



UNDERGROUND COAL GASIFICATION PROJECT THAR  
ENERGY DEPARTMENT, GOVERNMENT OF SINDH  
Bhambneo Bheel, Islamkot, Tharparkar



No.UGG/Tender/Elect-257/2015

October 27, 2015

**TENDER DOCUMENT**

**Diesel Gen Set 20 KVA**

UCG Thar Project is interested in provision of following Purchase of Diesel Gen Set 20 KVA and invites sealed tenders from interested manufacturing firms/ Stockist/ Dealers/ Suppliers on FOR UCG Office Islamabad. Details, terms and conditions are given below:

Sr. No	Description of Stores	Unit	Qty	Unit Price	Total Price
01	Supply of 20 KVA Diesel Generating Set, Prime Power , 1500 RPM, 50 Hz, 400 V and 0.8 P.F at site condition complete with Diesel Engine, Alternator, Standard Control Panel set, mounted Circuit Breaker, Water Jacket Heaters, Heavy Duty Starting Batteries, Battery Charger, Engine Panel with Oil Pressure and Water Temperature Gauge, Electronic Voltage Regulator, Governor, Electronic Tachometer, Frequency Meter Voltmeter, Ammeter , Hour Meter, KWH meter, Emergency Stop Push Button, Radiator with water level switch, Fuel Tank (Day Tank), complete in all respects and conforming to general specification.	No	01		
02	Supply of locally/ internationally fabricated Sound Proof Weather Proof canopy for above DG Set having Sound level not more than 85 dbA @ 1 meter. The Canopy Shall be provided completely fitted with the above DG Set	No	01		
03	Installation, Testing and Commissioning of above DG Set at site with consumables, Diesel for testing will be provided by client. Testing shall be performed at site available load.	Job	01		
04	Supply of spares as per manufacturer recommendation for 6000 hours of following DG Sets. [Spare Parts List along with Item Rates may be provided.	Set	01		
05	Providing of Four Core 16 sq mm ,PVC insulated PVC sheathed 600/1000 Volts grade copper conductor cable manufactured by M/s. Pakistan Cables, Pioneer Cables and Newage cables	Meter	01		

➤ Rates must quoted on FOR UCG Office Islamabad.

**TECHNICAL SPECIFICATIONS**

**DIESEL GENERATOR SET**

**1.0 SCOPE**

The work includes supply, installation, testing and commissioning of a complete system of Diesel Generator Set at UCG Office Islamabad as specified herein, and given in the bill of quantities.

- a) Prime rating diesel generating set with Sound proof canopy & dust filtration arrangement.
- b) Controls, protection and other necessary equipment's
- c) Fuel and lubricating oil system with all piping, including fuel day tank for 8 hours, full load operation.
- d) Engine exhausts system.
- e) Interconnected power and control wiring between D.G set and its control panel.
- f) Installation material of D.G set such as bolts, vibration isolators/control devices, etc.
- g) Spare parts and tools, as per manufacturer's recommendation, for 6000 hours operation.
- h) Necessary tools, Special Tools - 1 set.
- i) Transportation of DG Sets with accessories upto site Islamabad.
- j) Operation & maintenance manuals (3 copies), (3 Hard Copies & 01 Soft Copy)

The Contractor / Supplier shall be responsible to furnish at no extra cost all additional pieces of equipment, not specifically mentioned in the specifications, but are required to complete the installation work and satisfactory operation of system as intended.

## 2.0 GENERAL

### 2.1 STANDARDS

The diesel engine and generator shall conform to the following standards.

- a) BS 5514 - Reciprocating Internal Combustion Engine.
- b) BS 4999 - General Requirements for Rotating Electrical Machines. For other equipment and material the relevant international standards shall be followed, as approved by the Consultant.

### 2.2 GENERAL REQUIREMENTS

The diesel generating set shall have diesel engine with a synchronous brush less alternator and associated equipment for intended operation of the system. The rating of the set specified, is the net power output after taking into account power consumption in all the auxiliaries and derating. It shall be able to accept the application of intended load and operate satisfactorily under the surges expected during the switching of equipments (A/C load).

