**TECHNICAL BID EVALUATION REPORT**

**For**

**Construction of …… kWp Solar Mini-grid System**

**At**

**………… Rural /Municipality, Ward No-3,**

**…………… District, …….Province , Nepal**

**Contract Identification Number: ……………….**

**National Competitive Bidding (NCB)**

Notice Published Date: ……………. (…… National Daily)

Bid Submission Deadline: ………………………

Bid Opening Date and Time: ………………………

No. of Submitted Bids: …………….

|  |  |
| --- | --- |
| **Technical Sub Committee:** | **Evaluation Committee:** |

**Bid Evaluation Report:**

**Submitted by Technical Sub Committee to Evaluation committee**

**&**

**Evaluation Committee to AEPC Management**

**Alternative Energy Promotion Center (AEPC)**

**Kathmandu Metropolitan City, Ward No. 10, Mid Baneshwor, Bagmati Province, Nepal,**

**Date: ......................................**

**A. Completeness and Eligibility Examination**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Particular** | **Bidder No. 1** | **Bidder No. 2** | | **Bidder No. 3** | **Bidder No. 4** | **Bidder No. 5** | **Bidder No. 6** |
| **A** | **Name of the Bidders** |  | **.** | |  |  |  |  |
| **B** | **Completeness of eBid Submission** | | | |  |  |  |  |
| 1 | Cost of Bid Document **Rs.** |  | |  |  |  |  |  |
| 2 | Bid Security Amount **Rs. ……………….** Type and Validity Period up to **……………** |  | |  |  |  |  |  |
| 3 | Technical LoB |  | |  |  |  |  |  |
| 4 | Eligibility Requirement: |  | |  |  |  |  |  |
| a) | Firm/Company Registration Certificate with updated renewed |  | |  |  |  |  |  |
| b) | Business License Registration Certificate |  | |  |  |  |  |  |
| c) | VAT Registration Certificate |  | |  |  |  |  |  |
| d) | **A Copy of Tax Clearance Certificate or Proof of Income Tax Return or Proof of Time Extension for Income Return of F.Y. ………..** |  | |  |  |  |  |  |
| e) | Power of Attorney |  | |  |  |  |  |  |
| f) | Self-Declaration Letter |  | |  |  |  |  |  |
| g) | JV Agreement |  | |  |  |  |  |  |
| **Completeness of eBid Submission** | |  | |  |  |  |  |  |
| **Overall Eligibility Examination Result** | |  | |  |  |  |  |  |

**Eligibility Evaluation Result:**

Out of ………….. received ebids, **………………….** does not meet the eligibility criteria and hence not recommended for the further evaluation. Whereas, remaining …………… numbers of bidders i.e. **……………………………………………………….** meet the eligibility criteria and are recommended for further technical compliance evaluation process.

**B. Technical Evaluation-Compliance with Specification:**

1. **PV Module**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Manufacturer Name/Brand/Model |  |  |  |  |  |
| 2 | Manufacturer's experience in manufacturing PV modules: Minimum 10 years |  |  |  |  |  |
| 3 | The manufacturer shall have:  ISO 9001, ISO14001, OHSAS 18001 Certificates |  |  |  |  |  |
| 4 | Peak Power of Individual Module under STC ≥ 250 Watt-peak |  |  |  |  |  |
| 5 | Array Capacity:  At least …….. kWp |  |  |  |  |  |
| 6 | PV Module Efficiency: ≥ 16% |  |  |  |  |  |
| 7 | Cell type: Crystalline |  |  |  |  |  |
| 8 | No. of Cells per Module: Minimum 60 |  |  |  |  |  |
| 9 | Junction Box Protection: IP67 or better according to IEC 60529 |  |  |  |  |  |
| 10 | Operating Temperature: Minimum range of -20oC to +50oC |  |  |  |  |  |
| 11 | Nominal Module Operating Temperature: 42±3 oC |  |  |  |  |  |
| 12 | System Voltage: Minimum 1000 VDC |  |  |  |  |  |
| 13 | A letter provided by principal PV module manufacturer in their letter head stating the warranty period for their PV module.  Product Workmanship Warranty: ≥ 10 years  Performance Guarantee:  first year: ≥ 97% of STC power 10 year: ≥ 90% of STC Power 25 years: ≥ 80% of STC Power  linear warranty ≤ 0.8% per year from year 2 and onwards |  |  |  |  |  |
| 14 | Local Certification required:  RETS Certificate (PIT Certificate must be submitted with Bid and RST Certificate must be submitted before testing & commissioning) |  |  |  |  |  |
| 15 | International Certification:  IEC 61215:2005 2nd Edition or  IEC 61215-1:2016 and IEC 61215-2:2016 for Terrestrial photovoltaic (PV) modules - Design qualification and type approval – Part 1: Test requirements and Part 2: Test Procedures.  IEC 61730 for PV module safety qualification,  IEC 62804 for detection of potential induced degradation (PID)  The test certificates must be provided. |  |  |  |  |  |
| 16 | All PV modules offered for the project must be of same type, same model, same power rating and same manufacturer |  |  |  |  |  |
| 17 | The Bidder must submit the technical datasheet of PV Module |  |  |  |  |  |
| **Conclusion for PV Module** | |  |  |  |  |  |

1. **Battery**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Manufacturer Name/Brand/Model |  |  |  |  |  |
| 2 | Manufacturer's experience in manufacturing Battery: Minimum 10 years for 2V VRLA Tubular Gel |  |  |  |  |  |
| 3 | The manufacturer shall have:  ISO 9001, ISO 14001, OHSAS 18001 Certificates |  |  |  |  |  |
| 4 | Warranty: Manufacturing warranty of minimum 5 years from battery manufacturer in their letter head signed and stamped |  |  |  |  |  |
| 5 | Battery Type and Capacity:  VRLA Gel Tubular with rack and properly sized cables accessories.  ……. kWh |  |  |  |  |  |
| 6 | Individual Battery Capacity:  VRLA 2 Volts (single cell), minimum size 1500Ah@C10 at 25⁰C |  |  |  |  |  |
| 7 | Battery bank nominal voltage: shall match the inverter and charge controller requirement |  |  |  |  |  |
| 8 | Cycle usage: For VRLA Tubular Gel, Minimum 1,500 cycles at 80% Depth of Discharge (DoD) |  |  |  |  |  |
| 9 | No. of batteries in parallel:  Maximum up to 3 strings per inverter |  |  |  |  |  |
| 10 | Average Self Discharge: ≤3% per  month at 25oC |  |  |  |  |  |
| 11 | Operating Temperature: Minimum range of -20oC to +50oC |  |  |  |  |  |
| 12 | Battery Rack: the battery rack must be made of hot dip galvanized MS of minimum 85 microns |  |  |  |  |  |
| 13 | Material for Battery: The installation materials for each battery set must be supplied complete in all including mounting racks, cell connecting copper flexible cables of minimum 70mm2 or busbars of suitable size, stainless steel screw, bolts, washers, insulated terminal post covers, cable shoes, fixing accessories. |  |  |  |  |  |
| 14 | Quality certificate validation by AEPC or Third party assigned by AEPC |  |  |  |  |  |
| 15 | International Certification:  IEC 60896-21&22 for VRLA Tubular Gel. The Test Certificates or Test Reports from IEC accredited independent laboratory must be provided. Battery must be certified by Certification Body (CB) Testing Laboratory or National Certification Body enlisted in IECEE or IECRE Website. |  |  |  |  |  |
| 16 | All batteries offered for the project must be of same type, same model, same Ah rating and same manufacturer |  |  |  |  |  |
| 17 | The Bidder must submit the technical datasheet of Battery |  |  |  |  |  |
| **Conclusion for Battery** | |  |  |  |  |  |

