**Technical Specifications Questionnaire to be filled by the bidder**

**eSourcing reference:** RFQ/2020/

**Technical specifications for goods – Comparative Data Table.**

| **No.** | **Item Description** | **Is quotation compliant?**  **Bidder to complete** | **Bidder’s Offer**  **specifications** |
| --- | --- | --- | --- |
| **1** | **Solar PV Module** |  |  |
| 1.1 | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
| 1.2 | Model | Bidder to insert details | Bidder to insert details |
| 1.3 | Solar PV modules that produce totally nominal power 0.534 MW at STC. The solar panels have the following required:  Module capacity should not be less than 625W @STC;  Must conform to IEC 61215, 61730, 61701,62716 (Ammonia Corrosion) , UL 1703.TUV, UL certificates or equivalent;  The solar modules should be designed to run near the MPPT;  Type of cell: Mono /Poly Crystalline, Multi busbar technology;  The PV manufacturer should be approved as tier-1;  Module efficiency: should not be less than 20%; No of  Tolerance of maximum power rating: 0-5 W;  The PV modules junction box not less than IP68;  Should be supplied from approved tier 1 manufactures only;  Module Voltage: Not less than 1500 VDC;  Temperature Characteristics: P max: -0.35% /C° or less  Voc: -0.28% /C° or less;  Nominal operating cell temperature (NOCT) : 45 ±2C°.;  Performance warranty: Nominal power output 90% for 10 years, 80% for 25 years; | ☐ Yes ☐ No | Bidder to insert details |
| **2** | **PV Inverters** |  |  |
| 2.1 | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
| 2.2 | Model | Bidder to insert details | Bidder to insert details |
| 2.3 | Three phases on-grid solar inverters meet the following specifications:  - Maximum input DC power shall not less than 66KW;  - Lower level of MPP voltage shall not less than 520V;  - Upper level of MPP voltage shall not greater than 1000V;  - Maximum input current shall not less than 100A;  - Rated output AC Power shall not less than 60KW;  - Nominal AC voltage and frequency shall be 400V /50Hz;  - Maximum efficiency shall be not less than 98%;  - Shall be certified to meet CE and UL marking and complaint with IEC/EN 62109-1/-2, EN50530,IEC62116,60068,61683;  - Degree of protection shall not less than IP65;  - Protections required: AC overload ,short circuit ,over voltage, reverse power and overheating  - Shall allow internet connection for remote monitoring;  - Product warranty shall be not less than 5years.  - Rating temperature -25 C° to +60 C° | ☐ Yes ☐ No | Bidder to insert details |
|  | **DC Combiner Box (DCCB)** |  |  |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | DC Combiner Box / junction box  - Not less than 12inputs,1output DC Combiner Box;  - The DCCB to be provided for termination of connecting cables.  - Suitable for outdoor installation, IP65 ,water proof and anti-dust;  - All wires/cables must be terminated through cable lugs;  - DC fuse rating for each string:1500V,not exceed 30A;  - Built in DC circuit breaker or DC load isolation switch;  - Built in surge protection device( SPD)  - Product warranty shall be 2 years.  -Temperature range: -10 C° to 60 C°. | ☐ Yes ☐ No | Bidder to insert details |
|  | **DC Cable** |  |  |
| 5.1.1 | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
| 5.1.2 | Cable between PV module strings and Combiner box 1.5kV (1C\*6sqr.mm) (Red & Black) | ☐ Yes ☐ No | Bidder to insert details |
| 5.2.2 | Cable between combiner boxes and solar inverters 1.5kV (1C\*70 sqr.mm) (Red & Black) | ☐ Yes ☐ No | Bidder to insert details |
|  | **AC Cable** |  |  |
| 6.1 | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
| 6.2 | Copper AC power cable stranded type, TUV certified, double insulation material XPLE/PVC/ CU for Low voltage cable and CU/XLPE/SWA/PVC for Medium voltage cable include remove tiles and excavation trench as per site conditions | ☐ Yes ☐ No | Bidder to insert details |
| 6.3 | 4C\*35 sqr.mm 1kV include remove tiles and excavation trench as per site condition | ☐ Yes ☐ No | Bidder to insert details |
| 6.4 | 1C\*400 sqr.mm 1kV include remove tiles and excavation trench as per site condition | ☐ Yes ☐ No | Bidder to insert details |
|  | 3C\*35 sqr.mm11KV/SWA with 12KV indoor & outdoor heat shrink termination kits include remove tiles and excavation trench as per site condition | ☐ Yes ☐ No | Bidder to insert details |
