shall notify the Procurement Specialist promptly of any error, omission, or inconsistency that may be discovered during examination of the solicitation. Requests for interpretation, correction, or clarification shall be made in writing to the Procurement Specialist. ***Questions regarding this solicitation must be submitted in writing,*** by email or fax to Dan Deeth, Procurement Specialist at dand@mrwpca.com or by fax (831) 647-1766 ***and shall arrive at least four (4) working days before the Submittal Deadline.*** Any questions received after the deadline will not be addressed. Bidder's company name, address, phone and fax number, and contact person must be included with the questions or comments.

Clarification, corrections, or changes to specifications. All clarifications, corrections, or changes, to the solicitation documents will be made by Addendum ***only***. Bidders shall not rely upon interpretations, corrections, or changes made in any other manner, whether by telephone, in person, or at a pre-bid conference. Interpretations, corrections, and changes shall not be binding unless made by Addendum. All Addenda issued shall become part of the Agreement documents. Addendum will be send to all known solicitation holders by facsimile or US mail. It is the Bidders sole responsibility to ascertain that it has received all Addenda issued for this solicitation. All Addenda must be acknowledged and returned on or before the Submittal Deadline, unless otherwise directed by an Addendum.

TERMS OF THE OFFER. Agency's acceptance of Bidder's offer shall be limited to the terms herein unless expressly agreed in writing by the Agency. Bids offering terms other than those shown herein will be declared non-responsive and will not be considered.

TERMS AND CONDITIONS

ATTORNEY FEES. In the event a suit or action is instituted in connection with any controversy arising out of this contract, the prevailing party shall be entitled to receive, in addition to its costs, such sum as the court may adjudge reasonable as to attorney's fees and costs.

BIDDER AGREEMENT TO TERMS AND CONDITIONS. Submission of a signed bid will be interpreted to mean Bidder has agreed to all the terms and conditions set forth in the pages of this solicitation.

CANCELLATION OF CONTRACT. The Agency may cancel this contract WITHOUT CAUSE at any time by giving thirty (30) days written notice to the supplier/contractor. The Agency may cancel this contract WITH CAUSE at any time by giving ten (10) days written notice to the supplier/contractor. Cancellation for cause shall be at the discretion of the Agency and shall be, but is not limited to, failure to supply the materials, equipment or service specified within the time allowed or within the terms, conditions or provisions of this contract. The successful Bidder may not cancel this contract without prior written consent of the Procurement Specialist.

COMPLIANCE OR DEVIATION TO SPECIFICATIONS. Bidder hereby agrees that the material, equipment or services offered will meet all the requirements of the specifications in this solicitation unless deviations from them are clearly indicated in the Bidder's response. Bidder may submit an attachment entitled "Exceptions to Specifications", which must be signed by Bidder's authorized representative. An explanation must be made for each item to which an exception is taken, giving in detail the extent of the exception and the reason for which it is taken. Bids failing to comply with this requirement will be considered non-responsive. Submittal of brochure or other manufacturer literature is desirable but shall not be an acceptable substitution for this requirement.

COMPLIANCE WITH LAWS. All bids shall comply with current federal, state, local and other laws relative thereto.

AIR BOARD REQUIREMENTS **This specification requires Tier 4 Engines. Award is contingent on the Air Board authorizing a permit.**

FORCE MAJEURE. If execution of this contract shall be delayed or suspended and if such failure arises out of causes beyond the control of and without fault or negligence of the Contractor, the Contractor shall notify the Agency, in writing, within twenty-four (24) hours, after the delay. Such causes may include but are not limited to acts of God, war, acts of a public enemy, acts of any governmental entity in its sovereign or contractual capacity, fires, floods, epidemics, strikes and unusually severe weather.

FORMATION OF CONTRACT. Bidder's signed bid and Agency's written acceptance shall constitute a binding contract.

TERMS AND CONDITIONS - Continued

LAWS GOVERNING CONTRACT. This contract shall be in accordance with the laws of the state of California. The parties stipulate that this contract was entered into in the County of Monterey County in the state of California. The parties further stipulate that the county of Monterey County, California, is the only appropriate forum for any litigation resulting from a breach hereof or any questions risen here from.

