

Details of Empanelled Vendors & Pricing for Solar Fencing (for Govt./Semi Govt. Buildings) 2022-23

Sno	Total Payable Amount inclusive of Centage & GST per kW (in ₹)	Empanelled Vendors	Address	Email	Contact	Validity of Agreement
1	583.87	M/s Rakesh kumar Dubey Agency	1/210, Sector-C, Priyadarshini Colony, Sitapur Road, Lucknow	r.k.dubey51@gmail.com	8601066856	27-07-2022

Part -4

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

1. SCOPE OF WORK

Designing, supply, installation, commissioning & 5 years of comprehensive warranty & maintenance Solar Power Fencing at “Rajkiya Usar Sudhar Parechetra”- Kashimabad district Hardoi ; Rahimabad and Katiyar, of Lucknow in Uttar Pradesh on turnkey basis with the following details:

Sl no	District	Name of Site	Approximate length of fencing area in meter	No of gate	No of Energizer	No of solar systems including battery
1	Hardoi	Kashimabad -1	1500	1	1	1
2		Kashimabad -2	2000	2	2	2
3		Kashimabad-3 (Sarva)	1500	1	1	1
4	Lucknow	Rahimabad-1	2000	2	2	2
5		Rahimabad-2	2000	2	2	2
6		Rahimabad-3	3000	2	2	2
7	Lucknow	Katiyar-1	2000	2	2	2
8		Katiyar-2	2000	2	2	2
9		Katiyar-3	2000	2	2	2
10		Katiyar-4	1000	1	1	1

The solar fencing system shall be installed in ground. Distance between two intermediate post shall be 6 meter and number of lines of wire shall be 6 nos. The height of fence shall be 8 meter above ground level.

2. Brief Technical Specifications:

Item No	Item	Description of item
1	Energizer	Energizer confirming to BIS 302-2-76 Standard of safety with built in alarm: Input Voltage: 12V DC, Input Current: 500MA, Output Voltage: 7.0KV -10.0 KV, Pulse Interval: 1.20second, Pulse Duration: 0.3Milli Second, Output energy: 5 Joules Max.
2	SPV Module	Only indigenous SPV modules shall be used in the project. SPV module of 36 cells 100 Wp at 16.4 ± 0.2 Volt if MPPT is not used with positive tolerance. Module Voc should be minimum of 21 V . The offered module shall be in accordance with the requirements of MNRE standards and tested as per: <ul style="list-style-type: none">a) Latest edition of IEC 61215 / IS 14286 for Crystalline Silicon Terrestrial Photovoltaic (PV module - Design Qualification and Type Approvalb) Latest edition of IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for

		<p>safety qualification.</p> <p>Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided and if required, blocking diode(s) may also be provided.</p> <p>IDENTIFICATION AND TRACEABILITY</p> <p>Each PV module must use a identification tag which must contain the following information:</p> <ul style="list-style-type: none"> (i) Name of the manufacturer with logo (ii) Month and year of the manufacture (iii) Unique Serial No (iv) Model No of the module with voltage and rated wattage (viii) Made in India <p>The test report should be from MNRE/NABL/IECQ authorized test center issued after 1st April 2017. The bidder shall submit appropriate certificates</p>
	Battery	<p>The battery should be Lithium Ferro Phosphate (LifePO4/ LFP) 12.8 Volt, 80 Ah. The Battery pack should be got tested as per IEC 62133-2012 or BIS latest standard from BIS recognized labs or MNRE accredited test centre, (. The minimum each cell capacity should not be less than 3.2 volt, 40AH (Prismatic cell). The battery pack must have suitable Battery Management System (BMS). The test report of battery pack/cell issued after 1 April 2017 should be submitted</p>
	Charge controller	<p>Suitable Charge controller to maximize energy drawn from the solar PV module with suitable protection for over charging, deep discharging and reverse polarity etc.</p>
	Module mounting structure and pole	<p>The pole should be hot dip galvanized pipe as per IS 1161 & IS 4736 i.e. Class B. with 76 mm outer diameter of 6-meter length. The pole should have the provision to hold the weather proof lamp housing individually as per case. SPV panel shall be mounted on pole. The mounting structure shall be fixed in the centre of GI tubular pole made flat at fixing end, square angle adjusting plate of 115 mm size 5 mm thick shall be provided. So that SPV panel can be fixed at inclination of 30 degree from horizontal. Two 10 mm steal bar of 300 mm length should be inserted at the interval of 25 mm from bottom of the pole.</p> <p>A metallic frame structure (hot dip galvanized with 35*35*5 mm angle) to be fixed on the pole to hold the SPV module(s). The frame structure should be fixed at 30 degree from horizontal facing true south.</p> <p>The grouting should be such that it must withstand the maximum wind speed /storm. The pole should be grouted with CC mixture of 1:2:4 of dia 300 mm having depth of 1000 mm and 200 mm above ground level with 200 mm dia.</p>
	Fence Wire	<p>High tensile(HT) wire- ACSR Conductor wire, ISI marked, Coated with Zinc+ Aluminium, 2.59 mm (12 gauge), -06 Nos through each post supported through Polypropylene(PP) insulators on each post. Minimum no of line</p>

