

Estimate for 5 KW solar power plant (off grid) supply, installation Testing & Commissioning including 5 years Annual Maintenance at Dhekia Gram Panchayat Office Building, under Saltora Block, Fund – P.B.G during the year 2021-22

Sl No	Description of Item	Qty	Rate	Unit	Amount
1	72 cell , > 12.0 KWp solar Panel (MNRE approved, 1000v DC IEC -61215 Certified) with built – in Blocking Diode. MNRE approved grade SPV panel. Cell material: Mono crystalline / Poly Crystalline silicon solar cell. Capacity: The power output of the individual module (s) should not be less than 325wp. The operating voltage corresponding to the power output mentioned above should be 27.4/36.volt. The Ocv of the PV module under STC should be at least 46.0volts power output >91.2% upto 10years & ≥80% up to 25years. Module efficiency>16% operating temp : 45°C. Framed in anodized Aluminium alloy with IP 65/67. Maximum wind load 5400pascal. SPV module must contain following details : i). Name of Manufacturer, ii). Model no / Type no, iii). S.L. no, iv) Date / year of manufacturing. (Brand Jackson/Plaza /Vikram/ any MNRE approved	17 Nos	13500.00 ✓	Each	2,29,500.00 ✓
2	Battery 12.0V, 150Ah LMLA technology Battery @ C10, with features DOD > 80% warranty 05years. The battery should be of > 1200cycle life @ 60% DOD. Operating temp 20~ 40degree Celsius, as per IS13369 : 1992 standard ratings, Battery manufactured / supplied by the reputed Indian company (Okaya/STND/ Exide /Luminious or Equivalent to MNRE approved)	8 Set	22,700.00 21800.00	Set	1,81,600.00 174400.00
3	Bidirectional solar Hybrid PCU (Solar/ Grid/BATT) with Export Facility of 6kw . Single Phase 72 Volt IGBT based high voltage switching inverter with inbuilt MPPT controller with Temperature Compensated Buck type charger topology, PV nominal capacity 6kwp, inverter should have Tactile Kay Pad Interface based site selectable Multi Mode function: SGB (SGB Modes with Buffer level selection facility 25/50/75) / SBG/GFM (GFM levels are selectable 0/25/50/75/100) and compatible to Battery less operation and compatible with Generator inbuilt LCD panel to show various parameter like PV volt, Amp, generating kWh, input & output Ac – volt load amps, KW frequency, ect. I/P max 51amps, Max SCC O /P Amps>60, peak charging efficiency> 90% THD <5% parallel Operation with Grid, Over load for 125% FOR 60 SEC, 150% FOR 5 SEC protection PV side: Reverse Polarity, Battery Side : Reverse polarity, Over / under voltage , current Limit, Grid side Over / under Voltage over / Under Frequency surge protection, (Class D), System Protection : Over Temperature, Degree of Protection IP -21 with certified as per IEC- 60068-2-1, IEC-60068-2-2, IEC-60068-2-14, IEC-60068-2-30- And with Anti Islanding protection as per IEC 62116 and As per MNRE Requirement	1 Set	65,000.00 ✓	Set	65,000.00 ✓
4	M.S structurl works in columns, beams, etc, with simple rolled structural members (e.g joints, angle, channel sections confirming to IS :226, IS :808 & SP (6) 1964 connected to one another with bracket, gusserts, cleats as per design, direction of engineer-incharge complete including cutting to requisite shape and length fabrication with bolting metal are welding confooning to IS :816-1969& IS : 1995 using eledrodes of approval make and brand confurmlng to IS :814 – 2004. Haulage, hoisting and erection all complete. The rate incl. the cost of rolled GI section, consumables such as electrodes gas, and hire charge of all tools and plants and labour required for the work incl. all incidental chages such as electricity charges. Labour insurance charges etc.i) for structural building – members of specified sections weighing <22.5 kg/m MS structural works module mounting structure must be with hot deep galvanized iron on Rooftop. The structure stand with capable to take load of modules up to 100 KMPH wind Item No – 1.i / P-99 PWD Building structural schedule.	1 Set	9,000.00 ✓	Set	9,000.00 ✓
5	Supply of single core FR copper wire of 6.00 sq mm for SPV module inter connection & module to off – grid pcu and main load to Distribution / Mcb box Item no – 73 P –k-2 PWD elec vol -1 2017	60 Mtr	48.90 50.00	RM	2934.00 3000.00
6	Supply of Single core FR copper wire of 4.00 sqmm for Earthing and main load item no – 72 P-k-2 PWD Elec vol –I -2017	1 Set	4000.00 ✓	Set	4,000.00 ✓

