1. Specification for Supply of a Diesel Driven Generator Set for Water system

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| **Installation Site Location** | **East Harerghe \_ Berhaile** |
| **Power** | **35 to 40 KVA generator** |
| **Quantity** | **Two** |

**ESSENTIAL SPECIFICATIONS:**

1. **Working Conditions (Geographical conditions of the site):**

* + Altitude: up to 1500 m.a.s.l
  + Ambient air temperature: up to 450C
  + Air Humidity: up to 60 %
  + Should have a capacity to supply power for submersible **pump of 15 to 13 - 15 KW.** 5 to 10 % is acceptable to get standard generator.

1. **Performance data**
   * Rated Power Factor: 0.8
   * Rated Voltage: 380/230V 3-Phase
   * Rated Frequency: 50Hz
2. **Engine** 
   * Combustion system: Direct injection
   * Speed governing: Mechanical
   * Cooling System: Water/Air cooled
   * Exhaust System: Industrial capacity silencer
   * Fuel tank capacity: at least 12 hours at 75% load
   * Starting System: \_\_\_\_\_\_\_V DC heavy-duty battery
   * Filter: Equipped with air and fuel filter
3. **Generator/Alternator**
   * Coupling to Engine: Direct/Close
   * Insulation Stator and Rotor: Class H
   * Number of Phase: 3
   * Over load margin: Up to 300%
   * Voltage regulation: + 1%
   * Protection: IP21 or IP23
   * With automatic Voltage regulator (AVR)
   * The generator shall be self-excited brush-less generator.
4. **Control System**
   * Start : Local/key start
   * Control panel Instrumentation:
     + Ammeter
     + Voltmeter
     + RPM meter
     + Hours run record
     + Voltage selector switch
     + Oil pressure gauge
     + Engine temperature gauge
   * enclosed with sheet steel enclosure with lockable door
   * The control system shall be vibration isolated.
5. **Documentation (in English)**

* The generator set should be delivered with original:
  + - Engine and Alternator operation and maintenance manuals
    - Installation Manual
    - Spare part list

1. **Factory tests**
   * The generator sets should to guarantee performance, functionality and load,
   * Original test certificate should available upon delivery of the generator set.
2. **Field Tool Kits** 
   * Basic tools required for regular field level maintenance should be provided with the generator sets.
3. **Warranty**
   * The generator set should be guaranteed for a period of 12 month after commissioning.
4. **Technical Information to be supplied with Bid**

The following technical information must be supplied with the offer for each generator set:

* + A photograph and mechanical drawings;
  + Output rating (KVA);
  + De-rating Curve/ table and/or calculations;
  + Engine Model;
  + No. cylinders;
  + Bore/stroke volume;
  + Aspiration;
  + Compression ratio;
  + Cooling system type;
  + Engine speed and generator frequency;
  + Max. continuous power at flywheel at 1500 rpm;
  + Fuel consumption (prime at normal operational load);
  + Type of injection system;
  + Fuel tank capacity;
  + Lubrication oil system;
  + Exhaust system;
  + Mounting arrangement;
  + Starting system;
  + Governor type;
  + Type of oil, fuel and air filters;
  + Technical data of Alternator;
    - Alternator model;
    - Rated output;
    - Rated voltage;
    - Rated current
    - Rated frequency;
    - Rated speed;
    - Power factor;
    - Phase;
    - Connection;
    - Excitation;
    - Insulation;
    - Voltage regulation;
  + Details of the control panel;
  + Circuit breaker rating;
  + Make and type of starter;
  + Country of origin, manufacturer, make, and model of the generator sets;
  + Year of manufacturing
  + Tools and spare parts included in the bid.
  + Dimensions:
    - Length base frame
    - Width
    - Height
    - Weight

1. **Specification for Engine driven Welding Machine**

Engine coupled Welding machine run by petrol or diesel

* Engine \_ Gasoline
* Out power 8 KW
* A.C. generator, single-phase and three-phase
* Arc welding source in D.C. and AC welding
* Welds any type of electrode, including cellulosic
* Sockets: 1x400V 16A 3P+N+T CEE 1x230V 16A 2P+T CEE 1x48V 32A 2P CEE
* High frequency control of welding current and voltage
* High performing alternator w/permanent magnets
* D.C. generator
* Chopped D.C. auxiliary current (safe for tools)
* HONDA OHV Gasoline Engine
* Engine shut-down (oil alert)
* optimizer (patent pending)

• Auto Idle

• Trolley mounted to move