

## TECHNICAL SPECIFICATIONS

### **Supply, Delivery & Installation of of Brand New 500 KVA Generator(Fully enclosed type – Canopy type) Diesel Generator - CRI/2017/LP/271**

The bidder must fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 or providing wrong information in those columns may be a reason for the rejection of the bid. Details related to each technical specification should be highlighted and referenced to the page numbers of the manufacturer’s catalog and/or operational manual. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

*If catalogue is referred to any of the specifications below, relevant information has to be highlighted and indicated with the appropriate line item number.*

| 1                  | 2   | 3   | 4                   | 5                            | 6       |
|--------------------|---|---|---------------------|------------------------------|---------|
| Line<br>Item<br>No | Item<br>Description   | <i>Technical Specifications and Standards</i> |                     |                              |         |
|                    |   | <i>Purchaser’s Requirements</i>               |                     | <i>Bidder’s Offer</i>        |         |
|                    |   | Detail  | Yes (Y) /<br>No (N) | Details of Bidder’s<br>Offer | Remarks |
| <b>1</b>           | <b>Generator Set – 1 Unit of 500 KVA, Sound proof type, prime rated Diesel Generator with Accessories</b> |   |                     |                              |         |
| <b>1.1</b>         | <b>Make of<br/>Engine/<br/>Country of<br/>Origin</b>  | .....<br>(Contractor to Specify)              |                     |                              |         |
| <b>1.2</b>         | <b>Model Of<br/>Engine</b>  | .....<br>(Contractor to Specify)              |                     |                              |         |
|                    |   |   |                     |                              |         |

|   |   |   |                 |                              |                |
|---|---|---|-----------------|------------------------------|----------------|
| 1.3   | <b>Make of Alternator / Country of Origin</b> | .....<br>(Contractor to Specify)  |                 |                              |                |
| 1.4   | <b>Model Of Alternator</b>                    | .....<br>(Contractor to Specify)  |                 |                              |                |
| 1.5   | <b>Features</b>                               | <b><i>Purchaser's Requirements</i></b>                                      | <b>Yes / No</b> | <b><i>Bidder's Offer</i></b> | <b>Remarks</b> |
| Complete system designed and built at ISO 9001 certified facility                       |   | Yes / No  |                 |                              |                |
| Factory tested to design specifications at full load condition (Need documentary proof) |   | Yes / No  |                 |                              |                |
| 1.6   | <b>Engine</b>                                 | Industrial water cooled diesel engine                                       | Yes / No        |                              |                |
| Electronic speed control  |   | Yes / No  |                 |                              |                |
| Governor electronic   |   | Yes / No  |                 |                              |                |
| Electrical system 12v dc  |   | Yes / No  |                 |                              |                |
| Dry air filter  |   | Yes / No  |                 |                              |                |
| Cartridge type fuel and oil filter  |   | Yes / No  |                 |                              |                |
| Jacket water heaters  |   | Yes / No  |                 |                              |                |
| 1.7   | <b>Alternator</b>                             | Revolving field single bearing brushless type alternator insulation class H | Yes / No        |                              |                |
| Insulation class H  |   | Yes / No  |                 |                              |                |
| Drip proof generator air intake (IP 23)   |   | Yes / No  |                 |                              |                |
| Electrical design in accordance with BS 5000 part 99                                    |   | Yes / No  |                 |                              |                |
| In built heaters  |   | Yes / No  |                 |                              |                |

|      |                          |  |                 |                              |                |
|------|--------------------------|--|-----------------|------------------------------|----------------|
|      |                          |  |                 |                              |                |
| 1.8  | Control Panel            | Vibration isolated sheet steel enclosure with hinged lockable door   | Yes / No        |                              |                |
|      |                          | Standard control panel containing following instrument component   | Yes / No        |                              |                |
| 1.9  | Sound Proof Canopy       | Imported, sound level shall be within the government regulations. Please specify the sound level with manufacturer's catalogs. | Yes / No        |                              |                |
| 1.10 | Generator Breaker        | 50 KA, 800A, minimum, 4 Pole Tripping current to be adjustable.  | Yes / No        |                              |                |
| 1.11 | Engine Control Panel     | <b><i>Purchaser's Requirements</i></b>   | <b>Yes / No</b> | <b><i>Bidder's Offer</i></b> | <b>Remarks</b> |
|      |                          | Off/ On start key switch   | Yes / No        |                              |                |
|      |                          | Off/Manual/Auto mode selector  | Yes / No        |                              |                |
|      |                          | Lube oil pressure gauge  | Yes / No        |                              |                |
|      |                          | Lube oil temperature gauge   | Yes / No        |                              |                |
|      |                          | Water temperature gauge  | Yes / No        |                              |                |
|      |                          | Battery charging ammeter   | Yes / No        |                              |                |
|      |                          | Electronic hour meter  | Yes / No        |                              |                |
|      |                          | Blower belt failure  | Yes / No        |                              |                |
|      |                          | Low lube oil pressure  | Yes / No        |                              |                |
|      |                          | Jacket water heater  | Yes / No        |                              |                |
| 1.12 | Instruments and Fittings | One voltmeter with phase selector switch   | Yes / No        |                              |                |
|      |                          | Three nos. ammeter – one per phase   | Yes / No        |                              |                |
|      |                          | Fuses  | Yes / No        |                              |                |
|      |                          | Faulty condition indicators  | Yes / No        |                              |                |
|      |                          | Power output MCCB of 4 capacity for full load and specified over load.   | Yes / No        |                              |                |

