

### Bill of quantity schedule for generator work.

**Project:** Shakti training and research center, Savar, Dhaka.

**Scope:** Supply, Installation, testing and commissioning of 2 pieces diesel standby generator with the following technical specification.

| Sl. No. | Description                         |  |
|---------|-------------------------------------|--|
| 1       | Name of Supplier                    |  |
| 2       | Capacity                            | 1x150 KVA & 1x200 KVA Prime (Proprietary built in Canopied generator) mounted MCCB 320A, 36KA, 400A MCCB 36KA  |
| 3       | Brand                               | F. G Wilson, SDMO, CATERPLER, CUMMINS, WELLANDPOWER, Power-pro, & ONIS Visa  |
| 4       | Country of Origin                   |  |
| 5       | Engine                              | <p>PARKINS, CAT, CUMMINS Engine:</p> <p>i) <b>Prime output:</b> This rating is applicable for supplying continuous electrical power at variable load. There is no limitation to the annual hours of operation and which can supply of 110% overload power for 1 hour in 12 hours.</p> <p>ii) <b>Temperature:</b> Ambient rating 45°C, relative-humidity 90% (NON-Condensing)</p> <p>iii) <b>Design feature:</b> High quality assembles, providing stiffness and low vibration.</p> <p>iv) CE, Marking, ISO certified</p> <p>v) 4-stroke water cooled engine.</p> <p>vi) Shall have coolant recovery tank.</p> <p>vii) Fuel level sensor.</p> <p>viii) Engine high &amp; Low temperature, low oil pressure.</p> <p>ix) Water &amp; dust proof design.</p> <p>x) High quality sound absorbing and fire retardant inner material.</p> <p>xi) Lifting lugs in base.</p> <p>xii) 24v starter battery with hands and switch.</p> <p>xiii) Emergency shutdown stop button system.</p> |
| 6       | Alternator                          | EUROPEAN/USA Stamford/Mec-alte   |
| 7       | Engine speed                        | 1500 RPM   |
| 8       | Power Factor                        | 0.8  |
| 9       | Phase & wire system                 | 3 phase, 4 wire  |
| 10      | Frequency & Hz                      | 50 Hz  |
| 11      | Voltage in volt                     | 230/415 Volt   |
| 12      | Cooling system                      | Water cool system radiator system  |
| 13      | Fuel Tank Capacity                  | The base frame of the generator will have an integral fuel tank minimum Full-load capacity for 8 hours.  |
| 14      | Governor                            | Electronic (ECM)   |
| 15      | Starting system                     | Automatic/manual start via their position rotary switch/key switch mounted on the front panel with STOP, AUTO, and MANUAL Position.  |
| 16      | Synchronizing Panel for 2 generator | <p>Synchronizing Panel consisting complete with following:</p> <p>i) 800Amps, 415V0oltage TPN+E, 50 Hz tinned copper Bus-bar.</p> <p>ii) 1No-320Amps 36KA TP MCCB, 1 No-400Amps 36KA TP MCCB motorized incoming or magnetic contractor ABB/Schneider with auto manual system 2 (Load) out going.</p> <p>iii) The synchronizing Panel shall have generator load management feature.</p> <p>iv) Auto changeover switch panel with high and low voltage sensor, start within 5 second (Adjustable in steps) after main fails, runs within 90 second with load.</p>  |
| 17      | Residential silencer                | Supply and installation of sound proof residential silencer for 150 KVA, 200 KVA diesel generators. It will be proprietor silencer.  |
| 18      | Others                              | Battery with auto charger, voltage regulation $\pm 1\%$ to $\pm 1.5\%$ Power factor between 0.9 & unity, Frequency Variation $\pm 0.25\%$  |
| 19      | Synchronizing Control Module:       | The control module would be an easy to use Synchronizing Auto Start Control Module suitable for use in a multi-generator load share system, designed to synchronize up to more than 10 generators including electronic and non-  |

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|    |          |  |
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|    |          | electronic engines. The controller monitors the generator and indicates operational status and fault conditions, automatically starting or stopping the engine on load demand or fault condition. The controller is ideal for a wide variety of demanding load share applications. |
| 20 | Warranty | 1 Year for any parts of the generator from the handing over date.  |

| Sl. No. | Description       |  |
|---------|-------------------|--|
| 21      | Manual & Tools    | 4 set Technical Manual with Circuit diagram and 1(one) set of tools during handing over time   |
| 22      | Installation      | Installation will be done by the supplier and also all installation materials such as fuel oil, PIB tape, control cable (Except Power Cable), Cable lugs, Exhaust outlets Pipe up to Top floor of hazard free environment & ducting for hot air as require, Trial run fuel 200x2=400 liter & lube oil (If required for run within 10 hours) etc. will be supplied by the supplier. |
| 23      | Delivery Location | At Project   |

#### **Others:**

- 1) 1(one) year warranty from the date of hand over of generator.
- 2) 1(one) year free service & maintenance with all spare parts after handover of generator.
- 3) 2 (two) set Original Technical Manual with Circuit diagram to be submitted at the handing over time.
- 4) At least 10(Ten) year's spare-parts supply-guarantee.
- 5) Attached please find herewith 1 (one) copy of illustrations for guidance only.