1. **Solar Charge Controller**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Manufacturer Name/Brand/Model: |  |  |  |  |  |
| 2 | Manufacturer’s experience in manufacturing charge controllers: Minimum 5 years |  |  |  |  |  |
| 3 | The manufacturer shall have:  ISO 9001, ISO 14001 Certificates |  |  |  |  |  |
| 4 | Warranty: Manufacturing warranty of minimum 5 years from charge controller manufacturer in their letter head signed and with company stamp |  |  |  |  |  |
| 5 | Charge Controller Capacity:  At least ……. kW (single or multiple stackable units) |  |  |  |  |  |
| 6 | Charger Peak Efficiency: > 95% |  |  |  |  |  |
| 7 | Type: Advanced microprocessor control type Maximum Power Point Tracking (MPPT) solar charge controller |  |  |  |  |  |
| 8 | Charging stage: Three stage charging to provide quick and safe charging for battery |  |  |  |  |  |
| 9 | Protection Function: Over charge, over discharge, PV reverse polarity protection, PV short circuit, over temperature, Lightning |  |  |  |  |  |
| 10 | Operating Temperature: Minimum range of -20⁰C to +50⁰C |  |  |  |  |  |
| 11 | RETS Certification or Quality certificate validation by AEPC or third party assigned by AEPC |  |  |  |  |  |
| 12 | International Certification: IEC 62109 or UL 1741 or AS/NZ 3100. The Test Certificate or Test Report from UL or from IEC accredited independent laboratory must be provided. The charge controller must be certified by Certification Body Testing Laboratory or National Certification Body enlisted in IECEE or IECRE website or UL website. |  |  |  |  |  |
| 13 | All charge controllers offered for the project must be of same type, same model, same power rating and same manufacturer |  |  |  |  |  |
| 14 | The Bidder must submit the technical datasheet of Solar Charge Controller |  |  |  |  |  |
| **Conclusion for Solar Charge Controller** | |  |  |  |  |  |

1. **Inverter**

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| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Manufacturer Name/Brand/Model: |  |  |  |  |  |
| 2 | Manufacturer's experience in manufacturing inverters: Minimum 5 years |  |  |  |  |  |
| 3 | The manufacturer shall have:  ISO 9001, ISO 14001 Certificates |  |  |  |  |  |
| 4 | Warranty: Manufacturing warranty of minimum 5 years from inverter manufacturer in their letter head signed and stamped |  |  |  |  |  |
| 5 | Inverter type: Single Phase Pure Sine Wave, compatible for lead acid battery, having battery voltage of 24/48V |  |  |  |  |  |
| 6 | Inverter arrangement: Stackable |  |  |  |  |  |
| 7 | Rated Power:  **For Site 1:** Total Cumulative Capacity of at least ……….kW @25⁰C.  The inverter must operate in the master slave concept with one inverter acting as masters and remaining as slave. |  |  |  |  |  |
| 8 | Battery rated voltage: ……….. Vdc |  |  |  |  |  |
| 9 | Surge Handling Capacity: The surge capacity shall be at least 150% for 3 sec |  |  |  |  |  |
| 10 | Output Wave form: Pure Sine Wave |  |  |  |  |  |
| 11 | Peak Efficiency: Minimum 95% |  |  |  |  |  |
| 12 | Inverter efficiency: The efficiency when operating loads at power levels within 40% to 90% of the rated load must be greater than 90%. The bidder must submit the efficiency curve of the inverter to justify operational efficiency |  |  |  |  |  |
| 13 | Total Harmonic Distortion  (THD) < 5% |  |  |  |  |  |
| 14 | Power Factor: 0.85 lag to 0.95 lead |  |  |  |  |  |
| 15 | Protection class: IP54 or above |  |  |  |  |  |
| 16 | Low battery disconnect/cut off voltage: Configurable |  |  |  |  |  |
| 17 | Battery Equalization: Automatic |  |  |  |  |  |
| 18 | Protection: AC short circuit, AC overload, battery deep discharge |  |  |  |  |  |
| 19 | Operating Temperature: Minimum range of -20⁰C to +50⁰C |  |  |  |  |  |
| 20 | Features: capable to support in battery backup and must be compatible with PV inverter. |  |  |  |  |  |
| 21 | Communication Interface: Modbus or RS232 or RS485 or Ethernet pack embedded, should communicate with other equipment and monitoring system |  |  |  |  |  |
| 22 | RETS Certification or Quality certificate validation by AEPC or third party assigned by AEPC |  |  |  |  |  |
| 23 | International Certifications:  IEC 62109 for safety  IEC 61683 for efficiency  The Test Certificates or Test Reports from IEC accredited independent laboratory must be provided. The inverter must be certified by Certification Body Testing Laboratory or National Certification Body enlisted in IECEE or IECRE website. |  |  |  |  |  |
| 24 | All battery inverters offered for the project must be of same type, same model, same power rating and same manufacturer |  |  |  |  |  |
| 25 | If the separate MPPT charge controller is used with battery inverter, both must be from the same manufacturer |  |  |  |  |  |
| 26 | The Bidder must submit the technical datasheet of battery inverter |  |  |  |  |  |
| **Conclusion for Inverter** | |  |  |  |  |  |

1. **Battery Fuse**

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| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Manufacturer Name/Brand/Model |  |  |  |  |  |
| 2 | Battery fuse box: For battery protection |  |  |  |  |  |
| 3 | Compatibility: Battery and Inverter |  |  |  |  |  |
| 4 | Type/rating: as per system design and requirement |  |  |  |  |  |
| 6 | The Bidder must submit the technical datasheet of battery fuse |  |  |  |  |  |
| **Conclusion for Battery Fuse** | |  |  |  |  |  |

1. **Monitoring System**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 4** | **Bidder No. 5** |
|  |  |  |  |  |
| 1 | RS485 or Modbus communication port for receiving data from inverters, charge controller, PV monitoring unit or power meter etc |  |  |  |  |  |
| 2 | RS232 or LAN port or Modbus for local monitoring or network monitoring |  |  |  |  |  |
| 3 | Internet connection via GSM modem, CDMA, GPRS, 3G, 4G, ADSL, VSAT |  |  |  |  |  |
| 4 | Automatic store data into SD card when communication is failed |  |  |  |  |  |
| 5 | The bidder must submit the technical datasheet of Monitoring System. |  |  |  |  |  |
| **Conclusion for Monitoring System** | |  |  |  |  |  |

1. **Support Structure for PV Modules**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Tilt angle and orientation: Optimum PV production angle at given latitude/longitude of the site, oriented towards south |  |  |  |  |  |
| 2 | Mounting structure design and foundation or fixation mounting arrangements shall consider all static and dynamic loads suitable for site. Support structure design and foundation or fixation mounting arrangements should withstand wind speed up to 170 km/hr |  |  |  |  |  |
| 3 | The solar PV module structure must be made of MS hot dip galvanized suitable sections of rectangular tubes, angles and channels. The minimum standards to be followed are:  Vertical leg (Main leg): Minimum 40mmx80mmx2mm Rectangular tube  Rafter: Minimum  40mmx80mmx2mm Rectangular tube  Purlins:  Minimum 40mmx80mmx2mm Rectangular tube or  Angles: Minimum 50mmx50mmx5mm  Column bracing or supporting bracing: Minimum 40mmx40mmx5mm angle  Base plate: 200mmx200mmx6mm  The horizontal spacing between 2 vertical legs must be between  1.5-2 meters as per load conditions.  The PV array must be designed with cross section with maximum 2 numbers for vertical placement and 4 numbers for horizontal placement. There must be minimum of 25mm uniform spacing between the modules.  The minimum thickness of galvanization must be at least 85 microns throughout the surface. |  |  |  |  |  |
| 4 | The mounting structure and its accessories shall be able to resist at least 20 years of outdoor exposure without suffering damage or corrosion. |  |  |  |  |  |
| 5 | Mounting structure shall be installed in such a way that PV array shading is minimized as much as possible considering site condition |  |  |  |  |  |
| 6 | Clearance: Minimum necessary clearance between ground level and bottom edge of the PV modules/arrays must be at least 80cm for ground based and for inclined roof top system, the clearance must be at least 20cm for easy maintenances. |  |  |  |  |  |
| 7 | Roofing: The structure must not cause any damage to the roofing, (appropriate procedure must be applied) in case of roof-top system |  |  |  |  |  |
| 8 | Stainless Steel (SS 304) nuts & bolts should be used for fixing modules with the structure. Stainless Steel (SS 304) or Galvanized bolts, nuts, fasteners, washers, mounting clamps should be used for fixing structure and compatible with materials which it is being fixed. In case of welding structure, the galvanization should be done after the fabrication work. |  |  |  |  |  |
| 9 | The foundation of PV structure shall be minimum 0.8 meter deep with 0.3(L) x 0.3(B) size with 0.3m thick stone soling with sand filling and 0.3(L) x 0.3(B) x 0.8(H) pillar in 1:2:4 PCC with 0.3m pillar above ground. |  |  |  |  |  |
| **Conclusion for Support Structures** | |  |  |  |  |  |

