

| Name Of Work:- Supply, Installation, Testing and Commissioning of Solar Roof System With Operation and Maintenance |                    |   |        |           |              |
|--|--------------------|---|--------|-----------|--------------|
| Abstracts Sheet  |                    |   |        |           |              |
| Sr. No.  | Estimated Quantity | Description   | Unit   | Rate      | Total Amount |
| 1  | 2.00               | Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 50 KA and above at 415 V having Normal current rating 400A. with variable Thermal & magnetic release suitable to work on A.C.supply 50 c/s. With all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S. housing.<br>ICS=100% of ICU only      Cat III  | Ea.    | 25,228.79 | 50,457.58    |
| 2  | 2.00               | Supplying and erecting triple pole & neutral 440V/ 500V panel mounting Aluminium Busbars with four equal Nos. of bus having current density not more than 0.8 Amp. / sq.mm (Rated current / cross section area) duly wrapped with colour insulating tape for phase sequence of following current carrying capacity, erected with necessary bus bar supports /insulators, main cable socket to each busbar,erected in existing cubical panel with necessary connections.<br>(D) Suitable for 400 Amp. Capacity | Rn.Mtr | 2,204.83  | 4,409.66     |
| 3  | 2.00               | Supplying and erecting approved make panel mounting type Digital Voltmeter having 3 digits LED display, 0 to 750 AC Volts range erected on existing panel board with all connection, wiring etc .with manufacturers calibration certificate.  | Ea.    | 1,275.63  | 2,551.26     |
| 4  | 2.00               | Supplying and erecting approved make panel mounting type Digital Ammeter having 3 digits LED display, external CT operated, calibrated for 0 to 1000 Amps suitable to operate on 500 Volt AC , erected on existing panel board with all connection, wiring etc .with manufacturers calibration certificate.   | Ea.    | 1,558.43  | 3,116.86     |
| 5  | 6.00               | Providing & erecting L.T. Current Transformer with bar primary 50/5 to 1000/5 ratio 15 VA burden erected in existing CRCA box duly secured with insulating materials connected to the meter   | Ea.    | 274.72    | 1,648.32     |
| 6  | 2.00               | Supplying & erecting approved make Power Factor Meter 150mm dia flush/projection type/ balanced & unbalanced load to work with appropriately provided CT's 100/5A to 400/5A ratio & other accessories complete erected in M.S. box & connected to the circuit by means of PVC copper Core leads.  | Ea.    | 5,102.52  | 10,205.04    |
| 7  | 6.00               | Supplying and erecting approved make suitable panel indicator LED type lamp, lens cover, complete erected with necessary connections.   | Ea.    | 43.43     | 260.58       |
| 8  | 3.00               | Providing and erecting Steel cover as per drawing using 16 SWG M.S.sheet of following depth, to house the switch gear etc. complete with locking arrangement and lock with duplicate keys per cupboard and door handles erected with necessary support and painting. [One coat red oxide and two coat enamel paint]<br>(A) with angle iron frame<br>(ii) For 40 cms. Depth  | Sq.Mtr | 4,228.87  | 12,686.61    |
| 9  | 50.00              | Providing , erecting , fabricating the M.S. structure as per requirement on site incorporating proper size of M.S. angles,square,round, flats, bars, channels, sections complete with cutting, welding, grinding & finishing duly painted with one coat of red oxide with erection on site as per direction of engineer in charge with necessary grouting, cementing, plastering & finishing complete.  | Kg.    | 77.77     | 3,888.50     |
| 10   | 150.00             | Providing and fixing approved make Perforated C type cable tray. Made from pre-galvanized CR sheet steel. The cable tray should be bended as per IS 2062/1079 . with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge...<br>(3)150 X 50 X 1.5 mm Thick   | Rmt.   | 322.19    | 48,328.50    |
| 11   | 5.00               | Providing and fixing approved make 'T' Junction for Perforated C type cable tray. Made from pre galvanized sheet steel. The Junction should be bended as per IS 2062/1079. with max 17.5% perforation with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.<br>'T' Junction<br>(3) 150 X 50 X 1.6 mm Thick ' T' Junction  | Ea.    | 167.66    | 838.30       |
| 12   | 5.00               | Providing and fixing approved make '90° Elbow' for Perforated C type cable tray. Made from pre galvanized sheet steel. The Junction should be bended as per IS 2062/1079. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.<br>(3) 150 X 50 X 1.6 mm Thick 90° Elbow  | Ea.    | 146.45    | 732.25       |
| 13   | 350.00             | Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables<br>(H) 3 1/2 core 185 Sq. mm ( 95 Sq. mm 1/2 core)  | Mtr    | 899.91    | 314,968.50   |