NOMENCLATURES. The terms Successful Bidder, supplier, vendor, and contractor may be used interchangeably in this solicitation and shall refer exclusively to the person, company, or corporation with whom the Agency enters into a contract as a result of this solicitation.

REJECTION OF BIDS. The Agency reserves the right to reject any bids, all bids, or any part of a bid. The Agency reserves the right to reject the bid of any Bidder who previously failed to perform adequately for the Agency or any other governmental agency. The Agency expressly reserves the right to reject the bid of any Bidder who is in default on the payment of taxes, licenses, or other monies due to the Agency.

SAFETY. All articles delivered under this contract must conform to the Safety Orders of the State of California, Division of Industrial Safety.

SELL OR ASSIGN. The successful Bidder shall not have the right to sell, assign, or transfer, any rights or duties under this contract without the specific written consent of the Agency.

SEVERABILITY. If any provisions, or portions of any provisions, of this contract are held invalid, illegal, or unenforceable, they shall be severed from the contract and the remaining provisions shall be valid and enforceable.

TAXES, FEDERAL EXCISE. The Agency is exempt from Federal Excise Tax.

TAXES, SALES. California Sales Tax should be shown separately on the Bid Form, when and where indicated.

WAIVER OF INFORMALITIES. The Agency reserves the right to waive informalities or technicalities in bids.

SPECIAL PROVISIONS
FOR MATERIALS & EQUIPMENT

AUTHORIZED DISTRIBUTOR. Successful Bidder must be an authorized distributor for the product he offers, or with his bid he must submit documentation from an authorized distributor that he has purchased the specified product/equipment from that distributor and that the distributor will honor all of the manufacturer's warranties.

BRAND NAMES. Manufacturers names, trade names, brand names, model and catalog numbers used in these specifications are for the purpose of describing and establishing general quality levels. Such references are not intended to be restrictive. Bids will be considered for alternative brands that meet or exceed the quality of the specifications listed for any item.

BRAND SUBSTITUTIONS. Bids will be considered for items complying substantially with specifications, provided deviations to the specifications are stated and items are described in detail. When offering alternate products, it is the responsibility of the bidder to indicate the brand names and model/catalog numbers, and to provide evidence of the equality of the items to the products specified in the solicitation. Standard catalog sheets or technical data will not be accepted in lieu of this requirement. The Agency will be the sole judge of whether such alternates are equivalent to the items specified. The Agency reserves the right to waive immaterial variations in the specifications.

COMPLIANCE WITH OSHA. Bidder agrees that all item(s) offered comply with all applicable Federal and the State Occupational Safety and Health Act, laws, standards and regulations, and that Bidder will indemnify and hold the Agency harmless for any failure to so conform.

DELIVERY HOURS. Unless otherwise specified, all items must be delivered to: 14811 Del Monte Blvd., Marina, CA 93933, Monday through Friday, between the hours of 8:00 A.M. & 12:00 P.M. and 1:00 P.M. and 5:00 P.M., excluding holidays.

DELIVERY TIME
The maximum time allowed for delivery is: 120 Days from receipt of order. Time is of the essence of this contract. Bidder shall state earliest delivery time on his Bid Form. The Agency reserves the right to cancel any order not received within the time stated by the Bidder in his bid. Delivery time will be a factor in award of bid where a maximum time for delivery is stipulated herein.

SPECIAL PROVISIONS
FOR MATERIALS & EQUIPMENT - Continued

F.O.B. POINT & SHIPPING CHARGES. All prices shall be quoted F.O.B. destination, Marina, California. All shipping, handling and freight charges must be shown separately on the Bid Form.

HOLD HARMLESS. Successful Bidder agrees to indemnify, defend, and hold harmless the MRWPCA, it's governing body, officers, employees, and insurance carriers, individually and collectively, from all losses, claims, suits, demands, expenses, subrogation, attorneys' fees, or actions of any kind in nature resulting from personal injury to any person (including bodily injury and death), or damage to any property, arising or alleged to have arisen out of Bidder's negligent acts, errors, omissions, for provision of the products specified under the contract. The amount and type of insurance coverage requirements set forth herein, or lack thereof, will in no way be construed as limiting the scope of indemnity in this paragraph.

MANUFACTURER & MODEL NUMBER. On this Bid Form, Bidder must state the manufacturer name and model number of each item proposed.