1. **DC Combiner Box**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | The DC combiner box shall be rated for exterior installation suitable for the Site Conditions, shall be UV and weather resistant, and must be rated minimum for IP65 according to IEC 60529 |  |  |  |  |  |
| 2 | If number of strings into DC combiner box is more than two then DC box shall include the fuses reverse current to each string. String fuses shall be selected according to PV module manufacturer’s recommendation on reverse current limit |  |  |  |  |  |
| 3 | System shall have DC isolation switch which can isolate the connection between PV array and the system. This isolation can be also within DC box. |  |  |  |  |  |
| 4 | System must have appropriately sized surge protection device conforming to IEC 61643-11 and grounded adequately. |  |  |  |  |  |
| 5 | DC box installation shall be protected from direct rain, Sun and dust |  |  |  |  |  |
| 6 | All cables must be connected properly and cable entering/outings into/from the box must be sealed properly (use of cable glands, cables shoes, copper tube, thimble, cable ties) so that dust and insects, mice cannot enter the box |  |  |  |  |  |
| **Conclusion for DC Combiner Box** | |  |  |  |  |  |

1. **Cables and Accessories**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | All the outdoor cables must be UV protected. All DC and indoor AC cable must be copper |  |  |  |  |  |
| 2 | Allowable voltage drop from PV Array to Inverter: <3% |  |  |  |  |  |
| 3 | Allowable voltage drop from battery bank to inverter to battery bank: < 1% |  |  |  |  |  |
| 4 | Protection and safety: PV array to PV charge controller or inverter, Cabling trench with high grade insulation protection |  |  |  |  |  |
| 5 | Outdoor cables from PV to Powerhouse should be armored |  |  |  |  |  |
| 6 | String junction boxes or string combiner boxes or main combiner boxes or grid connected AC combiner box: IP65 |  |  |  |  |  |
| **Conclusion for cables and accessories** | |  |  |  |  |  |

1. **Generation System Earthing and Protections**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | The PV modules frame and array structure must be properly earthed, connected to an earth electrode via insulated stranded copper earth wire of minimum 10mm2 and using the shortest practical direct route downwards that directs the cable away from sensitive electronic equipment and shall not enter the building. The maximum allowable earth resistance between array frame and earth electrode is 5 Ohms. |  |  |  |  |  |
| 2 | Equipment Earthing: Equipment bonding shall be used to tie together casings of all equipment and enclosures, including all electronic equipment casings (MPPT controllers, inverters), battery rack, DC combiner boxes, AC combiner boxes, DC busbars and DC enclosures, with minimum 10 mm2 earth cable, and connected via an insulated stranded copper earth wire of minimum 10 mm2 connected to an earth electrode. The maximum allowable earth resistance between the metal parts of the devices and metal parts of the consumer earth terminal is 5 Ohms |  |  |  |  |  |
| 3 | System Earthing: The AC neutral of Power Conditioning Unit/s must be properly earthed, connected to an earth electrode via insulated stranded copper earth wire of minimum 10 mm2. The maximum allowable earth resistance is 5 Ohms |  |  |  |  |  |
| 4 | For PV frame & array structure earthing, equipment earthing and system earthing, plate earthing or rod earthing shall be preferred.  Plate Earthing: The earthing plate/rod/strip must be copper type.  Copper Plate Size: 600mm (L) x 600mm (B) x 3 mm thickness  Copper Rod Size: 1 no. of each  minimum 2.5 meters length x 16mm diameter  Down Conductor Size: 25mm width x 3 mm thickness copper strip  Backfill Compound: 2 nos. of each 25Kg  For Rod Earthing,  Copper Rod Size: 1 no. of each minimum 2.5 meters length x 25mm diameter  Down Conductor Size: 25mm width x 3 mm thickness copper strip |  |  |  |  |  |
| 5 | The Lightning Protection System (LPS) must be able to minimize the damage to the surrounding environment and must comply with IEC 62305-3.  Air Terminal Conductor: Stainless Steel  Down Conductor Size: 25mm width x 3 mm thickness copper strip  LPS height: Minimum 10 meters |  |  |  |  |  |
| 6 | Earthing 1: Equipment earthing  Earthing 2: PV array, structure & DC SPDs  Earthing 3: AC neutral earthing of PCU  Earthing 4: LPS 1  Earthing 5: LPS 2  Earthing 1 and Earthing 2 can be done together. Please refer to the above schematic diagram. |  |  |  |  |  |
| 7 | Separation between earthing system: Minimum 10 meters |  |  |  |  |  |
| **Conclusion for Generation System Earthing and Protections** | |  |  |  |  |  |

1. **Others**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Appropriate labeling to the solar powered sockets, solar PV system components and its wirings. |  |  |  |  |  |
| 2 | The Single Line Diagram (SLD) must be provided in Technical Bid. |  |  |  |  |  |
| 3 | The SPD must be installed on both DC and AC side conforming to IEC 61643-11. |  |  |  |  |  |
| 4 | The Switches/Circuit Breakers/Disconnectors/Fuses used must comply with IEC 60947 Part 1, 2 & 3: All parts |  |  |  |  |  |
|  | Conclusion for Others |  |  |  |  |  |

1. **Powerhouse and Control Room**

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| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Construction of Powerhouse in Brick Masonry (minimum wall thickness: 230mm) or Stone Masonry (minimum **Bidder No. 2**wall thickness: 450mm) of minimum size  Powerhouse inside space dimension shall be 8 m (length)\* 4m (breadth)\* 3.0m (internal height) |  |  |  |  |  |
| 2 | DPC tie beam must be 230mmx230mm with 4 nos. of 12mm dia Bar and 8mm dia Stirrups at 150mm center to center with concrete ration 1:1.5:3 |  |  |  |  |  |
| 3 | Sill and Lintel Band must be 75mm thick with 2 nos. of 12mm dai Bar and 8mm dia Stirrups at 150mm center to center with concrete ration 1:2:4 |  |  |  |  |  |
| 4 | Cement sand ratio 1:6 for wall, Cement sand ratio 1:4 for plaster |  |  |  |  |  |
| 5 | Floor: PCC (1:2:4) flooring of 75mm thickness with punning 1:3 cement mortar, 50mm flat brick soiling with in ramped earth |  |  |  |  |  |
| 6 | RCC Pillar: numbers of RCC Pillar of size 300mm\*300mm with 8 numbers of 16mm Diameter TMT bar and concrete ratio 1:1.5:3 |  |  |  |  |  |
| 7 | Truss Roof: 24 SWG color corrugated GI sheet with Truss and Purlin. The dimension of Truss and Purlin must be as per structural design and drawing. All the truss and purlins must be coated with a single coat of primer and 2 coat of Enamel Paint |  |  |  |  |  |
| 8 | Foundation: Typical isolate footing of 1400mm wide and 1400mm depth, and wall foundation of 1050mm wide and 1300mm depth. |  |  |  |  |  |
| 9 | Main wooden door double panel with frame (1500 mm \* 2300 mm) of SAL WOOD |  |  |  |  |  |
| 10 | Operator wooden door single panel with frame (1000mm \* 2300mm) of SAL WOOD |  |  |  |  |  |
| 11 | Window (glaze 5mm thick): 5 numbers of wooden window with frame (1500mm \* 1500mm”) and two Ventilations (500mm\*750mm) of SAL WOOD |  |  |  |  |  |
| 12 | All Door and Windows Frame shall be of size 75mm \* 100mm |  |  |  |  |  |
| 13 | 20mm thick plaster at 1:4 cement sand ratio in inside and outside of the powerhouse for both Stone Masonry and Brick Masonry |  |  |  |  |  |
| 14 | Roof Slab: 50mm thickness of screeding with punning 1:2:4 cement sand mortar, including waterproofing |  |  |  |  |  |
| 15 | Two layer of Wall Putty shall be applied in all Wall and Ceiling inside the Powerhouse |  |  |  |  |  |
| 16 | Painting:   * All wood works shall be painted with one coat wood primer and two coats of enamel paint. * External face of powerhouse wall shall be painted with one coat of cement primer and two coats of Pink color * Internal plastered surface shall be painted with one coat of cement primer and two coats of white distemper |  |  |  |  |  |
| 17 | Supplying and fixing of 12.5mm thick Gypsum Board False Ceiling, including wooden frame with all complete set for Truss Roof. |  |  |  |  |  |
| 18 | Minimum Two numbers of 5Kg ABC Stored Pressure Type Fire Extinguishers must be set-up inside Powerhouse. |  |  |  |  |  |
| 19 | A single unit of 5 Star Air Conditioning must be set-up inside Powerhouse |  |  |  |  |  |
| 20 | Minimum 2 units of Exhaust Fans must be set-up inside Powerhouse |  |  |  |  |  |
| **Conclusion for Powerhouse and Control Room** | |  |  |  |  |  |