- o The set shall be designed for 10% over load for one hour continuously in any 12 hours operation.
- o The engine shall be directly coupled to the generator and shall have a rated speed of 1500 rpm. The set shall be capable of sustaining without damage 25% over speed under any abnormal operating condition.
- o The engine generator set shall be mounted on suitable rigid steel frame skid with vibration isolators. Any material required for foundation sets shall be provided by the Contractor. Heavy duty lifting eyes shall be provided. The foundation bolts and all other material/hardware for complete installation of the system shall be furnished with the set.

### 3.0 DIESEL ENGINE

- a) Engine shall be four strokes, compression ignition turbo-charged and after cooled.
- b) Starting shall be with an electric 12/24 V D.C starter motor, which shall be supplied from heavy-duty lead acid batteries. The engine shall be equipped with an alternator type automatic charge system to charge the battery during running of engine. The battery shall be adequate to crank the engine for 10 second at firing speed for at least three successive cranks at 30 seconds interval. Also it shall be equipped with a trickle type battery charger for charging battery during non-operation hours.
- c) Air intake shall have turbo-charged and equipped with oil wetted heavy-duty filter.
- d) Engine shall have water-cooled tropical radiator for 50 Celsius ambient temperature with a forced draft fan and core guard. Cooling system shall have an engine driven pump for water circulation. An engine shut down timer shall be provided to keep the engine running on no-load on receipt of a normal shut down signal so that the engine is sufficiently cooled to start again instantly, if required.
- e) The set shall have an instrument panel and shall have gauges/meters for the following.
  - i) Speed.
  - ii) Lube oil pressure.
  - iii) Cooling water temperature.
- f) Engine shall operate on commercial high speed, locally available diesel Oil.
- g) The day tank shall be base mounted a capacity of 8 hours operation at rated output. The tank shall have high and low level switches for monitoring the fuel level in the tank. The tank shall have valves, inspection cover, drain valve and glass sight gauges.

### 4.0 GENERATOR

- a. Generator shall be synchronous with excitation from brush less rotating diodes for 3-phase full wave rectification.
- b) Alternator winding shall have minimum class H insulation.
- c) Voltage regulation system.
- d) Generator shall be capable of withstanding without injury, a 30 seconds three-phase short circuit at its terminal when operating at rated output and power factor with fixed excitation.

### 5.0 CONTROL PANEL

Control panel shall be furnished to controls, monitoring and protection components for the set. The control panel shall be set mounted, front access, completely assembled and wired.

The supplier shall ensure that any additional device for safe and reliable operation of system is also furnished at no extra cost.



## 5.1 Engine Metering

The parameters to be monitored shall include but not limited to:

- Engine speed
- Lube oil pressure
- High water temperature
- Low fuel oil level
- Battery charger voltage

The above parameters shall also have provision to activate the protection device during abnormal conditions.

Controls shall also be provided for voltage regulator, battery charger, indications, etc.

## 6.0 ACOUSTIC CANOPY FOR DIESEL GENERATOR SET

### 6.1 GENERAL

Acoustic canopy shall be of standard design. This should have provision to be removed during overhaul of engine. It shall be designed to reduce the engine and the alternator sound to approx. 85 dB at 1 m. There shall be a suitable quantity of doors for maintenance.

### 6.2 CONSTRUCTION

- a) The canopy shall be constructed from pre-formed heavy gauge mild steel sections. The entire structure shall be weather proof, scratch proof and corrosion resistant. The interior including roof shall be lined with a high-density layer of sound absorbing material with perforated metal sheets and spray painted to minimize fire hazards.

### 6.3 INSTALLATION

Care shall be taken during installation that no damage is done to the generator set and to the canopy body during installation. Sealing material to provide the attenuation level desired shall seal space between the floor and canopy. Body of canopy shall be connected to the earthing system. Suitable vibration isolators shall be provided in order to avoid transmission of vibration to the building structure.

### 7.0 SPARE PARTS

The contractor shall furnish spare parts for 6000 hours operation of the system in accordance with the recommendations of equipment manufacturer and supported by authenticated documents of the manufacturer. The proposal shall be submitted with bid. The cost of each spare shall be separately listed along with the bid.

Spare parts shall be individually identified by name and part number and shall be suitably packed in heavy gauge sealed plastic bags to protect from dust, moisture etc.

