09 FIRMS CONTRACTED IN UPNEDA for Smart Solar Street Lighting System				
S.N.	**Name Of Firm**	**Address**	**Name and Mobile Number of Representative**	**E-Mail-ID**
1	M/S S.P. & CO	11-B PUSHPKUNJ EXTENSION MAU ROAD KHANDARI.AGRA-282005	Satyapal Singh 9412258426	satyapalsp.co@gmail.com
2	M/S R B ASSOCIATE	64, VINAY NAGAR, BODLA ROAD, SHAHGANJ, Agra, Uttar Pradesh, 282010	Mr. Sumit Rathi, Project Head Mb: 9990124466	rbassociate2017@gmail.com
3	SUNDIGO SOLAR SOLUTIONS PRIVATE LIMITED	Sundigo Tower, CP-36, Viraj Khand, Gomti Nagar,Lucknow (U.P.)-226010.	Mr. Satyendra Singh Chauhan Chief Executive Officer (CEO) 8887534516	sundigosolarsolutionspvtltd@gmail.com
4	Devang Solaar Private Limited	Site-04, 7/22, Sahibabad Industrial Area, Sahibabad,Ghaziabad – 201010 (U.P)	9311426048	tender@ielecssol.com
5	M/S JAI AMBEY SUPPLIERS	375/12B, Janki Nagar, Bahraich Road, Gonda, U.P- 271003	Mr. Lalji Verma 9839083188	jayambeysuppliers98@gmail.com
6	lords mark Industries Pvt Ltd	B-101, Riddhi Siddhi Compex, M.G Road, Borivali(East), Mumbai- 400066	Sachidanand H. Upadhyay 9920227444	lordsmarkindustries@gmail.com
7	Trading engineers	560, Sadar Bazar Jhansi, UP 284001	9415030830	trading.engineers@gmail.com
8	CSA Corporation Pvt. Ltd.	Plot no. 250 First Floor, Okhla Industrial Estate, Phase-III, New Delhi - 110020	9990944556	csacorporation@outlook.com
9	HILITE ENTERPRISES	B-61, Indira Nagar, Lucknow 226016	9839014472	hts3lko@gmail.com

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

The scope of work includes design, supply, installation, commissioning of Smart Solar Street Lighting Systems (LED based) with aesthetically designed streetlight luminaire mounted on 6 mtr high pole with integrated vertical solar PV Panel, MPPT Charge controller and Lithium Ferro Phosphate Battery housed inside the pole with waterproof connected to terminate cables from luminaire, PV and Battery including 05 years comprehensive warranty and maintenance at various solar cities of Uttar Pradesh as per the terms and conditions in this document and following specifications.

The scope of work also include mandatory opening of Service Center in their name in concerned district through which servicing and maintenance should be provided as stipulated quarterly in a year and within 72 hours.

<table>
<tr><th>Sr. No.</th><th>Scope of Work</th></tr>
<tr><td colspan="2">General Technical Specifications</td></tr>
<tr><td>1</td><td>A Solar Street Light (LED based) consist of 6 mtr pole Smart Solar Street Lighting system with LiFePO4 Battery (Integrated Vertical PV Module) with aesthetically designed road lighting optic luminary of IP 66 & Integrated Pole 6 Mtr. Solar pole Light with remote monitoring system, with 5 year warranty against any manufacturing defects Complete in all respect of given capacity, necessary control electronics-inter connecting wires / cables, module mounting etc. to operate the load for dusk to dawn. The broad performance specifications of a White Light Emitting Diode (W-LED) light source based solar street lighting system are given below.
Broad Performance Parameters:

<table>
<tr><td>PV Module</td><td>Only indigenous modules shall be used in the project. Poly/Mono-Si minimum 2 x 180 Wp / 23Voc PV module Poly/Mono-Si with minimum Dimension not more than 172x172x2000 mm each, solar cell efficiency minimum 16.4 %, 8 site string of minimum 45 watt each, total nominal peak power output minimum 360wp, Shall comply IEC61215.</td></tr>
<tr><td>Battery</td><td>Battery capacity minimum 100 Ah, 12.8 V, LiFePO4 , life cycle minimum 2000 @ 90% DOD with IP 68, dimension maximum 120x146x470mm , 13.2 kg, Battery should comply with IS 16406:2015/IEC 62133:2012, BIS certification etc. The minimum cell capacity shall be 6AH, 3.2Volt.
The battery dimensions are specified so that the battery can be placed inside the pole from asthetics point of view. Slight variation in weight and dimension are acceptable.</td></tr>
<tr><td>Light Source</td><td>System wattage shall not be more than 45 W. Life expectancy >50000 Hr</td></tr>
<tr><td>Light Out put</td><td>System lumen > 6000Lm with efficacy of >140 lm/watt.
color temperature 4000 K,
standard light profile 6 H 100% + 6 H 50%,
working temperature -10 to +60 ,
CRI >70,
average lighting beam angle 120 degree,
housing pressure die cast aluminum with corrosion resistance polyester powder coated,
Impact resistance > IK 07,
Lamp starting time should be not more than 10 seconds.</td></tr>
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	Thermal management system should be provided and LED must be mounted on heat conductive aluminum sink with suitable large are surface be means of fins to dissipate the heat to ambient air. Over voltage Protection. Luminaire should confirm to applicable IEC 61000-3-2, IEC 61547. Lighting Fixture- Cobra head
Pole & Mounting	Total Aluminum alloy column length 6 mtr, with Aluminum alloy housing powder coated part minimum 2 mtr from bottom., solar PV module 4 mtr mounted vertically above the battery housing.
Average duty cycle	Dusk to dawn