1. **Toilet**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Two toilets to be constructed at two sites with following details  Construction of Toilet in Brick Masonry (minimum wall thickness: 230mm) or Stone Masonry (minimum wall thickness: 450mm) with inner dimensions 1.5m (length) \* 1.5m (breadth) \* 2m (internal height). |  |  |  |  |  |
| 2 | Cement sand ratio 1:6 for wall, Cement sand ratio 1:4 for plaster on all brick and concrete faces |  |  |  |  |  |
| 3 | DPC band, Sill and Lintel Band must be 75mm thick with 2 nos. of 12mm dai Bar and 8mm dia Stirrups at 150mm center to center with concrete ration 1:2:4 |  |  |  |  |  |
| 4 | Floor: PCC (1:2:4) flooring of 75 mm thickness with punning 1:3 cement mortar, 50mm flat brick soiling with in ramped earth |  |  |  |  |  |
| 5 | Roofing: 125mm thick RCC (1:1.5:3) slab with 10mm diameter TMT bar with 150mm center to center spacing |  |  |  |  |  |
| 6 | Foundation: 800mm wide and 900mm depth |  |  |  |  |  |
| 7 | Two coat of distemper (white) on the inner and outer wall, ceiling and pink colored outside wall of the toilet |  |  |  |  |  |
| 8 | 20mm thick plaster at 1:4 cement sand ratio in inside and outside of the powerhouse for both Stone Masonry and Brick Masonry |  |  |  |  |  |
| 9 | Roof Slab: 50mm thickness of screeding with punning 1:2:4 cement sand mortar, including waterproofing |  |  |  |  |  |
| 10 | One wooden door with frame (3” \* 4”) and shutter of size 0.75m \* 2m |  |  |  |  |  |
| 11 | Ventilation at least one number of wooden frame (2” \* 1”) and shutter of size 0.6m\* 0.3m |  |  |  |  |  |
| 12 | All wood works shall be painted with one coat wood primer and two coats of enamel paint |  |  |  |  |  |
| 13 | Toilet Pan with Flushing System, Wash Basin with Tap, HDPE Pipes, Fittings, 500 Liters Water Tank with Accessories and other necessary accessories with all complete set |  |  |  |  |  |
| 14 | The Septic Tank of Size 2200mm \*2200mm\*1500mm with 350mm thick stone masonry and slab cover 125mm thick with 10mm dia bar at 150mm c/c bothways. The Soakpit of size 600mm dia Circular Pit should be connected with 150mm dia HDPE Pipe to Septic Tank |  |  |  |  |  |
| **Conclusion for Toilet** | |  |  |  |  |  |

1. **Fencing**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | The chain link mesh size must be at least 2” x 2” of 10 guage |  |  |  |  |  |
| 2 | The metal post must be at least 1.5 m high from ground level with MS angle iron of minimum size 50mm\*50mm\*5mm, with the maximum spacing of 2 m center to center |  |  |  |  |  |
| 3 | The iron angle post must be at least 0.5m below ground level in M15 concrete (1:2:4) with 0.2m\*0.2m cover |  |  |  |  |  |
| 4 | Fencing must include a MS iron lockable gate of 1.5m width and 2.5m height |  |  |  |  |  |
| 5 | All MS angle iron must be coated with a single coat of primer and 2 coat of Enamel Paint. |  |  |  |  |  |
| 6 | There should be a free space of 2 m between the front of PV array and the fencing |  |  |  |  |  |
| 7 | There should be a free space of 1.5 m between the side of PV array and the fencing |  |  |  |  |  |
| 8 | There should be a free space of 1 m on the back of PV array and the fencing |  |  |  |  |  |
| **Conclusion for Fencing** | |  |  |  |  |  |

1. **MCB - Double Pole**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | MCB used must comply with IEC 60898 or IEC 60947 with degree of protection of minimum IP20 |  |  |  |  |  |
| **Conclusion for MCB** | |  |  |  |  |  |

1. **MCCB – Triple Pole**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | MCCB used must comply with IEC 60898 or IEC 60947 with degree of protection of minimum IP20 |  |  |  |  |  |
| **Conclusion for MCCB** | |  |  |  |  |  |

1. **Pre-paid Energy Meters**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | The energy meters must be single phase or three phase electronic pre-paid smart meters with Class 1 accuracy |  |  |  |  |  |
| 2 | One card for one user having well protected from forgery. Once the electric consumption available is out, it should be auto cut-off. |  |  |  |  |  |
| 3 | Should protect from power theft and record the information as well as expansible RS485 |  |  |  |  |  |
| 4 | Auto cut-off for overload (must have inbuilt WATT limiting facility) |  |  |  |  |  |
| 5 | Should have low voltage disconnect and high voltage disconnect facility |  |  |  |  |  |
| 6 | The IC card power selling control system should have sound functions of power selling and power using supervision |  |  |  |  |  |
| 7 | The meters must comply with Standard Transfer Specification (STS) Standard |  |  |  |  |  |
| **Conclusion for Pre-paid Energy Meters** | |  |  |  |  |  |

1. **Solar Street Lights**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Metallic body with heat sink LED light, nominal working voltage of 230VAC |  |  |  |  |  |
| 2 | Luminous efficacy of Lamp ≥ 100 Lumens/Watt |  |  |  |  |  |
| 3 | LED color rendering index (CRI) ≥ 60 |  |  |  |  |  |
| 4 | LED fixture protection grade: IP65 or above |  |  |  |  |  |
| 5 | Lifespan of the LED shall be at least 30,000 hours |  |  |  |  |  |
| 6 | View angle of individual LEDs ≥ 100⁰ |  |  |  |  |  |
| 7 | The streetlight shall include mounting clamp, connector/switch arrangement for outdoor condition with the galvanized light arm |  |  |  |  |  |
| 8 | Proposed lamps and accessories will be installed by the contractor on the electricity distribution poles being erected for power distribution |  |  |  |  |  |
| 9 | LED lamp power consumption: 20 Watt |  |  |  |  |  |
| 10 | Control Mechanism: Photo-sensor and Activation Switch On/Off |  |  |  |  |  |
| 11 | Operational for 6 hours full power and another 6 hours at 50% output by achieving energy efficiency |  |  |  |  |  |
| 12 | Warranty: Minimum 3 years replacement |  |  |  |  |  |
| 13 | The bidder must submit the technical datasheet of Street Light. |  |  |  |  |  |
| **Conclusion for Solar Street Lights** | |  |  |  |  |  |

1. **Computer and Printer**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Laptop Computer: Intel core i5 processor, 4GB ram, 500GB HDD, 14" display |  |  |  |  |  |
| 2 | 3 in 1 laser printer |  |  |  |  |  |
| 3 | Pre-paid energy meter token printer |  |  |  |  |  |
| **Conclusion for Computer and Printer** | |  |  |  |  |  |

1. **House Wiring and Appliances**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Nominal working voltage: 230VAC |  |  |  |  |  |
| 2 | Minimum number of LED bulbs and accessories to be supplied:  3W with minimum 240 lumens: 3 nos  5W with minimum 400 lumens: 3 nos  Switch: 6 nos. with 5 A each  Holder: 6 nos. |  |  |  |  |  |
| 3 | Minimum standard of wiring for light and power source shall be as follows:  Light circuit: Minimum 2.5mm2 PVC insulated copper stranded cable  Power Circuit: Minimum 4mm2 PVC insulated copper stranded cable |  |  |  |  |  |
| 4 | Color Code:  Phase: red  Neutral: black |  |  |  |  |  |
| **Conclusion for House Wiring and Appliances** | |  |  |  |  |  |