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|---------|--------------------|--|--------|-----------|--------------|
| 14      | 4.00               | Providing and, fixing heavy duty flange type brass double compression type cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables.<br>(G) 3 & 1/2 core 185 Sq. mm   | Ea.    | 238.36    | 953.44       |
| 15      | 12.00              | Solder less crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner.<br>(1) 185 Sq.mm.   | Ea.    | 80.80     | 969.60       |
| 16      | 4.00               | Solder less crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner.<br>(F) 95 Sq.mm.  | Ea.    | 40.40     | 161.60       |
| 17      | 200.00             | Supply, Installation, Testing & Commissioning of following size of Grid Tied Solar Power Plant with<br><br>Solar Panels (ALMM approved): Frame Material : Anodized Aluminum alloy Frame With Twin Wall Profile, Front Cover : High Transmission Low-Iron Tempered Glass (AR Coated), High efficiency and positive power tolerance Pmax: 0/+5, Module Efficiency should be approx. 18%-21%, Normal operating temperature 45°C, Junction Box with Waterproof IP67 & MC4 Compatible and Enclosed with Bypass diodes, 100% Electroluminescence test to ensure error free Modules, Thep. temp. co-efficient of the PV module shall equal or better than -0.45%/degree C. Solar PV modules of minimum fill factor 75% to be used. Unit Production:- 4 to 5 Unit /kw /day (Actual)(1Year Avg) With 10 year Product warranty and 25 year Linear Power Warranty.,<br>Solar Inverter: MPPT Range: 80-1000 V, Max efficiency: 97.5% - 98.9%, O/p Frequency: 50/60Hz, Operating Altitude (m) ≤4000, O/p Power Factor: ~1, O/P THDi: <3%, Operating Temperature Range: -25~60°C, Anti-islanding Protection: Integrated, Input Reverse Polarity Protection Integrated, Insulation Resistor Detection Integrated, Residual Current Monitoring Unit Integrated, Output Over Current Protection Integrated, Output Short Circuit Protection Integrated, Output Over Voltage Protection Integrated, Protection Degree: IP65, User Interface LCD & APP,Datalogger & Communication: GPRS / Wi-Fi, Module Mounting Structure: Seamless Box Pipe / 'C' Channel of suitable size for rooftop solar installations with good stability against wind & weight load., Hot Dipped Galvanized steel coils. suitable arrangement for base plate for foundation , solar panel mounting, the structure should be suitable for carry the load of solar panel,wiring, sprinkler system etc. with necessary foundation work/wall mount, j bolt, anchor fastner etc. the nut bolt used for installation of structure should be (SS 304) quality. and Balance of System with necessary Switchgears (Suitable size and protection of ACDB & DCDB), inter connecting wiring, earthing system, lightning arrester system, all liaison work with various govt. department like state nodal agency,DISCOM & CEIG | PER KW | 39,802.08 | 7,960,416.00 |
| 18      | 200.00             | Providing & erecting Automatic solar panel cleaning system for solar power projects which includes necessary plumbing work (UPVC pipes and accessories) from source of water to project site (upto 30 meters), Suitable size of submersible/ open well motor, necessary wiring for motor and sprinkler system with safety, timer circuit for automatically on/off the sprinkler system, necessary size and number of nozzles/JET (minimum 1 Nozzle/Jet per module).<br>(F) 200KW Cleaning System   | PER KW | 3,553.18  | 710,636.00   |
| 19      | 200.00             | FIRST YEAR<br><br>The all inclusive comprehensive annual maintenance contract cost covers yearly maintenance of solar PV Modules, Inverter, wiring, earthing, switchgears, etc with material and labour cost including preventive maintenance. The cost covers entire installation. AMC also includes monthly site visit and inspection of project with submission of inspection and solar generation report. All parts should be replaced/repaired if found faulty within specified time. Agency has to provide necessary licensing work for warranty, power, Bidirectional meter etc<br>(E) 200KW System   | PER KW | 3,423.90  | 684,780.00   |
| 20      | 200.00             | SECOND YEAR<br><br>The all inclusive comprehensive annual maintenance contract cost covers yearly maintenance of solar PV Modules, Inverter, wiring, earthing, switchgears, etc with material and labour cost including preventive maintenance. The cost covers entire installation. AMC also includes monthly site visit and inspection of project with submission of inspection and solar generation report. All parts should be replaced/repaired if found faulty within specified time. Agency has to provide necessary licensing work for warranty, power, Bidirectional meter etc<br>(E) 200KW System  | PER KW | 3,423.90  | 684,780.00   |