		should be 6 no.
	Tying wire	14 SWG GI wire with high quality Zinc coating.
	Reel insulator	Must be of virgin poly propylene UV treated .(The teste certificate of material tested for insulator to be submitted.) with riveting 6 for every post
	Strain Insulator	End strain insulator must be of poly carbonate material UV treated and should with stand 15 kv voltage. (The teste certificate of material tested for insulator with 15 KV to be submitted)
	Permanent Wire Tighteners	Galvanized made up of special alloy, non-rusting (Round Shape) with springs 12 @ 21m interval + Gates and as required as per site.
	Corner posts	GI hot dipped, 50 mm round Pipe (medium Class) of Indian Standard, Covered from Top (Top Cap) with two angles for anchorage (at bottom) of ISA 35 x 35 x 5 mm 6 inches each., with PP Insulator riveting.
	Support Posts	GI hot dipped, Round Pipe-32mm Diameter (medium Class) of Indian Standard, with two angles for anchorage (at bottom) of ISA 35 x 35 x 5 mm 6 inches each. with PP Insulator riveting. Must include brackets & fasteners for necessary connections complete in all respect. Two on cornet posts , or as required for lateral supports.
	Intermediate posts	25X25X X3 mm” T” angle hot dip galvanized –more than 60microns; 10 feet (2 feet below ground and 8 feet above ground) long. The distance between each post should not be more than 3 meters.
	Grouting of post	Posts must be grouted in P.C.C. in 1:2:4 cement sand & stone ballast. 20mm nominal size of aggregates. 1).For corner Posts 0.45*0.45*0.70 size 2). For Intermediate posts & Support posts 0.45*0.45*0.6m
	Lead Out Cable	Double insulated with standing 15KV voltage, 2.00mm core diameter hot dip galvanized wire with 9 mm thick insulation.
	Permanent tension spring	GI coated 6 mm coil spring capable of taking compression load.
	Joint clamps	Positive locking mechanism./zinc coating of more than 25microns
	Earthing System	With 4 feet long non rusting SS 8mm rod with special earth for retention of moisture for long period. Suitable nos of SS electrodes enclosed in cloth bag with non-corrosive electrolyte- min 3 nos for energizer unit earthing , 2 nos for lightening divertor and one at every 200 M.
	Warnings sings	UV stabilized Polyethylene plastic with statutory colors and signs in English or Hindi language on the front face. It will be fixed on the fence wires at every 50 meters
	Framed power gate 6 feet height	16 feet double framed power gate fabricated with 40 mm square MS pipe all round with 100 mm square pillar MS pipe. The gate handle should be Polyethylene with proper insulation.
	Digital volt mater	Must display fence voltage digitally up to 15kv. Made of non –shocking plastic
	Xenon flash tube	Xenon tubes capable of flashing with each pulse to monitor the fence working and must be visible from a distance of 1000m
	Neon tester	5 neon lights measuring the fens for excellent, very good, good and poor markings.

	Hooter	
	Housing box for Energizer and battery	Hot dip galvanised MS box with minimum 18 SWG with locking facilities. The box should be as per IP 65 for outdoor applications.
	Automatic Shut off	Shall be provided in case of trapping of animal or any other physical obstructions.
	Tool Kit	Wire tightener handle, twisting tools, pliers and double ended spanner for clamp tightening shall be provided for each site.
	Others	Digital voltmeter, Cut out switch, , Hooter-118DB & lighting diverter system (electronic-V-shape) complete in all respect.