NEW AND UNUSED. Unless specifically provided to the contrary, all materials and equipment shall be new and unused and of the current production year. Bids that are received for other than the current production year or for items and materials that have been previously used will be rejected.

WARRANTY, MANUFACTURER. Manufacturer shall fully warrant all materials and equipment furnished under the terms of this contract, against poor and inferior quality, for a period of not less than ***two (2) years*** from the date of final acceptance by the Agency. Time is of the essence of this contract. While under warranty, manufacturer shall repair or replace inoperable materials or equipment in a timely manner to minimize the disruption of Agency operations. A copy or description of the manufacturer's warranty shall accompany each bid for the item(s) proposed, detailing the scope and length of the warranty. Where the successful Bidder
is also the manufacturer of the materials or equipment provided under this contract, the Manufacturer's Warranty requirement will supersede the Successful Bidder Warranty requirement of this solicitation.

WARRANTY, SUCCESSFUL BIDDER. Successful Bidder shall fully warrant all materials and equipment furnished under the terms of this contract, against poor and inferior quality, for a period of not less than ***one (1) year*** from date of the final acceptance by the Agency. Time is of the essence of this contract. While under warranty, successful Bidder shall repair or replace inoperable materials or equipment in a timely manner to minimize the disruption of Agency operations.

50 k W Mobile Diesel Generator Set

Specification

1. General:

1.1. Scope of Supply:

1.1.1. Provide a complete and operable mobile electric generating system rated for continuous duty operation, including all devices and equipment specified herein. Equipment shall be new and of current production, factory tested, and delivered ready for operation.
1.1.2. The mobile electric generating system shall be the standard production of a single ISO 9001 certified manufacturer. It shall be factory built, tested and shipped by this single manufacturer.

1.2. Approved Manufacturers:

1.2.1. Doosan Portable Power
1.2.2. Or equal as determined by MRWPCA Minimum stand-by output must be 50 kW

1.3. Submittals: As a minimum for all equipment specified:

1.3.1. Manufacturer's specifications and product data sheets.
1.3.2. General arrangement (dimensional) drawings.
1.3.3. Wiring schematics.
1.3.4. Manufacturer's published warranty documentation.

1.4. Testing: Development testing and analysis shall include:

1.4.1. Maximum rated power.
1.4.2. Maximum motor starting kVA at 35% voltage dip.
1.4.3. Alternator and engine cooling system testing and analysis.
1.4.4. Engine speed regulation under transient and steady state operation.
1.4.5. Voltage regulation and transient load response.
1.4.6. Harmonic analysis, voltage waveform distortion, and telephone influence factor.
1.4.7. Overload protection testing.
1.4.8. Fuel consumption at ¼, ½, ¾, and full load.
1.4.9. Torsion and vibration analysis.
1.4.10. Endurance test.
1.4.11. Mobility and transportability tests.

1.5. Production testing: Each generator set shall be subject to a multi-point visual quality inspection to ensure the unit matches specification. In addition, the following factory tests shall be performed to ensure the generator set is free of mechanical and electrical hindrances:

1.5.1. Single step load acceptance to prime power rating.
1.5.2. Transient and steady state governing at various loads.
1.5.3. Transient and steady state voltage regulation at various loads.
1.5.4. Rated power at 1.0 (unity) power factor.
1.5.5. Safety shutdown device tests.

1.6. Certified copies of the production test report can be provided upon request at time of order. Requests for witness testing at the factory can be granted, provided sufficient time is given for necessary arrangements.

1.7. Warranty:

1.7.1. A no deductible warranty shall be provided by the manufacturer against defects in materials and workmanship for a minimum of twelve (12) months from date of startup with a limitation of 2000 running hours per the equipment manufacturer's limited warranty covering the complete electrical generating system.

1.7.2. A no deductible warranty shall be provided by the manufacturer against defects in materials and workmanship for a minimum of twenty-four (24) months from date of startup with a limitation of 4000 running hours per the equipment manufacturer's limited warranty covering the alternator assembly.

1.7.3. A no deductible warranty shall be provided by the engine manufacturer against defects in materials and workmanship for a minimum of twenty-four (24) months from date of startup with a limitation of 2000 running hours per the equipment manufacturer's limited warranty covering the engine assembly.