1. **LED Lamps for Households**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Nominal working voltage: 230VAC |  |  |  |  |  |
| 2 | Luminous efficacy of individual LED: ≥ 100 Lumens/Watt |  |  |  |  |  |
| 3 | Luminous efficacy of Lamp:  ≥ 80 Lumens/Watt |  |  |  |  |  |
| 4 | Lamp driver circuit efficiency: must be at least 80% |  |  |  |  |  |
| 5 | LED color rendering index (CRI): ≥ 60 |  |  |  |  |  |
| 6 | LED fixture protection grade: IP65 or better. |  |  |  |  |  |
| 7 | Lifespan of the LED: shall be at least 30,000 hours |  |  |  |  |  |
| 8 | View angle of individual LEDs: ≥ 100⁰ |  |  |  |  |  |
| 9 | LED lamp power consumption: 3 Watt and 5 Watt (as indicated in the BoQ) |  |  |  |  |  |
| 10 | Warranty: Minimum 3 years replacement |  |  |  |  |  |
|  | Conclusion for LED Lamps |  |  |  |  |  |

1. **Distribution System**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Length of Transmission & Distribution Lines: …. |  |  |  |  |  |
| 2 | 400 V and Composite: ….Km (…Km three phase and …..Km single phase) |  |  |  |  |  |
| 3 | ACSR Conductors |  |  |  |  |  |
| Rabbit (50 mm2): …. Km |  |  |  |  |  |
| Weasel (30mm2): ……Km |  |  |  |  |  |
| Service Cable 6 square mm: …..Km |  |  |  |  |  |
| 4 | Pole Type & Number |  |  |  |  |  |
| MS tubular pole (9 m length): ……number |  |  |  |  |  |
| MS tubular pole (8 m length): ….number |  |  |  |  |  |
|  | Insulator Type & Number |  |  |  |  |  |
|  | Shackle Insulators and D-Iron (Large size): ….. |  |  |  |  |  |
|  | Shackle Insulators and D-Iron (Medium size): …..number |  |  |  |  |  |
| **Conclusion for Distribution System** | |  |  |  |  |  |

1. **ACSR Conductor**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Type of ACSR: ………. |  |  |  |  |  |
| Nominal Area: |  |  |  |  |  |
| Stranding (Al/Steel): ………. |  |  |  |  |  |
| Breaking Strength (kN): ………. |  |  |  |  |  |
| Mass (Kg/Km): ………. |  |  |  |  |  |
| Resistance at 20oC (Ohm/Km): ………. |  |  |  |  |  |
| **Conclusion for ACSR Conductor** | |  |  |  |  |  |

1. **Steel Tubular Pole**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Type of Pole & Length: MS Tubular & 9m |  |  |  |  |  |
| Planting depth: 1.5m |  |  |  |  |  |
| Top Section |  |  |  |  |  |
| Length: 2m |  |  |  |  |  |
| Outside diameter: 88.9mm |  |  |  |  |  |
| Thickness: 3.25mm |  |  |  |  |  |
| Middle Section |  |  |  |  |  |
| Length: 2m |  |  |  |  |  |
| Outside diameter: 114.3mm |  |  |  |  |  |
| Thickness: 4.5mm |  |  |  |  |  |
| Bottom Section |  |  |  |  |  |
| Length: 5m |  |  |  |  |  |
| Outside diameter: 139.7mm |  |  |  |  |  |
| Thickness: 4.85mm |  |  |  |  |  |
| Weight: 125Kg |  |  |  |  |  |
| 2 | Type of Pole & Length: MS Tubular & 8m |  |  |  |  |  |
| Planting depth: 1.5m |  |  |  |  |  |
| Top Section |  |  |  |  |  |
| Length: 1.75m |  |  |  |  |  |
| Outside diameter: 88.9mm |  |  |  |  |  |
| Thickness: 3.25mm |  |  |  |  |  |
| Middle Section |  |  |  |  |  |
| Length: 1.75m |  |  |  |  |  |
| Outside diameter: 114.3mm |  |  |  |  |  |
| Thickness: 3.65mm |  |  |  |  |  |
| Bottom Section |  |  |  |  |  |
| Length: 4.5m |  |  |  |  |  |
| Outside diameter: 139.7mm |  |  |  |  |  |
| Thickness: 4.5mm |  |  |  |  |  |
| Weight: 101Kg |  |  |  |  |  |
| **Conclusion for Steel Tubular Pole** | |  |  |  |  |  |

1. **Shackle Insulator**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Type & Size: Type-A, Large & Medium |  |  |  |  |  |
| 2 | Highest System Voltage: 1kV |  |  |  |  |  |
| 3 | Rated Voltage: 500V |  |  |  |  |  |
| 4 | Power Frequency Withstand Voltage, 1minute |  |  |  |  |  |
|  | Dry: 23kV |  |  |  |  |  |
|  | Wet:10kV |  |  |  |  |  |
| 5 | Power Frequency Puncture Withstand Voltage, 1minute |  |  |  |  |  |
|  | 1.3 x actual dry flash over voltage |  |  |  |  |  |
| 6 | Leakage Distance (min.): 75mm |  |  |  |  |  |
| 7 | Mechanical Strength: 16kN |  |  |  |  |  |
| **Conclusion for Shackle Insulator** | |  |  |  |  |  |

1. **Lightning Arrestor**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Type: Gapless Metal Oxide |  |  |  |  |  |
| 2 | System Voltage: 0.44kV |  |  |  |  |  |
| 3 | Maximum system voltage: 0.5kV |  |  |  |  |  |
| 4 | Voltage rating (Ur), Vrms: 0.4kV |  |  |  |  |  |
| 5 | System frequency: 50Hz |  |  |  |  |  |
| 6 | Nominal discharge current: 5kA |  |  |  |  |  |
| 7 | Creepage distance: 36mm |  |  |  |  |  |
| 8 | Minimum Power Frequency Withstands |  |  |  |  |  |
|  | Dry: 25kV |  |  |  |  |  |
|  | Wet:10kV |  |  |  |  |  |
| **Conclusion for Lightning Arrestor** | |  |  |  |  |  |

1. **Stay Set**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Length of stay rod: 1.8m |  |  |  |  |  |
| 2 | Diameter of stay rod: 16mm |  |  |  |  |  |
| 3 | Ultimate tensile strength of stay rod and turnbuckle: 4200 kg/sq. mm |  |  |  |  |  |
| 4 | Minimum breaking load: 6,433 Kg |  |  |  |  |  |
| 5 | Length of threaded portion: 300mm |  |  |  |  |  |
| 6 | Thimble shape: Suitable for preformed for 7/12 SWG stay wire |  |  |  |  |  |
| 7 | Thimble section Min: 18SWG |  |  |  |  |  |
| 8 | Stay plate section: 300 mm\*300 mm\*6 mm |  |  |  |  |  |
| 9 | Eyebolt length, mm: 300mm |  |  |  |  |  |
| **Conclusion for Stay Set** | |  |  |  |  |  |

1. **Stranded Stay Wire**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Steel Wire Size: 7/12 |  |  |  |  |  |
| 2 | Grade: 700 |  |  |  |  |  |
| 3 | Steel quality: 45 Ton |  |  |  |  |  |
| 4 | Diameter of Wires, mm: 2.6mm |  |  |  |  |  |
| 5 | Minimum Weight, kg/km: 300Kg |  |  |  |  |  |
| **Conclusion for Stranded Stay Wire** | |  |  |  |  |  |

1. **Drawings**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Specifications Required** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | Single Line Diagram of Solar PV System and Protection System |  |  |  |  |  |
| 2 | Design and diagram of solar array mounting structure |  |  |  |  |  |
| 3 | Diagram of distribution system and protection system |  |  |  |  |  |
| 4 | Diagram of distribution pole |  |  |  |  |  |
| 5 | Diagram of powerhouse showing all the dimensions |  |  |  |  |  |
| 6 | Diagram of toilet showing all the dimensions |  |  |  |  |  |
| **Conclusion for Drawings** | |  |  |  |  |  |