|             |                             |   |          |  |  |
|-------------|-----------------------------|---|----------|--|--|
|             |                             | Over voltage protection   | Yes / No |  |  |
|             |                             | Over voltage trip indication  | Yes / No |  |  |
|             |                             | Under voltage protection  | Yes / No |  |  |
|             |                             | Under voltage trip indication   | Yes / No |  |  |
|             |                             | Over current protection   | Yes / No |  |  |
|             |                             | Over current trip indication  | Yes / No |  |  |
|             |                             | Over frequency protection   | Yes / No |  |  |
|             |                             | Over frequency protection trip indication   | Yes / No |  |  |
|             |                             | Low lubrication oil pressure protection   | Yes / No |  |  |
|             |                             | Low lubrication oil pressure trip indication  | Yes / No |  |  |
|             |                             | High water temperature protection   | Yes / No |  |  |
|             |                             | High water temperature trip indication  | Yes / No |  |  |
|             |                             | Fail to start indication to engine and alternator   | Yes / No |  |  |
|             |                             | Ammeter for battery charging  | Yes / No |  |  |
|             |                             | Copper earth rods with cabling  | Yes / No |  |  |
|             |                             | All internal components relays and wiring should be easily accessible.  | Yes / No |  |  |
| <b>1.13</b> | <b>Mounting Arrangement</b> | Heavy duty fabricated steel base with lifting points  | Yes / No |  |  |
|             |                             | Anti-vibration pads to ensure vibration isolation   | Yes / No |  |  |
|             |                             | Engine coupled to generator with flexible disc coupling   | Yes / No |  |  |
|             |                             | Base frame incorporates heavy duty fabricated steel fuel tank 8 hours.  | Yes / No |  |  |
| <b>1.14</b> | <b>Exhaust System</b>       | Heavy duty industrial capacity exhaust silencer with rain cap ( The exhaust system should extend outside the building to the approval of the Architect/ Engineer) | Yes / No |  |  |

|             |                                    |  |          |  |  |
|-------------|------------------------------------|--|----------|--|--|
|             |                                    | (Heat resisting materials shall be covered with aluminium cladding)  |          |  |  |
|             |                                    | A 'Secondary ' silencer or 'Absorbative' silencer should be fitted at downstream to minimize exhaust noise | Yes / No |  |  |
| <b>1.15</b> | <b>Cooling System</b>              | Standard ambient temperature up to 50 C °  | Yes / No |  |  |
|             |                                    | Coolant drain value  | Yes / No |  |  |
|             |                                    | Antifreeze protection coolant  | Yes / No |  |  |
| <b>1.16</b> | <b>Automatic Voltage Regulator</b> | Voltage regulation I 0.5%  | Yes / No |  |  |
|             |                                    | Provides fast recovery from transient load changes   | Yes / No |  |  |
| <b>1.17</b> | <b>Equipment Finish</b>            | All Electro plated hardware  | Yes / No |  |  |
|             |                                    | Anti-corrosive paint protection  | Yes / No |  |  |
|             |                                    | High glass polyurethane paint for durability scuff resistance  | Yes / No |  |  |
| <b>1.18</b> | <b>Literature</b>                  | Manufacturer's technical literature for engine   | Yes / No |  |  |
|             |                                    | Manufacturer's technical literature for alternator   | Yes / No |  |  |
| <b>1.19</b> | <b>ISO 9001 Certificate</b>        | Complete generator set manufacturer  | Yes / No |  |  |
|             | <b>Warranty Period</b>             | 3 Year or 1000 operating hours   | Yes / No |  |  |
| <b>2.00</b> | <b>Bulk Fuel Tank</b>              | Capacity shall be 2000 Ltr., square in shape   | Yes / No |  |  |
|             |                                    | Made out of low carbon steel, gauge 10   | Yes / No |  |  |
|             |                                    | GI drain pan for 10% leakages/ Analog level indicator  | Yes / No |  |  |