1.8. Supplier Criteria:

1.8.1. The electrical generating system manufacturer and its authorized nationwide distribution network shall provide 24-hours parts and service availability.

1.8.2. The authorized distributor shall provide factory trained service technicians capable of providing warranty service and performing preventative maintenance and service procedures on the complete mobile generating system.

1.8.3. Arrangements can be made with the local authorized distributor to provide pre-commissioning inspection, initial startup and on-site testing as required.

2. Products:

2.1. Generator Set:

2.1.1. The generator set shall be capable of providing a rated prime power output of:

Voltage Configuration	Frequency (Hz)	Power Factor	kVA	kW	Rated Current (A)
600/346V - 3Ø WYE	60	0.8	N/A	N/A	N/A
480/277V - 3Ø WYE	60	0.8	69	55	84
240/139V - 3Ø WYE	60	0.8	69	55	168
240/120V - 3Ø DELTA	60	0.8	N/A	N/A	N/A
208/120V - 3Ø WYE	60	0.8	68	54	188
240/120V - 1Ø ZIG ZAG	60	1.0	46	46	191
400/230V – 3Ø WYE	50	0.8	62	49	89

2.1.2. The generator set shall be capable of unassisted startup and operation at this output in ambient conditions between 10ºF (-12ºC) and 104ºF (40ºC), subject to de-rating curves for temperature, humidity, and altitude beyond manufacturer's specified limits.

2.1.3. The generator set shall be capable of starting motor loads of at least 50HP.

2.2. Prime Mover:

2.2.1. The engine shall be of minimum 3.409 L (208 in^3) displacement and shall be mobile off-highway certified by the United States Environmental Protection Association (EPA) and by the California Air Resources Board (CARB) to Tier 4-final emissions standards.
2.2.2. The engine shall deliver a minimum prime power output of 84.5 HP (63 kWm) and a minimum standby power output of 97.9 HP (73 kWm) at a governed speed of 1800 RPM for 60 Hz operation.
2.2.3. The engine shall deliver a minimum prime power output of 80.5 HP (60 kWm) and a minimum standby power output of 88.5 HP (66 kWm) at a governed speed of 1500 RPM for 50 Hz operation.
2.2.4. The engine shall be an inline, four cycle design fueled by #2 Ultra Low Sulfur (<15PPM) diesel.
2.2.5. Fuel consumption shall be 4.4 GPH (16.7 LPH) or less at 60Hz, 100% prime power (PRP) rated load.
2.2.6. The engine shall have four cylinders and be turbocharged and charge air cooled.
2.2.7. The engine shall be ECU controlled and capable of dual frequency operation at either 60 Hz or 50 Hz.
2.2.8. The engine shall be equipped with exhaust emission control technology including:
2.2.8.1. High Pressure Common Rail (HPCR) fuel injection system
2.2.8.2. Cooled Exhaust Gas Recirculation (CEGR)
2.2.8.3. Exhaust gas after-treatment consisting of a Diesel Oxidation Catalyst (DOC) and Selective Catalytic Reduction (SCR).
2.2.9. The engine shall feature full pressure lubrication with replaceable spin-on filter elements.
2.2.10. The engine governing shall be isochronous with frequency regulation is +/-0.25% or better from no load to full load at steady state conditions.
2.2.11. The engine shall have a 12 VDC electrical system with a positive engagement, solenoid shift starter motor.
2.2.12. An engine preheating glow plug system shall be provided to enhance cold starting performance.
2.2.13. The engine shall be equipped with a 90 Ampere minimum belt driven battery charging alternator with solid state voltage regulation.
2.2.14. Intake air shall be drawn through a heavy duty, dry type, two stage air filter.
2.2.15. An exhaust rain cap shall be supplied to prevent water ingress into the exhaust outlet.

2.3. Cooling System
2.3.1. The engine cooling system shall include a radiator, charge air cooler and cooling fan assembly designed and tested to ensure 100% of rated power output in ambient temperatures of at least 104ºF (40ºC).
2.3.2. The axial blade cooling fan shall be an engine driven pusher style fan.
2.3.3. The engine compartment air intake panels shall be equipped with ducted louvers to ensure proper package cooling while achieving near zero water ingression into the environmental containment basin.