### 8.0 TOOLS

One set of all necessary tools required for maintenance of D.G set shall be furnished. List of tools supported and certified by manufacturer must be submitted with the bid.

## **9.0 INSTALLATION**

The installation of D.G. Set shall be carried out by the contractor as per the recommendations / instructions of manufacturer at UCG Office Islamabad. The contractor shall carry out power cable terminations.

## **10.0 TESTING & COMMISSIONING**

Representative of manufacturer shall carry out the testing and commissioning of D.G set. The supplier shall be responsible for carrying minimum four hours full load test. The client shall supply fuel and load for testing.

## **11.0 WARRANTY**

All equipment's / components shall be warranted for 12 Months after the satisfactory completion of works.

## **12.0 NAME OF APPROVED MAKES**

The DG Set manufacturer shall be from single source i.e. Engine manufacturer should own the DG Set, following are the approved manufacturer of DG Sets.

### **Diesel Engine**

Manufactured by : Caterpillar, Perkins, Cummins, Duetz, Kubota or approved by Engineer Incharge

### **Alternator**

Manufactured By : Stamford / Siemens / Leroy Somer/Caterpillar/ approved by Engineer Incharge.

**13. Issuance of Tender Documents:** Blank tender forms can be collected from the office of Procurement Officer UCG Project Thar, upto **16-11-2015**, during office hours after depositing the tender fee amounting to **Rs.500 (Non Refundable)** in the shape of pay order in favor of UCG Project Thar, Islamkot. Tender documents can also be obtained through email by submitting scanned copy of Bank Draft/ Pay Order however its original should accompany the tender otherwise bid will not be considered. Bids received through email can be automatically rejected.

**14. Submission of Tender Documents:** The tenders will be received back up to **17-11-2015** at 1500 Hrs and will be opened on the same day at 1600 Hrs at UCG Thar Project Site Bhambneo Bheel, Islamkot Mithi District Tharparkar in the presence of Procurement Committee and the bidders or their authorized representatives who may be present.

**15. Eligibility:** Valid Registration with tax authorities & Valid Dealership/ Stockist Certificates (*Evidence of experience of dealership/ stockist in last three years*).

**16. Method of Procurement:** Single Stage Single Envelope.

## **17. Terms & Conditions.**

**a) Responsive Bidder is required to submit following documents with bid:**

- (i) Valid Registration with tax authorities & Valid Manufacturing/ Dealership/ Stockist/ Supplier Certificates;
- (ii) List of similar assignments with cost (*mention number of projects with their cost*) under-taken over the last couple of years;

- (iii) Affidavit that firm has never been black listed;
- (iv) Financial Statement (summary) and income tax returns;
- b) **Under following conditions bid will be rejected:-**
- (i) Conditional and telegraphic bids/tenders or sent through email;
- (ii) Bids not accompanied by bid security of required amount, Tender Form, and documents mentioned in para (a);
- (iii) Bids received after specified date and time.
- (iv) Firms black listed by any Department of Govt. of Sindh/ Govt. of Pakistan.
- c) **Bid validity Period: (90) days.**
- d) **Bid Security** amounting to 2% of Bid Price should be submitted along with the Bid in shape of Pay Order/Demand Draft in favor of Accounts Officer, UCG Thar Project, issued by any scheduled Bank of Pakistan.
- e) The bid security will be forfeited to the Government, if the bidder withdraws his bid after opening and before the expiry of the bid validity period or fails to sign the contract if the bid is accepted.
- f) Amount of the tender is below Rs.1 Million.
- g) **Delivery time** will be 15 days after the date of receipt of supply order.
- h) GST/Income Tax Exemption Certificates, as the case may be, must be accompanied with the tender.
- i) Procuring Agency reserves the right to amend quantities/ reject all or any bid(s) subject to the relevant provisions of Sindh Public Procurement Rules 2010.
- J) Supplier should accompany the sample of Subject Tender, during opening tenders.
- K) Bidder who fails to furnish sample along with tender documents will be considered as rejected.
- l) It is liability of bidder to facilitate inspection of material/equipment and TA/DA for UCG Engineer, after awarding the tender.
- m) Complete brochures/certificate should accompany the tender documents.
- n) Tender envelope should bear the tender No. UCG/Tender/Elect-257/2015 and **Tender for Diesel Gen Set 20 KVA**

  
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