Test Report

1. Standard fixture should confirm to applicable IEC 60598-1, IEC 61547, IEC 61347-2-13:2014, LM 79 & LM 80, BIS.
2. Test report for LED LM 80 (IS-16105), Internal wiring, fiber glass, insulted multistrand wire.
3. Over voltage Protection Declaration of Conformity safety compliance report for charge controller and should be certified as per IEC 62509:2010, IEC 62093:2022.
4. Test report for vertical pole tested for shock & vibration, wind force to meet safety parameters.
5. Battery test report from 3rd party, along with other test reports.

Make of Items must be as per the BIS/ MNRE technical specification and equivalent make offered by the bidders in the Bid. The Bidders may change the make of items with the permission of competent authority of UPNEDA as and when required on valid circumstantial conditions. The bidder shall provide Test Certificate of the proposed make of items issued from MNRE authorized testing center or NABL accredited test lab.

Minimum Technical Requirements / Standards	
1	**Duty Cycle**
2	The Solar PV White- LED High Mast Light system should be designed to operate for dusk to dawn
3	**SPV Modules:** i. Only indigenous modules of reputed brand IEC Tested shall only be used in the project. Crystalline high power/efficiency cells shall be used in the Solar Photovoltaic module. Poly/Mono-Si minimum 2 x 180 Wp / 23Voc PV module Poly/Mono-Si with minimum Dimension not more than 172x172x2000 mm each, solar cell efficiency minimum 16.4 %, 8 site string of minimum 45 watt each, total nominal peak power output minimum 360wp, Shall comply IEC61215. ii. The open circuit voltage of the PV modules under STC should be at least 21.0 Volts. iii. Crystalline high power/efficiency cell shall be used in the Solar Photovoltaic module. The cell efficiency should not be less than 16%. iv. PV module must be warranted for output wattage, which should not be less than 90% at the end of 20 years and 80% at the end of 25 years. v. The terminal box on the module shall be IP 65 and designed for long life out door operation in harsh environment should have a provision for opening for replacing the cable, if required. vi. The offered module shall be in accordance with the requirements of MNRE. vii. Latest edition of IEC 61215 edition II / IS 14286 for Crystalline and shall be certified by

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	MNRE authorized test center. The bidder shall submit appropriate certificates. viii. PV modules must quality to IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for safety qualification. ix. Deleted x. 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. xi. Identification of Traceability Each PV module must use a RF identification tag (RFID), which must contain the following information: • Name of the manufacturer of PV Module • Name of the Manufacturer of Solar cells • Month and year of the manufacture (separately for solar cells and module) • Country of origin (separately for solar cells and module) • I-V curve for the module • Peak Wattage, Im, Vm and FF for the module • Unique Serial No and Model No of the module • Date and year of obtaining IEC PV module qualification certificate • Name of the test lab issuing IEC certificate • Other relevant information on traceability of solar cells and module as per ISO 9000 series.
2	Inbuilt remote monitoring facility should be available and it should record following System Parameters at a fixed time interval for system health analysis (time interval should be changeable from 15 minutes to 4 hours and will be intimated at the time of award of work as per the requirement). The detail regarding Remote Monitoring Systems are given below:- **1. Battery Parameters:** • Battery Voltage (BV). • Battery Current (BI). • Battery Power (BP) **2. Solar PV Parameters:** • Solar PV Voltage (SV) • Solar PV Current (SI) • Solar PV Power (SP) **3. Load Parameters:** • Load Voltage (LV). • Load Current (LI) • Load Power (LP) • Load ON/OFF condition 4. System shut down due to fault (event fault should be recorded) 5. Site coordinates (Latitude and Longitude) 6. The remote monitoring can be done using any available communication mode like GSM/GPRS/SMS. The cost for the same should be borne by the successful bidder.

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	WARRANTY The mechanical structures, electrical works including power conditioners/inverters/charge controllers/ maximum power point tracker units/distribution boards/digital meters/ switchgear/ storage batteries, etc. and overall workmanship of the SPV power plants/ systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years. 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 as per requirement of site. b) The unique system ID number as provided by UPNEDA shall be embossed or punch or permanently riveted at suitable place of the system as per requirement of site.

Details of current approved rates of various solar systems by UPNEDA

S.N.	Name of System	Rate Including GST @Rs.
1	2	3
1	Solar Heritage High Mast	197610.00
2	Smart Solar Street Light	220657
3	18 Watt Street Light including RMS (DCR)	22464
4	18 Watt Street Light including RMS (Non-DCR)	20964
5	Solar Hight Mast	107985
6	Solar Tree (1kw)	300432