2.4. Alternator:

2.4.1. The alternator shall be a four pole, twelve lead, reconnectable, rotating field type with brushless construction.
2.4.2. The brushless excitation system shall be powered by two auxiliary windings and meet the performance characteristics equivalent to Permanent Magnet Generator (PMG) excitation systems with respect to:
2.4.2.1. Short circuit capability
2.4.2.2. Overload capability
2.4.2.3. Motor Starting (locked rotor) kVA versus percent voltage dip
2.4.2.4. Load application versus percent voltage dip
2.4.2.5. Load rejection versus percent voltage rise

2.4.3. The alternator shall be capable of sustaining 300% of its rated current for at least 10 seconds to facilitate motor starting.
2.4.4. The generator shall be capable of accepting single step load application of 100% of the prime power (PRP) load rating. The voltage dip shall not exceed 30% of the rated voltage.
2.4.5. The generator shall be equipped with a solid state automatic voltage regulator capable of maintaining steady state voltage within +/-1% of nominal voltage from no load to full load.
2.4.6. The single-phase sensing automatic voltage regulator shall feature overload protection, adjustable volts / hertz roll-off, and incorporate user adjustable voltage and stability set points.
2.4.7. The regulation system shall be isolated from distortions generated by the load.
2.4.8. The rotor and stator shall be insulated with Class H insulation.
2.4.9. The alternator shall include a 2/3 pitch rotor and skewed stator to provide for stable voltage waveforms and reduced harmonics. Amortisseur windings shall be incorporated to reduce voltage oscillation during transients.
2.4.10. The alternator shall be self-ventilated and drip proof rated IP23 or greater.
2.4.11. Telephone influence factor (TIF) shall be less than 50.
2.4.12. Total line-to-line harmonic distortion shall be less than 2% at no load.
2.4.13. All neutral and ground circuits shall be 100% rated.
2.4.14. The generator shall have a single maintenance free bearing with an expected life of at least 30,000 hours, and shall be directly coupled to the engine flywheel via a semi-flexible coupling disc.
2.4.15. The main armature windings shall be wired to a three position voltage selector switch capable of providing the following voltage configurations:
    2.4.15.1. 480/277 VAC 3Ø (series wye) output
    2.4.15.2. 208/120 VAC 3Ø (parallel wye) output
    2.4.15.3. 240/120 VAC 1Ø (parallel zigzag) output
    2.4.15.4. The output voltage shall be easily adjustable to other common voltages between 208V-3Ø to 480V-3Ø and 120V-1Ø to 277V-1Ø.
2.4.16. The voltage selector switch shall be protected behind an enclosure door equipped with a safety interlock device that will shut down the engine and trip the main circuit breaker if the switch is accessed under operation. Pad lockable voltage selector switches shall not meet this specification.

2.5. Control Panel:

2.5.1. All controls and instrumentation necessary to start and operate the unit shall be contained within a single enclosure and be accessible from the exterior of the unit. The control panel access door shall have a clear window to allow for monitoring and shall be lockable to prevent unauthorized access.
2.5.2. An emergency stop button shall be easily accessible without requiring internal access to the machine and recessed to prevent incidental damage. Activation of the emergency stop switch shall immediately stop and prevent the engine from running or cranking.
2.5.3. The control panel shall include the following analog instrumentation:

2.5.3.1. AC Voltmeter:	0-600 volt scale, 2% accuracy
2.5.3.2. AC Ammeter	0-125 / 0-250 amp, dual scale, 2% accuracy
2.5.3.3. Frequency meter:	45-65 Hz scale, 3% accuracy

2.5.4. Voltage adjustment potentiometer: +/- 5% nominal voltage adjustment
2.5.5. Engine Diagnostic Trouble Code (DTC) Reader / Display
    2.5.5.1. The generator control system shall be able to display to the operator any J1939 stop, warning, malfunction, or protection DTCs initiated by the engine control unit (ECU).
    2.5.5.2. The generator control system shall display active codes and store at least 150 previously active DTCs in memory.

2.5.5.3. The generator control system shall display the numeric Suspect Parameter Number (SPN), the Failure Mode Indicator (FMI), the Occurrence Count (OC), and the Source Address (SRC). In addition, the generator control system shall display a text translation of the SPN code and FMI code.