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|--------------------------|--------------------|--|--------|-----------|----------------------|
| 21                       | 200.00             | THIRD YEAR<br>The all inclusive comprehensive annual maintenance contract cost covers yearly maintenance of solar Pv Modules, Inverter, wiring, earthing, switchgears, etc with material and labour cost including preventive maintenance. The cost covers entire installation. AMC also includes monthly site visit and inspection of project with submission of inspection and solar generation report. All parts should be replaced/repaired if found faulty within specified time. Agency has to provide necessary licensing work for warranty, power, Bidirectional meter etc<br>(E) 200KW System   | PER KW | 3,423.90  | 684,780.00           |
| 22                       | 200.00             | FOURTH YEAR<br>The all inclusive comprehensive annual maintenance contract cost covers yearly maintenance of solar Pv Modules, Inverter, wiring, earthing, switchgears, etc with material and labour cost including preventive maintenance. The cost covers entire installation. AMC also includes monthly site visit and inspection of project with submission of inspection and solar generation report. All parts should be replaced/repaired if found faulty within specified time. Agency has to provide necessary licensing work for warranty, power, Bidirectional meter etc<br>(E) 200KW System  | PER KW | 3,423.90  | 684,780.00           |
| 23                       | 200.00             | FIFTH YEAR<br>The all inclusive comprehensive annual maintenance contract cost covers yearly maintenance of solar Pv Modules, Inverter, wiring, earthing, switchgears, etc with material and labour cost including preventive maintenance. The cost covers entire installation. AMC also includes monthly site visit and inspection of project with submission of inspection and solar generation report. All parts should be replaced/repaired if found faulty within specified time. Agency has to provide necessary licensing work for warranty, power, Bidirectional meter etc<br>(E) 200KW System   | PER KW | 3,423.90  | 684,780.00           |
| 24                       | 5.00               | EARTHING<br>Supplying & erecting in earthpit of minimum bore dia. 225mm size approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free hot dipped G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanising, Inner pipe dia of 40 mm having 200-250 Micron galvanising, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications with chamber and heavy duty cover. (approved make OEM has to submit test certificate including value of earth resistance of installation).<br>[C] For Electrical Installation covering Transformer Neutrals, Lightning arrester Earthing, A.C. Plant & Sensitive Computer System (like Automation, SCADA) i.e. independent Earthing located in other than normal soil i.e. Soft Rock, Marshy Soil etc..<br>-Length of Pipe : 3 Mtrs.<br>-Back filling Compound : 2 nos Bags of 25 Kg. | Ea.    | 10,593.89 | 52,969.45            |
| 25                       | 250.00             | Providing and erecting required size HOT deep Galvanised iron strip for earthing of H.T., OCB/ ACB/ Transformer LT panel board, Motors etc. using proper clamp.  | Kg     | 77.77     | 19,442.50            |
| 26                       | 400.00             | Providing and erecting HOT deep Galvanised iron strip wire 8 to 16 S.W.G.  | Kg     | 77.77     | 31,108.00            |
| <b>Total Amount (Rs)</b> |                    |  |        |           | <b>12,654,648.55</b> |

In Words :- (One crore twenty-six lakh fifty-four thousand six hundred forty-eight rupees and fifty-five paisa)

I/We am/are willing to carry out the work at.....% Above / Below.

(Percent Should be written in figures and words) of the Estimated Specificationes mentioned above. Amount of my/our tender works out as Estimated Amount put to tender

Add/Deduct..... % above/below

Net Amount

Note :-

- 1 All works shall be carried out as per Public Work Department Handbook and other specification of Division or as directed.
- 2 All the column in Schedules should be filled in ink and the total of the entries in last column should be struck by the contractor under his signature.
- 3 Specificationes quoted include clear specification of site (prior commencement of work and at its close). In all respect and hold good for work under all
- 4 Serviceable material available (if any) after Demolishing / Dismantelling any item should be hand over to the concerned PIU Site Engineer in Charge as per