7	Wiring Accessories like PVC pipe, joint Luck O Luck for battery, PVC bullet, insulate tape Etc. 35sqmm copper cable for Battery inter connect and to PCU	1 Set	2000.00 ✓	Set	2000.00 ✓
8	Solar DCDB box suitable for 6kw for better safety at SPV module site	1 Set	3500.00 ✓	Set	3500.00 ✓
ALL ABOVE RATE AS PER MNRE RATE GUIDELINE " NO318/38/2018- GCRT, Date 25 th July 2019 Page no : S.L. No :iii"					
PART – ' B ' Other Works					
9	Earth work Excavation Earthing by 32mm x 3mtr GI pipe, Connected with 4.0 sqmm copper wire with proper weld with O luk 25mm GI bolts, nuts, washers, spacing insulators etc. as. Required. Earthing and Earth pit – excavated earth pit with shifted soil and ramming properly, earth pit must be executed nearest PCU & electrical equipments and module mounting structure. The Earthing connected to the structure should be copper (4.00sqmm) wire & Lightning arrester should be connected with > 2.5 sq mm copper wire earthing set. Item no – 2(a) / P.-1 PWD Building structural schedule & Ref Elec GS page G-1, item no -2(a)	1 Set	4000.00 3959.00	Set	4000.00 3959.00
10	Wiring material for load output and input connection must be connected with ACDB / Surge Proctor / RCCB mcb (type B 30amps, DP type), Electrical equipments & accessories inclusive installation from main change over / MCB to PCU & PCU to load output junction box / MCB box for PV side use DCDB	1 Set	4000.00 ✓	Set	4000.00 ✓
11	Cables as per requirement (Havels/Polycab/Finolex) and Accessories as required The electric cable used shall be single core PVC insulated copper cable of size 2.5 sqmm for load output. For SPV module & to PCU inv connection 6.0 sqmm and 30sqmm for battery inter connection & to pcuinvert connection The size of wire between CCU/inv and battery should not be less than 30sqmm copper. The battery lead should be provided with the suitable battery luk (Copper) The total wire from module to PCU inverter should be cover by pvc pipe. Include 1000mtr 2.5 sqmm @ 2core copper wire FR standard 2.5 sq mm for Normal load output load output and 1.5sqmm for minimum load.	1 Set	7,000.00 ✓	Set	7,000.00 ✓
12	Wiring Accessories like PVC pipe, joint Luck O Luck for PCU load Pvc bullet, insulate tape, Sqare, Nut, bolt, Busbar, Load, MCB, Switch, cover clip, cable connector etc.	1 Set	5,000.00 ✓	Set	5,000.00 ✓
13	Transportation, installation Testing and Commissioning of system incl. all.	1 Set	5,000.00 ✓	Set	5,000.00 ✓
14	Installing with civil Materials for foundation and charges (Per system) incl. Lbour Charges Deputation of Technician and supervisor for supervision, civil materials incl. signboard.	1 Set	5,000.00 ✓	Set	5,000.00 ✓
15	Battery structure made of GI angle with anti corrosive coating The structure should be made to 50mm x 50mm x 6mm thik MS angle and middle connectors are 35 x 35 x5mm. The Battery structure shall be GI. The size of structure should be as per battery size providing sufficient clearance on all sides (minimum clearance within all side 12" and battery to battery 8") The edges of structure should be turned properly to give smooth edge and good strength can take 680kg Pvc/Anti Electrical battens should be fixed inside the whole battery structure. As per direction of Engineer in charge	1 Set	5,000.00 ✓	Set	5,000.00 ✓
16	Maintenance cost of solar hybrid system for five years, as per annual Maintenance cost.	5 No	5,000.00 ✓	Each	25,000.00 ✓
17	Cutting to requisite length or shape departmental R.S joists, channels, angles, tees, plates, etc, Item no – 2 P 109 PWD Building structural schedule.	150 Nos	8.00 ✓	Each	1200.00 ✓
18	Drilling holes of requisite diameter in R.S joists channels, tees, plates etc. (a) (i) Dia. Upto 12mm and depth upto 10 mm item no 4P – 102 PWD Building structural schedule.	150 Nos	10.00 ✓	Each	1500.00 ✓

19	Welding in MS structural work with gas or electric Continuous weld / Trck weld, Cub cm / Point item no – 2 P -111 PWD Building structural schedule	250 Nos	9.00 ✓	Each	2250.00 ✓
20	Supplying fitting, fixing bolts with nuts, washer : (i) 10 to 16mm dia – (a) Length up to 75mm item no : 7P 103 PWD Building structural schedule.	4 Kg	114.00 ✓	Kg	456.00 ✓
21	Renovation and /or Re-Wiring of the main distribution line in the building by supplying new cable & wiring accessories as may be required for with simultaneously using existing cables & wiring accessories as per requirement	1 Job	2750.00 ✓	Job	2750.00 ✓

(Rupees Five lakh ninety ^{two} nine thousand ^{three} nine hundred ^{five} fourteen only)

558515.00

Rs. 5,65,690.00

27925.75

Add : GST @ 5% Rs. 28,284.50

5,86,440.75

Rs. 5,93,974.50

5,864.40

Add : Cess @ 1% Rs. 5939.74

5,92,305.15

Total Rs. 5,99,914.24

5,92,305.00

Say Rs. 5,99,914.00

Estimate Prepared by –

Hare Krishna Chand

HAREKRISHNA CHAND 20/9/21

(L.E.E.)

Electrical Engineer & Supervisor

Register No.-10233

Khatra, Bankura

Dhekia Gram Panchayat

23/9/21
Junior Engineer (Electrical)
West Zone, P. W. Directorate
Government of West Bengal

Only Rates are vetted

Assistant Chief Engineer (Electrical)
West Zone, P. W. Directorate
Government of West Bengal