| **11** | **Earthing System (DC side of the PV Plant)** |  |  |
| 11.1 | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
| 11.2 | Model | Bidder to insert details | Bidder to insert details |
| 11.3 | Supply, install, test and commission of earthing system as per technical specifications including: | ☐ Yes ☐ No | Bidder to insert details |
|  | Copper rods,tap-clamps, earthing pits (Y/G earthing cable, earthing pits and all system accessories) |
|  | Earth bus bars and terminations |
|  | 70mm2 bare copper cable on main runs |
|  | **Lightning System** |  |  |
| 11.1 | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
| 11.2 | Model | Bidder to insert details | Bidder to insert details |
|  | Copper Air Termination Rod and all system accessories) | ☐ Yes ☐ No | Bidder to insert details |
|  | Manholes 1mx1m including all required civil works | ☐ Yes ☐ No | Bidder to insert details |
|  | **Monitoring System** |  |  |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | Supply, install, test and commission of Data logger and monitoring system as per technical specifications including: | ☐ Yes ☐ No | Bidder to insert details |
|  | Weather station including (Global horizontal irradiance pyranometers; plane of Array Irradiance pyranometers, shielded and ventilated ambient temperature sensors, module temperature sensor, wind speed sensors) | ☐ Yes ☐ No | Bidder to insert details |
|  | 50-inch TV screen and display interface for indoor use | ☐ Yes ☐ No | Bidder to insert details |
|  | Four\_quadrant power analysers with communication capabilities | ☐ Yes ☐ No | Bidder to insert details |
|  | Network switch, router, internet modem and line; | ☐ Yes ☐ No | Bidder to insert details |
|  | UPS 1000W, 1kWh battery, voltage levels as per proposed system requirements | ☐ Yes ☐ No | Bidder to insert details |
|  | **AC Totalizer Box** |  |  |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | distribution board ,(AC Totalizer Box) should be suitable to accommodate: | ☐ Yes ☐ No | Bidder to insert details |
|  | Rated Busbar Current :not less than 1600A | ☐ Yes ☐ No | Bidder to insert details |
|  | Suitable to receive at least 17 feeders | ☐ Yes ☐ No | Bidder to insert details |
|  | 1 X Main Breakers: 1250A ,4poles (MCCB). | ☐ Yes ☐ No | Bidder to insert details |
|  | 10 X MCCBs:200A,4poles circuit breaker | ☐ Yes ☐ No | Bidder to insert details |
|  | 2 X MCCB:32A, 4 poles circuit breaker | ☐ Yes ☐ No | Bidder to insert details |
|  | 4 X MCB: 10 A, 2 poles circuit breaker | ☐ Yes ☐ No | Bidder to insert details |
|  | **MDB & Controlling & Synchronizing System** |  |  |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | Supply ,install ,test and commissioning of main distribution board as shown in the drawings. The MDB consists of four motorized Air Circuit Breakers (ACB)1250amp.65kA 1000V50/60Hz meeting IEC60947-2, the price shall include all wires and conducts needed for proper installation. Internal connection should be through busbars 1600A,must be suitable for indoor installations, This system which provide necessary hardware and software mange all system components as per technical specifications:  - Shall provide synchronization between Solar Power ,Generators and electricity grid;  - Shall provide zero export controller to avoid exporting power to the public grid;  - Shall provide hybrid controller with it's all required accessories.  - Shall provide Uninterrupted Power Supply (UPS) system.  - Includes all required accessories, digital meters, and wiring and holding materials.  - Automatic solar controllers, power plant management designed to serve as a link between Solar Plant, Gensets diesel generators and Grid, and combining them so they work as one common PV/Genset Hybrid Plant. The system consists of the  - following controllers:  - PV Controller  - Genset Controller  - Grid Controller  - Advanced Graphical Interface  - Monitoring Platform | ☐ Yes ☐ No | Bidder to insert details |
|  | Supply, install, test and commissioning of LED lighting fixture (50 W) include its switches as per drawing, include all accessories and installation requirement (PVC Pipe, Wiring,…etc.) | ☐ Yes ☐ No | Bidder to insert details |