2.6. Mode of Operation:

2.6.1. Generator start / stop is controlled by a microprocessor based engine controller:

2.6.1.1. OFF / RESET: Removes power to all controls, and shuts down the generator system. Resets system faults in the event of a shutdown

2.6.1.2. START: Engages the start sequence commencing with 10 seconds of active glow plug preheating, followed by up to 10 seconds of engine cranking. Should the engine not start within the crank cycle, the start sequence will commence again for up to two additional cycles. If the engine does not start after three complete cycles, the overcrank diagnostic LED will light.

2.6.1.3. AUTO: Engages the auto start / stop control system. The engine controller will look for a closed contact signal from the autostart terminal pair to initiate the start sequence as described in section 2.5.1.2. An open contact signal from the autostart terminal pair will initiate a system shutdown as described in section 2.5.1.1.

2.6.2. The starting system shall incorporate a positive crank disconnect, automatically disengaging the starter motor when the engine reaches approximately 500 RPM, and preventing re-engagement of the starter motor while the engine is rotating.

2.6.3. The unit shall have a run / idle switch to allow the user to control the engine speed at idle (~700RPM) or at rated (1800RPM for 60Hz or 1500 RPM for 50Hz) speed.

2.6.4. The engine controller shall provide multicolor LED status indication of warning or shutdown events, and annunciate the event with a text description of the warning or shutdown condition on the LCD display.

2.7. Power Connections:

2.7.1. The generator set shall be equipped with a UL-489 listed main line three pole circuit breaker with a thermal trip rating of 225 amps, sized according for the maximum amperage delivered by the machine at the standby power rating at 208V-3Ø.

2.7.2. The generator set controller shall provide overcurrent protection of the generating system when operating at 480/277V-3Ø, 139/240V-3Ø, or 120/240V-1Ø.

2.7.3. Power shall be supplied to a five position (Line 1, Line 2, Line 3, Neutral and Ground) terminal board. Each connection point shall accommodate the appropriate size cable lugs or bare end cables as required. The terminal board shall be suitably protected to prevent accidental contact with live terminal connections.

2.7.4. Power shall be available to the following weather protected convenience receptacles, each equipped with branch circuit protection:

2.7.4.1. Quantity 3 × 50 Amp – 125/250 Volt, 3 pole, 4 wire, grounded – Type: CS 6369

2.7.4.2. Quantity 2 × 20 Amp – 125 Volt, 2 pole, 3 wire, GFCI duplex – NEMA Type: 5-20R

2.8. Weather-proof, sound attenuated enclosure:

2.8.1. The generator set shall be enclosed in a rigid, weatherproof, sound attenuated enclosure constructed from 14 gauge steel, treated with zinc phosphate or galvaneel for corrosion protection and polyester powder-coated to a thickness of at least 70 to 120 microns.

2.8.2. The maximum sound level shall be 64 dB(A) @ 23 ft (7m) in free field conditions.
2.8.3. Air intake and exhaust grilles shall be sized to provide ample cooling airflow and designed to minimize sound level and maintain weather protection.
2.8.4. Easy access shall be provided to facilitate radiator cleaning.
2.8.5. Hinged oversized access doors shall be furnished with pad lockable, recessed handles to provide easy access to maintenance and inspection points.
2.8.6. The generator baseframe shall be a durable design suitable for skidding / dragging and be completely sealed for minimum 110% fluid containment.
2.8.6.1. The containment baseframe shall include a 3" (76 mm) drain plug on the end of the skid to facilitate cleaning of the containment basin.
2.8.7. Heavy duty vibration isolators shall be provided between the engine/generator mounting points and the baseframe. The isolators shall be of failsafe design to prevent the engine / alternator assembly from separating from the frame.
2.8.8. A single point lifting eye shall allow safe crane hoisting of the unit, with respect to the center of gravity of the generator set, with or without an attached running gear. The design shall accommodate lifting of three times the total unit weight, inclusive of all fluids, without failure or permanent deformation of the lifting bale assembly The design shall accommodate lifting of three times the total unit weight, inclusive of all fluids, without failure or permanent deformation of the lifting bale assembly and be capable of lifting five times the total unit weight, inclusive of all fluids, without yield.