**Summary of Technical Evaluation**

**Construction of ……kWp Solar Mini Grid Systems at**

**……………………. R/Municipality, Ward No. ……, ………………. District, …………… Province, Nepal**

**Contract Identification Number: ……………………………..**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Components** | **Bidder No. 1** | **Bidder No. 2** | **Bidder No. 3** | **Bidder No. 5** | **Bidder No. 6** |
|  |  |  |  |  |
| 1 | PV Module |  |  |  |  |  |
| 2 | Battery |  |  |  |  |  |
| 3 | Solar Charge Controller |  |  |  |  |  |
| 4 | Inverter |  |  |  |  |  |
| 5 | Battery Fuse |  |  |  |  |  |
| 6 | Monitoring System |  |  |  |  |  |
| 7 | Support Structure for PV Modules |  |  |  |  |  |
| 8 | DC Combiner Box |  |  |  |  |  |
| 9 | Cables and Accessories |  |  |  |  |  |
| 10 | Generation System Earthing and Protections |  |  |  |  |  |
| 11 | Others |  |  |  |  |  |
| 12 | Powerhouse and Control Room |  |  |  |  |  |
| 13 | Toilet |  |  |  |  |  |
| 14 | Fencing |  |  |  |  |  |
| 15 | MCB-Double Pole |  |  |  |  |  |
| 16 | MCCB-Triple Pole |  |  |  |  |  |
| 17 | Pre-paid Energy Meters |  |  |  |  |  |
| 18 | Solar Street Lights |  |  |  |  |  |
| 19 | Computer and Printer |  |  |  |  |  |
| 20 | House Wiring and Appliances |  |  |  |  |  |
| 21 | LED Lamps for Households |  |  |  |  |  |
| 22 | Distribution System |  |  |  |  |  |
| 23 | ACSR Conductor |  |  |  |  |  |
| 24 | Steel Tubular Pole |  |  |  |  |  |
| 25 | Shackle Insulator |  |  |  |  |  |
| 26 | Lightning Arrestor |  |  |  |  |  |
| 27 | Stay Set |  |  |  |  |  |
| 28 | Stranded Stay Wire |  |  |  |  |  |
| 29 | Drawings |  |  |  |  |  |
|  | **Conclusion of Technical Evaluation** |  |  |  |  |  |
|  | Remarks |  |  |  |  |  |

**Site 1**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.N** | **Description** |  | | |  | | |  | | |
|  |  | Price in NRs. | VAT 13% | Total Price in NRs. | Price in NRs. | VAT 13% | Total Price in NRs. | Price in NRs. | VAT 13% | Total Price in NRs. |
| 1 | Cost Of Goods |  |  |  |  |  |  |  |  |  |
| 2 | Cost of Service |  |  |  |  |  |  |  |  |  |
| **Grand Total** | |  |  |  |  |  |  |  |  |  |
| **Grand Total in Words in NRs.** | |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Financial Proposal (Price Bid) Evaluation** | | | | | | | | | | |
|  |  |  |  |  |  | |  | |  | |
| **S.N.** | **Component** | **Description of Component** | **Unit** | **Capacity/ Number** | **Unit Rate** | **Total Rate** | **Unit Rate** | **Total Rate** | **Unit Rate** | **Total Rate** |
| 1 | Solar Array | Individual module of minimum of 300 Wp, Mono, Mono PERC or Poly Cystalline having minimum module efficiency of 16% | kWp |  |  |  |  |  |  |  |
| 2 | Battery | VRLA Gel Tubular Battery of Total Minimum Capacity of ………. kWhr (Individual battery capacity: Minimum 2V 1500Ah@C/10) with rack, cables and accessories | kWh |  |  |  |  |  |  |  |
| 3 | Battery Inverter | Off-grid Battery Inverter units of Total Minimum Capacity ……….kW, stackable as Master and Slave for 3-Phase Supply (Individual Inverter Capacity: Minimum 3kW) | kW |  |  |  |  |  |  |  |
| 4 | Mounting Structure | Solar PV Module support structure, hot dipped galvanized of minimum of 60 micron metal frame with complete set | kWp |  |  |  |  |  |  |  |
| 5 | Combiner Box | PV Combiner Box (Protection Class: IP65) with DC Fuse for PV strings as per PV module datasheet , DC MCB, DC SPD, Earthing, DC Breaker) | Set |  |  |  |  |  |  |  |
| 6 | Cables | DC and AC copper cables & Accessories all complete. The DC cable from combiner box to each PV inverter should be minimum of 25mm2. | Set |  |  |  |  |  |  |  |
| 7 | Earthing System | Maintenance free 2 m copper rod earth Electrode of 20 mm diameter, Back-fill chemical compound of minimum 25 Kg, Earth Resistance value must be less than 5 Ohm round the year. | Set |  |  |  |  |  |  |  |
| 8 | Early Streamer Emission (ESE) type Air Terminal and down conductor | Air terminal must be Early Streamer Emission type, Stainless Steel and comply with international ESE standard such as IEC 62305-3'2010 or NFC 17-102/2011. The down conductor should be atleast 25x3mm copper strip of at least 20m length. | Set |  |  |  |  |  |  |  |
| 9 | Metal pole to install vertical air terminal | Galvanized MS pole of 9m, minimum of 4 inch diameter and 3 mm thickness | Nos. |  |  |  |  |  |  |  |
| 10 | Equipotential bonding bus bar | Copper Earth Bus Bar having at least 6 connection point | Nos. |  |  |  |  |  |  |  |
| 11 | Three phase AC SPD | Type 1 + 2, Nominal Voltage 230 V, Imax 20 kA, as per IEC: 61643-11:2011 at Main Distribution Box | Set |  |  |  |  |  |  |  |
| 12 | DC SPD | Type 1 + 2, Nominal Voltage 1000 V,Imax 20 kA, as per IEC 61643-31:2018 or EN 50539-11:2013 at the input side of Inverter | Set |  |  |  |  |  |  |  |
| 13 | Main Distribution Board | Main Distribution Board with Three Phase Energy Meter of accuracy class 1, Isolator, MCCB | Set |  |  |  |  |  |  |  |
| 14 | 5 core ABC cable | 5 core 50mm2 twisted Aluminium ABC cable Conductors for Three phase line and street light. The maximum resistance should be below 0.641Ω/km. 1 Core is dedicated for street lighting | m |  |  |  |  |  |  |  |
| 15 | 3 core ABC cable | 3 core 50mm2 twisted Aluminium ABC cable Conductors for single phase for distributio in the settlement having maximum resistance of 0.641Ω/km | m |  |  |  |  |  |  |  |
| 16 | 9 m pole for 3 phase and street light | 9 m Pole (410 SP-31) for street crossing  Bottom Section (5.0 m Long, Outer Dia. 165.1 mm, Thickness 4.5 mm), Mid Section (2.0 m Long, Outer Dia. 139.7 mm, Thickness 4.5 mm) and Top Section (2.7 m Long, Outer Dia. 114.3 mm, Thickness 3.65 mm),Planting Depth 1.5 m, Approximate weight 147 kg | no |  |  |  |  |  |  |  |
| 17 | 8 m pole for single phase and street light | 8 m Pole (410 SP-13)  Bottom Section (4.50 m Long, Outer Dia. 139.7 mm, Thickness 4.5 mm), Mid Section (1.75 m Long, Outer Dia. 114.3 mm, Thickness 3.65 mm) and Top Section (1.75 m Long, Outer Dia. 88.9 mm, Thickness 3.25 mm), Planting Depth: 1.5 m, Approximate weight 101 kg | no |  |  |  |  |  |  |  |
| 18 | Stay Set | LT Stay Set : Length of Stay Rod (1.8 m), dia. (16mm), Ultimate Tensile Strength (4200kg/Sq.mm.), Minimum Breaking Load (7272kg),Length of Threaded Portion (300 mm),Thimble Shape (Suitable for 7/22SWG Stay Wire), Minimum Thimble Section(18 SWG), Stay Plate Section (300 mm x300 mm x 6 mm MS Plate), Eyebolt Lengthmm/1 (300 mm), Stay insulator,Stay Wire (7/12SWG Steel Wire, 700 Grade, 45 tonSteel Quality, 2.64 mm dia.,Minimum Wt./km (300 kg) | no |  |  |  |  |  |  |  |
| 19 | Anchor and Suspension Clamps | Anchor and Suspension Clamp for both 9m and 8m poles for binding of ABC cable into distribution pole | pcs |  |  |  |  |  |  |  |
| 20 | Piercing Cable Connector interconnect service | Cable Connector suitable to interconnect service cable and ABC cable | pcs |  |  |  |  |  |  |  |
| 21 | LA for 3 phase | 0.5 kV,3-phase Lighting Arrester with all complete accessories (For 0.4kV LT Lines). | set |  |  |  |  |  |  |  |
| 22 | LA for 1 phase | 0.5 kV,1-phase Lighting Arrester with all complete accessories ( for 0.23kV LT Lines). | set |  |  |  |  |  |  |  |
| 23 | Earthing for LA | Copper Rod Earthing : minimum dia. 20 mm of length 2 M with 8 SWG Copper wire , Chemical Earthing Compound of 25 Kg each, 24 mm polythene pipe for copper wire etc. with all complete set of accessories as per drawing and technical specification | set |  |  |  |  |  |  |  |
| 24 | Service wire | Service wire, concentric 6 sq.mm. | km |  |  |  |  |  |  |  |
| 25 | Single Phase Prepaid Meter | Pre-paid Energy Meter 5-30 A, 230VAC 50Hz, Accuracy Class 1 | Nos |  |  |  |  |  |  |  |
| 26 | MCB | MCB 6Amp DP 230V for Households | Nos |  |  |  |  |  |  |  |
| 27 | MCB | MCB 16Amp DP 230V for PEU Load | Nos |  |  |  |  |  |  |  |
| 28 | Lamp 3W | LED Lamp 3 Watt, AC 230V with Holder | Nos |  |  |  |  |  |  |  |
| 29 | Lamp 5W | LED Lamp 5 Watt, AC 230V with Holder | Nos |  |  |  |  |  |  |  |
| 30 | Lamp 10W | LED Lamp 10 Watt, AC 230V with Holder | Nos |  |  |  |  |  |  |  |
| 31 | Wiring Devices | Wiring devices for one household-20m of 1.5mm2 of 2 core AC cable for housewiring, 6 switches, 6 holders, 2 sockets | set |  |  |  |  |  |  |  |
| 32 | Street Lamp | LED Street Light 230V 20W AC with photo sensors and mounting arms to be installed in the pole | Nos |  |  |  |  |  |  |  |
| 33 | Clock with Contractor for Street light ON/OFF | Astronomical Time Switches for Street Light Operation, 230V, min of 6A current. This should able to calculate the exact switching times for sunrise and sunset depending on location and time zone. Integrated relay to operate in 230V should be provided along with contractor | set |  |  |  |  |  |  |  |
| 34 | Accessories | Computer and Printer, Table and Chairs | set |  |  |  |  |  |  |  |
| 35 | Fire extinguisher | Fire Extinguisher, ABC type minimum 5Kg | set |  |  |  |  |  |  |  |
| 36 | Ladder | Portable Aluminium Folding Step ladder Telescopic 25 feet long | set |  |  |  |  |  |  |  |
| 37 | Personal Protective Equipment (PPE) | Safety Belt suitable for electrical line construction work | set |  |  |  |  |  |  |  |
| 38 | Personal Protective Equipment (PPE) | Safety Equipment suitable for electrical works like PVC Helmat, Jacket and Globe for each Worker | set |  |  |  |  |  |  |  |
| 39 | Personal Protective Equipment (PPE) | Insulation Globe | set |  |  |  |  |  |  |  |
| 40 | Clamp-on meter | Tung tester (600 V,0-200 amp min | set |  |  |  |  |  |  |  |
| 41 | Tool Box | Tools box including combination plier 2 no. protable hammer 2 no. Screw driver 2 no. min 6 in 10 1/1 wire cutter 2 no. adjustable reanch 2 set | set |  |  |  |  |  |  |  |
| 42 | Spare Parts | PV Array cable | meter |  |  |  |  |  |  |  |
| Battery cable both positive and negative colour | meter |  |  |  |  |  |  |  |
| PV connector (male +female) | pair |  |  |  |  |  |  |  |
| PV String fuses | pcs |  |  |  |  |  |  |  |
| Battery fuse | pcs |  |  |  |  |  |  |  |
| **Total Sum** | | | | |  |  |  |  |  |  |
| **VAT 13%** | | | | |  |  |  |  |  |  |
| **Grand Total** | | | | |  |  |  |  |  |  |