The contractor shall have to take approval of the engineering documents from UPNEDA prior to commencement of the work. A layout plan of the site should also be submitted if necessary, clearly indicating the identified location for installation of SPV Modules, where batteries & control panels shall be installed.

3. OTHER FEATURES

A toll free number (i.e. 1800 180 0005) of IVRS of UPNEDA and 14 digit UID number of minimum thickness 5mm and height of letter should be at least 25mm (issued/provided by UPNEDA) is to be embossed / punch on nut-bolted strip on pole between 1-1.5 meter above from ground level by contractor/ bidder, which in case of non-working/ operational problems etc of system will be dialed by the beneficiary etc to lodge a complaint in respect of system problems. The suitable sign board of 500 mm x 300 mm size powder coated MS Sheet assigned by UPNEDA should be installed on pole under different schemes as per the requirement. The IVRS will divert the complaint to Contractor/ bidder through e-mail, SMS etc. The contractor/ bidder will have to rectify the same to make/ restore the system to working position within 72 hours in the warranted period of 5 years, failing which the system may be get rectified on contractor/ bidder cost and the cost will be recovered by contractor/ bidders pending claims what so ever and appropriate action as per noncompliance etc of agreement will be considered / taken

4. Installation of System:

The system should be properly installed at site. Cables of appropriate size should be used to keep electrical losses to a bare minimum. All wiring should be in a proper conduit or capping case. Wire should not be hanging loose. Any minor items which are not specifically included in the scope of supply but required for proper installation and efficient operation of the SPV systems, is to be provided by the manufacturer as per standards.

5. WARRANTY

The mechanical structures, electrical works including charge controllers/ maximum power point tracker units/DC circuit drivers/Luminaire, storage batteries, etc. and overall workmanship of the SPV lighting systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years. The SPV module should be warranted for 25 years.

6. TRACEABILITY OF THE PRODUCT TO BE SUPPLIED

In order to prevent the misuse of the product such as unauthorized sale or diversion to the open market, the following incorporation shall be made in the product.

- a) Engraving (or) Screen printing of UPNEDA at a suitable place on the main components viz., SPV Panel, LED Lighting Units to be used in the installation of the solar street lighting systems.
- b) The system unique ID number as provided by UPNEDA shall be **permanently embossed / punch on a metallic strip nut-bolted / riveted to or directly embossed/punch on pole of the system. The UID number painting or marking will not be allowed.**
- c) **sign board** as prescribed by UPNEDA should be fixed on pole.

PART -5

WARRANTY AND MAINTENANCE

- The PV modules will be warranted for a minimum period of 25 years from the date of supply. (Output wattage should not be less than 90% at the end of 10 years and 80% at the end of 25 years).
- The mechanical structures, electrical components, luminary including battery and overall workmanship of the complete Systems must be warranted for a minimum of 5 years from the date of commissioning and handing over of the system.
- The Comprehensive Maintenance (within warranty period) shall be executed by the firm themselves or through the authorized dealer/ service center of the firm in the concerned district. UPNEDA is imparting training to ITI/Diploma holders under “Suryamitra Skill Development Program”. The successful contractor(s) should engage them in their service centers to provide necessary repairs and maintenance service including installation of the systems during the time of execution
- Necessary maintenance spares for five years trouble free operation shall also be supplied at service centres.
- The contractor/ bidder shall be responsible to replace free of cost (including transportation and insurance expenses) to the purchaser whole or any part of supply which under normal and proper use become dysfunctional within one month of issue of any such complaint by the purchaser.
- The service personnel of the Successful Bidder will make routine quarterly maintenance visits. The maintenance shall include thorough testing & replacement of any damaged parts Apart from this any complaint registered/ service calls received / faults notified in the report generated by the IVRS should be attended to and the system should be repaired/ restored/ replaced within 72 hours.
- The deputed personnel shall be in a position to check and test all the components regularly and upload in on UPNEDA System Dash-Board.
- Normal and preventive maintenance of the solar systems such as cleaning of module surface, topping up of batteries, tightening of all electrical connections, cleaning & greasing of battery terminals, also the duties of the deputed personnel during quarterly maintenance visits.
- During operation and maintenance period of the systems, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, what-so-ever, the supplier shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.

(Signature of Bidder with seal)