2.9. Fuel System / Diesel Exhaust Fluid (DEF) System:

2.9.1. The generator system shall include a single fuel cell, mounted within the containment baseframe, with a minimum usable capacity of 110 gallons (397 L).
2.9.2. The diesel fill port shall be green in color and internal to the enclosure to protect against unauthorized access.
2.9.3. A strainer shall be installed in the fuel fill neck to prevent fuel tank contamination.
2.9.4. The fuel tank shall be sufficiently vented to ensure fast filling of the tank.
2.9.5. The fuel tank shall include a provision to drain the system.
2.9.6. The fuel system shall include a 10 micron or better primary fuel filter / water separator and a 5 micron or better secondary fuel filter.
2.9.7. The fuel system shall include a low fuel level shutdown device to protect against air entering the fuel system.
2.9.8. The generator system shall include a single Diesel Exhaust Fluid tank mounted within the containment baseframe, with a minimum usable capacity of 5.2 gallons (19.7 L).
2.9.9. The DEF fill port shall be blue in color and external to the enclosure.

2.10. Accessories:

2.10.1. A 12 VDC engine cranking battery rated for a minimum of 700 CCA, battery rack, battery cables, and battery isolation switch shall be supplied.
2.10.2. The engine oil drain and engine coolant drain shall be remote piped to the enclosure with bulkhead fittings and sealed with drain plugs and internally mounted quarter-turn ball valves to facilitate easy fluid draining during maintenance.

2.11. Running Gear:

2.11.1. The generator set shall be equipped with a heavy-duty, tandem axle running gear that has been designed for towing at speeds up to 65 MPH (105 KPH) and shall comply with National Highway Traffic Safety 49CFR571.

2.11.2. The running gear shall be designed for easy removal and installation to allow conversion of the generator from mobile to skidmount.
2.11.3. Axle shall be equipped with torsion suspension and fitted with electric brakes and EZ lube hub bearings.
2.11.4. ST185/80D13 tires shall be mounted on 13" × 4.5" conventional steel wheels.
2.11.5. The hitch height shall be adjustable and be a 2 5/16 inch (59 mm) ball coupling.
2.11.6. The running gear shall be equipped with a 5,000 lb (2268 kg) capacity jack stand with drop foot.
2.11.7. Heavy-duty 5/16" (8 mm) safety chains with slip hooks and safety latches shall be provided.
2.11.8. The running gear components shall be treated with zinc phosphate for corrosion protection and polyester powder-coated to a thickness of at least 70 to 120 microns.
2.11.9. Lighting and reflectors shall meet FMVSS 571.108. Lighting shall be recessed to prevent accidental breakage and grommet mounted for easy replacement. The wire harness connector to the towing vehicle shall be a 7 pole round RV plug.

3. Optional Product Features *(The following features are not part of Doosan Portable Power's standard scope of supply for this model. These extra cost, optional features are to be included in this specification only if selected by the customer.)*

3.1. Battery Charger: The generator shall be equipped with a 120-volt AC input battery charger rated for 12-volt DC output at 6 amps. The charger shall give a constant current output at 6 amps until such time as the battery approaches peak charge then revert to a float charge mode to maintain proper cell voltage. The charger shall be UL and CSA recognized, be protected against short circuit and reverse polarity and be temperature compensated for proper operation in ambient temperatures from 14ºF (-10ºC) to 122ºF (50ºC). The battery charger shall be wired to a NEMA 5-15 flanged inlet receptacle mounted at the rear of the unit for connection to shore power.

3.2. Cam Lock Connectors: The generator shall be equipped with a one set of five (5) 600 volt, 400 amp rated female camlock connectors each color-coded to meet the standards of the National Electrical Code. The camlock connectors shall be UL listed and CSA certified. Each connector shall be equipped with a spring-loaded protective cover to prevent accidental contact with live terminals.

Bid Sheet
50 kW Mobile Diesel Generator Set

Company Submitting Bid _____

Address _____

Contact Name and Number _____

Item	Price	Freight/ Shipping	Setup / Installation	Taxes	Other (Please describe [1])	Total Cost
Generator Set-50kW						
Manufacturer, Name and Model Number						
Warranty						
Optional Product:						
Battery Charger - 120 volt						
Cam Lock Connectors - Set of 5						
Trailer mounted						

Please include any product information sheets

Earliest Delivery Date _____

Company Officer Signature _____ **Date** _____

(1) Please provide a description of any additional costs below

_____

_____

_____

_____