**BOQ of Services to be offered:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Item No.** | **Item Description** | **Quantity** | **Unit of Measurement** |  | |  | |  | |
|  |  |  |  | **Unit Rate** | **Total** | **Unit Rate** | **Total** | **Unit Rate** | **Total** |
| 1 | Civil works for solar PV array foundations including material and workmanship |  | LS |  |  |  |  |  |  |
| 2 | Fence for PV array & Powerhouse(Chain Link mess of size 2 inch\*2 inch with iron angle post of 50mm\*50 mm\*5mm of height 1.5 m from ground level with concrete base of 0.2 m\*0.2 cover and 0.5 m depth ) with minimum of 1 numbers of 3 m wide metal gate |  | m2 |  |  |  |  |  |  |
| 3 | Installation, Commissioning and Testing of Solar Mini-grid System |  | LS |  |  |  |  |  |  |
| 4 | Construction of Powerhouse as per the technical specifications (LXBXH Size: 5meter \* 4meter \* 3meter) |  | m2 |  |  |  |  |  |  |
| 5 | Construction of Toilet and Septic Tank as per the technical specification with inner dimensions (1.5m length \* 1.5m width \* 2m height) |  | LS |  |  |  |  |  |  |
| 6 | Operation, Maintenance and Management of whole system for 5 Years |  | Year |  |  |  |  |  |  |
| 7 | Transportation of all goods from Supplier’s warehouse to subproject site |  | LS |  |  |  |  |  |  |
| 8 | Loading Unloading, packing of materials and equipment |  | LS |  |  |  |  |  |  |
| **Total Sum** | | | |  |  |  |  |  |  |
| **VAT 13%** | | | |  |  |  |  |  |  |
| **Grand Total** | | | |  |  |  |  |  |  |

**Capacity of** ……….………. **site solar mini grid - …………kWp**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | |  | | |  | | |
| **S.N** | **Description** | **Price in NRs.** | **VAT 13%** | **Total Price in NRs.** | **Price in NRs.** | **VAT 13%** | **Total Price in NRs.** | **Price in NRs.** | **VAT 13%** | **Total Price in NRs.** |
| 1 | Cost of Goods |  |  |  |  |  |  |  |  |  |
| 2 | Cost Of Service |  |  |  |  |  |  |  |  |  |
| 3 | Total |  |  |  |  |  |  |  |  |  |