|  | Supply, install, test, and commissioning of 13A electrical socket as per drawing, including all accessories and installation requirements (PVC Pipe, Wiring,…etc.) | ☐ Yes ☐ No | Bidder to insert details |
|  | **Electrical Pump Inverter (Controller)** |  |  |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | Supply, install, testing, and commissioning Electrical Pump Inverter (Controller)  Three phase ,380-420 V , 50Hz .Capacity (KW):not less than 37 KW, soft start ,V/F speed control , auto and manual start and stop . | ☐ Yes ☐ No | Bidder to insert details |
|  | The inverter (Pump Controller) should have self-cooling system with high  efficiency and protection degree not less than IP65 and carries a  temperature 10 to +50 degrees Celsius and humidity up to 83%.  ▪ Should has VFD Variable Frequency Drive to control speed of the pump  ▪ The Inverter classified to run Induction motors  ▪ Protection: Dry running protection, Overload High current, Protect against reverse ,Loss of one of the phases, High voltages, Low voltages, Short circuit  ,Loss of insulation.  Have a monitoring feature and display the readings of operation status and the most important:  ▪ It has a large LCD screen to save the setting data.  ▪ It has the ability to save chronic data by day and hour.  ▪ Measure the energy consumed during the operation (kw) and measure the accumulative energy consumed during any period ,voltage measurement, AC output voltages for the motor, pump working hours, inverter temperature, motor frequency, motor rotational speed. | ☐ Yes ☐ No | Bidder to insert details |
|  | **Remote Control System (Wireless)** |  |  |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | Supply, install, testing, and commissioning of Remote Control System to connect all water pumps ( wireless ) with distances of more than 2 km to a central remote control system (Wireless) from inside the main station for 12 wells ,The system includes the following:  1- Turning on and off the pumps (on switch / off switch). 2- Lamp monitoring: ON, OFF, fault. 3- Warning sound for any fault for each well. 4. Voltage display.  5- Current display | ☐ Yes ☐ No | Bidder to insert details |
|  | **Other Components** |  |  |
|  | Fire alarm system including all requirements from fire resistant cable, trunkeys ,metal conduit pipes , termination, testing and proper labeling with complete Diagrams & documentation. | ☐ Yes ☐ No | Bidder to insert details |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | One LOOP Addressable Fire alarm system panel including all requirements from fire resistant cable, trunkeys ,pipes, termination, testing and proper labelling with complete Diagrams & documentation.  Technical Specifications:  - 2 LOOP panel  - Each LOOP support to install at least 15 detector.  - 2 sounder circuits  - Include back up battery  - EN54 Approved from LPCB | ☐ Yes ☐ No | Bidder to insert details |
|  | Flame Detector including all required fire resistant cable | ☐ Yes ☐ No | Bidder to insert details |
|  | smoke and heat Detector including all required fire resistant cable | ☐ Yes ☐ No | Bidder to insert details |
|  | Addressable bells(sounders) including all required fire resistant cable | ☐ Yes ☐ No | Bidder to insert details |
|  | addressable manual pull station ( Break Glass ) | ☐ Yes ☐ No | Bidder to insert details |
|  | 5kg Carbon Dioxide (CO2) Extinguisher | ☐ Yes ☐ No | Bidder to insert details |
|  | 6kg Powder Extinguisher | ☐ Yes ☐ No | Bidder to insert details |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | Supply, install, test and commissioning of Spilt Air Condition inverter type include alternate operation and temperature control unit and all wiring requirements  - Adjustable fan speed.  - Split unit inverter type.  - Capacity: 24,000 BTU (2 Ton). | ☐ Yes ☐ No | Bidder to insert details |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | LED lighting fixture (20 W) 1200 mm length include its switches as per drawing, include all accessories and installation requirement (PVC Pipe, Wiring,…etc.) | ☐ Yes ☐ No | Bidder to insert details |
|  | Manufacturer / Assembler/ Origin | Bidder to insert details | Bidder to insert details |
|  | Model | Bidder to insert details | Bidder to insert details |
|  | 13A electrical socket as per drawing, including all accessories and installation requirements (PVC Pipe, Wiring,…etc.) | ☐ Yes ☐ No | Bidder to insert details |