|            |                                       |  |          |  |  |
|------------|---------------------------------------|--|----------|--|--|
|            |                                       | Exterior of the tank shall be painted with 2 coats of red lead and a third coat of bitumen   | Yes / No |  |  |
|            |                                       | The vent pipe shall be placed such that the discharge of dangerous vapor will be easily dispersed to outdoor                               | Yes / No |  |  |
|            |                                       | Fuel pumping system shall be provided from bulk tank at level – 3 to day tank of generator pump, GI piping filters, non-return valves etc. | Yes / No |  |  |
|            |                                       | Fuel filling system from the level – 2 to bulk tank at level – 3 including pump, GI piping, filters, non-return valves end coupling etc.   | Yes / No |  |  |
| <b>3.0</b> | <b>Generator Load Testing at Site</b> | 0%, 25%, 50%, 75%, 100% and 110% load test using artificial loads for the period of (6x5 Mins. = 30 Minutes)                               | Yes / No |  |  |
|            |                                       | Shall supply standard artificial loads   | Yes / No |  |  |
|            |                                       | Shall supply fuel for above test   | Yes / No |  |  |
|            |                                       | Shall supply cables and accessories  | Yes / No |  |  |
|            |                                       | Need to take field measurements at each above percentages using sound level meter, Clip-on meter, volt meter etc.                          | Yes / No |  |  |
|            |                                       | Need to take field measurements at each above percentages using sound level meter while the canopy doors open.                             | Yes / No |  |  |

Signature of the Bidder with company Seal

**Supply, Installation and Commissioning of Brand New 500 KVA**

**(Fully enclosed type – Canopy type) Diesel Generator**

| <b>No:</b> | <b>Description</b> | <b>Qty.</b> | <b>Unit</b> | <b>Rate</b> | <b>Amount</b> |
|------------|--------------------|-------------|-------------|-------------|---------------|
|------------|--------------------|-------------|-------------|-------------|---------------|

| No: | Description  | Qty. | Unit | Rate | Amount |
|-----|--|------|------|------|--------|
| 1.  | <p><b><u>DIESEL GENERATOR</u></b></p> <p><b>Supply and installation</b> of automatically started diesel prime generator sets capacity 500 KVA and associated auxiliaries complete with all service connection to working order the generator shall be fully enclosed type (canopy type) with required air attenuation systems, sound level shall be comply to the Central Environmental Authority standards and local council standard for such installations. Including followings but not limited to.</p> <p><b>Note –</b><br/>The rate shall include the Auto Change Switch, Panel Board and the Cable to the Auto Change Over Switch From Generator.</p> <ul style="list-style-type: none"> <li>a. Starting and control system</li> <li>b. Battery and battery charger</li> <li>c. Lubricating system</li> <li>d. Fixings and mounting accessories</li> <li>e. Vibration isolators</li> <li>f. Air cooled radiator system</li> <li>g. All protective works, eathing, labelling, etc.</li> <li>h. Control wirings</li> <li>i. Flue gas dilution unit</li> </ul> <p>Capacity 500 KVA Generator</p> | 1.00 | Set  |      |        |

|    |   |      |       |  |  |
|----|---|------|-------|--|--|
| 2. | Allow for additional length of silencer with rain cap to the required height of discharge as per local regulation & protection of adjacent buildings, additional insulation of generator exhaust piping and vibration isolators to bring down the noise levels to the limits prescribed by the Central Environmental Authority for such Installations.                          | 1.00 | Item. |  |  |
|    | <b><u>DAY FUEL STORAGE TANK</u></b>   |      |       |  |  |
|    | Supply and installation of 500 L capacity indoor day fuel storage tank complete with all pipes and fittings comply with relevant standard regulations.  | 1.00 | Item  |  |  |
|    | <b><u>MAIN FUEL TANK</u></b>  |      |       |  |  |
|    | Supply and installation of fuel storage bulk tank with capacity of 2000 L comply with local authority requirement and complete with 600 mm dia inspection hole, necessary capacity fuel transfer pumps and related piping, filling inlet and all valves and fittings required. Rate shall also include all necessary builders work and civil work etc and testing of fuel tank. | 1.00 | Item  |  |  |
|    | Allow testing and commissioning of the Emergency Power Supply System and submission of commissioning report in triplicate. (supplier need to test the system with load bank at site)  | 1.00 | Item  |  |  |



| No: | Description   | Qty. | Unit | Rate | Amount |
|-----|---|------|------|------|--------|
|     | <b>FUEL TRANSFER PUMP</b><br>Supply and installation of fuel pumping system from level 2 to bulk fuel tank and day fuel tank at level 3 | 1.00 | Item |      |        |
|     | <b>Total Amount</b>   |      |      |      |        |
|     | <b>15 % VAT (If applicable)</b>   |      |      |      |        |
|     | <b>Grand Total Including VAT</b>  |      |      |      |        |
|     | <b>(Grand Total Including VAT in words)</b>   |      |      |      |        |
|     | <b>Required Period for Supply</b>   |      |      |      |        |
|     | <b>Required Period for Installation</b>   |      |      |      |        |