**BOQ of Goods to be Offered**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.N** | **Component** | **Description of Components** | **Unit** | **Capacity/number** |  | |  | |  | |
|  |  |  |  |  | Unit Rate | Total | Unit Rate | Total | Unit Rate | Total |
| 1 | Solar Array | Individual module of minimum of 300 Wp, Mono, Mono PERC or Poly Cystalline having minimum module efficiency of 16% | kWp |  |  |  |  |  |  |  |
| 2 | Battery | VRLA Gel Tubular Battery of Total Minimum Capacity of ……….kWhr (Individual battery capacity: Minimum 12V 150Ah@C/10) with rack, cables and accessories | kWh |  |  |  |  |  |  |  |
| 3 | Battery Inverter | Off-grid Battery Inverter units of Total Minimum Capacity 3kW | kW |  |  |  |  |  |  |  |
| 4 | Mounting Structure | Solar PV Module support structure, hot dipped galvanized of minimum of 60 micron metal frame with complete set | kWp |  |  |  |  |  |  |  |
| 5 | Combiner Box | PV Combiner Box (Protection Class: IP65) with DC Fuse for PV strings as per PV module datasheet , DC MCB, DC SPD, Earthing, DC Breaker | Set |  |  |  |  |  |  |  |
| 6 | Cables | DC and AC copper cables & Accessories all complete. Th DC cable from combiner box to each PV inverter should be minimum of 25mm2. | Set |  |  |  |  |  |  |  |
| 7 | Earthing System | Maintenance free 2 m copper rod earth Electrode of 20 mm diameter, Back-fill chemical compound of minimum 25 Kg, Earth Resistance value must be less than 5 Ohm round the year. | Set |  |  |  |  |  |  |  |
| 8 | Vertical air terminal and down conductor | Copper air terminal of length 2 m and diameter 8 mm diameter, back fill chemical compound of minimum 25 kg, earth registence value must be less than 5 ohm round the year | Set |  |  |  |  |  |  |  |
| 9 | Metal pole to install vertical air terminal | Galvanized MS pole of 8m, minimum of 4 inch diameter and 3 mm thickness | Nos. |  |  |  |  |  |  |  |
| 10 | Equipotential bonding bus bar | Copper Earth Bus Bar having at least 6 connection point | Nos. |  |  |  |  |  |  |  |
| 11 | Three phase AC SPD | Type 1 + 2, Nominal Voltage 230 V, Imax 20 kA, as per IEC: 61643-11:2011 at Main Distribution Box | Set |  |  |  |  |  |  |  |
| 12 | DC SPD | Type 1 + 2, Nominal Voltage 1000 V,Imax 20 kA, as per IEC 61643-31:2018 or EN 50539-11:2013 at the input side of Inverter | Set |  |  |  |  |  |  |  |
| 13 | Main Distribution Board | Main Distribution Board with Three Phase Energy Meter of accuracy class 1, Isolator, MCCB | Set |  |  |  |  |  |  |  |
| 14 | 3 core ABC cable | 3 core 50mm2 twisted Aluminium ABC cable Conductors for Three phase line and street light. The maximum resistance should be below 0.641Ω/km. 1 Core is dedicated for street lighting | m |  |  |  |  |  |  |  |
| 15 | 8 m pole for single phase and street light | 8 m Pole (410 SP-13)  Bottom Section (4.50 m Long, Outer Dia. 139.7 mm, Thickness 4.5 mm), Mid Section (1.75 m Long, Outer Dia. 114.3 mm, Thickness 3.65 mm) and Top Section (1.75 m Long, Outer Dia. 88.9 mm, Thickness 3.25 mm), Planting Depth: 1.5 m, Approximate weight 101 kg | no |  |  |  |  |  |  |  |
| 16 | Stay Set | LT Stay Set : Length of Stay Rod (1.8 m), dia. (16mm), Ultimate Tensile Strength (4200kg/Sq.mm.), Minimum Breaking Load (7272kg),Length of Threaded Portion (300 mm),Thimble Shape (Suitable for 7/22SWG Stay Wire), Minimum Thimble Section(18 SWG), Stay Plate Section (300 mm x300 mm x 6 mm MS Plate), Eyebolt Lengthmm/1 (300 mm), Stay insulator,Stay Wire (7/12SWG Steel Wire, 700 Grade, 45 tonSteel Quality, 2.64 mm dia.,Minimum Wt./km (300 kg) | no |  |  |  |  |  |  |  |
| 17 | Anchor and Suspension Clamps | Anchor and Suspension Clamp for both 9m and 8m poles for binding of ABC cable into distribution pole | pc |  |  |  |  |  |  |  |
| 18 | Piercing Cable Connector interconnect service | Cable Connector suitable to interconnect service cable and ABC cable | pc |  |  |  |  |  |  |  |
| 19 | LA for 1 phase | 0.5 kV,1-phase Lighting Arrester with all complete accessories ( for 0.23kV LT Lines). | set |  |  |  |  |  |  |  |
| 20 | Earthing for LA | Copper Rod Earthing : minimum dia. 20 mm of length 2 M with 8 SWG Copper wire , Chemical Earthing Compound of 25 Kg each, 24 mm polythene pipe for copper wire etc. with all complete set of accessories as per drawing and technical specification | set |  |  |  |  |  |  |  |
| 21 | Service wire | Service wire, concentric 6 sq.mm. | km |  |  |  |  |  |  |  |
| 22 | Single Phase Prepaid Meter | Pre-paid Energy Meter 5-30 A, 230VAC 50Hz, Accuracy Class 1 | no |  |  |  |  |  |  |  |
| 23 | MCB | MCB 6Amp DP 230V for Households | no |  |  |  |  |  |  |  |
| 24 | Lamp 3W | LED Lamp 3 Watt, AC 230V with Holder | no |  |  |  |  |  |  |  |
| 25 | Lamp 5W | LED Lamp 5 Watt, AC 230V with Holder | no |  |  |  |  |  |  |  |
| 26 | Lamp 10W | LED Lamp 10 Watt, AC 230V with Holder | no |  |  |  |  |  |  |  |
| 27 | Wiring Devices | Wiring devices for one household-20m of 1.5mm2 of 2 core AC cable for housewiring, 6 switches, 6 holders, 2 sockets | set |  |  |  |  |  |  |  |
| 28 | Street Lamp | LED Street Light 230V 20W AC with photo sensors and mounting arms to be installed in the pole | no |  |  |  |  |  |  |  |
| 29 | Clock with Contractor for Street light ON/OFF | Astronomical Time Switches for Street Light Operation, 230V, min of 6A current. This should able to calculate the exact switching times for sunrise and sunset depending on location and time zone. Integrated relay to operate in 230V should be provided along with contractor | set |  |  |  |  |  |  |  |
| **Total Sum** | | |  |  |  |  |  |  |  |  |
| **VAT 13%** | | |  |  |  |  |  |  |  |  |
| **Grand Total** | | |  |  |  |  |  |  |  |  |

BOQ of Service to be Offered

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Item No.** | **Item Description** | **Quantity** | **Unit of Measurement** |  | |  | |  | |
|  |  |  |  | **Unit Rate** | **Total** | **Unit Rate** | **Total** | **Unit Rate** | **Total** |
| 1 | Civil works for solar PV array foundations including material and workmanship |  | LS |  |  |  |  |  |  |
| 2 | Fence for PV array & Powerhouse(Chain Link mess of size 2 inch\*2 inch with iron angle post of 50mm\*50 mm\*5mm of height 1.5 m from ground level with concrete base of 0.2 m\*0.2 cover and 0.5 m depth ) with minimum of 1 numbers of 3 m wide metal gate |  | m2 |  |  |  |  |  |  |
| 3 | Installation, Commissioning and Testing of Solar Mini-grid System |  | LS |  |  |  |  |  |  |
| 4 | Operation, Maintenance and Management of whole system for 5 Years |  | Year |  |  |  |  |  |  |
| 5 | Transportation of all goods from Supplier’s warehouse to subproject site |  | LS |  |  |  |  |  |  |
| 6 | Loading Unloading, packing of materials and equipment |  | LS |  |  |  |  |  |  |
| **Total Sum** | | | |  |  |  |  |  |  |
| **VAT 13%** | | | |  |  |  |  |  |  |
| **Grand Total** | | | |  |  |  |  |  |  |

**Details of HR requirement**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Academic Qualification**  **[When position demands]** | **Total Work Experience [Years]** | **Experience in Similar Works [Years]** |  |  |  |
| 1 | Project Manager  (One project manager can work for two mini grid projects at a time) | One | Masters in any Discipline | Minimum 7 Years | Minimum 5 Years |  |  |  |
| 2 | Sr. Engineer (One Sr. engineer can work for three mini grid projects at a time) | One | Bachelor in Electrical, Electronic or Mechanical Engineering | Minimum 5 Years | Minimum 3 Years |  |  |  |
| 3 | Engineer/Overseer (This should be full time staff for the project duration and cannot work for other mini grid project) | One | Bachelor in Electrical, Electronic or Mechanical  or Diploma in electrical, electronic or mechanical | For Bachelor: Minimum 2 Years  For Diploma: Minimum 3 Years | For Bachelor: Minimum 1 Year  For Diploma: Minimum 2 Years |  |  |  |
| 4 | Engineer/Overseer (Part time) | One | Bachelor in civil or Diploma in civil | For Bachelor: Minimum 2 Years  For Diploma: Minimum 3 Years | For Bachelor: Minimum 1 Year  For Diploma: Minimum 2 Years |  |  |  |

**Final Financial**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.N.** |  |  |  |  |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 | **Grand Total in Words in NRs.** |  |  |  |

**Decision and Recommendation:**

Hence, Among ……… Bidder, Bidder 1 ……………….., Bidder 5 ………………….. and Bidder 6 …………………… Bidder 6 ………………. Puts the low Price So, Recommended for Further Process.

**Name and Signature of Evaluation Committee:**

**Endorsement and Approval of technical evaluation report:**

The evaluation report submitted by evaluation committee is endorsed and approved for opening of financial proposal as per provision of PPA/PPR