Annexure 'I'

DETAILS OF PRODUCT REQUIRED WITH SPECIFICATIONS

08 X SOLAR SECURITY LIGHTS

S No	Parameter	Specifications
1.	Power output of PV Module	≥ 75 Wp at 16.4 ±0.2 Volt at STC
	Battery Capacity	≥ 12.8 V (nominal), 30 Ah at STC (1 day autonomy)
	Type of LED (Light source)	50 Watt White LED Type
	Ingress Protection	IP 65 or Better
	Indicators on the system	Provided with 2 LED indicators: a green light to indicate deep discharge condition of the battery. The green LED glow only when the battery is actually charged
2.	**Generic**	
	Description of store	Solar Street Light (LED based) consist of white LED luminaire (LED +Driver) rating as per configuration along with Solar PV modules and LiFePo4 battery of given capacity, necessary control electronics, interconnecting wires/cables, module mounting structures, etc. to operate from dusk to dawn
3.	**PV Module**	
	Type of PV Module	Only indigenous modules of IEC Tested used. Crystalline high power/efficiency cells used in the solar photovoltaic module
	Power output of PV Module	≥ 75 Wp at 16.4 ±0.2 Volt at STC
	PV Module Efficiency	≥ 14%.
	The open circuit voltage of the PV modules under STC (in volts)	21
	Certification / Report	Certified by MNRE/NABL authorized test center as per latest edition of IEC 61215 edition II / IS 14286.
	BIS CRS compliance for PV Module	As per IEC 61215 Edition II / BIS 14286 from NABL or IECQ accredited Laboratory
	Minimum warranty period for PV Modules (in Years)	PV module warranted for output wattage ≥ 90% at the end of 10 years and 80% at the end of 25 years
4.	**Battery**	
	Type of Battery	Lithium Ferro Phosphate battery (LiFePo4). Operating from dusk to dawn first four hour full brightness, rest of the time at lower level, with motion sensor
	Battery capacity	≥ 12.8 V (nominal), 30 Ah at STC (1 day autonomy)
	Cycle/ Current	Battery cycle life 2000 cycle at 80 % discharge

S No	Parameter	Specifications
5.	**Light Source**	
	Type of LED (Light source)	50 Watt White LED type
	LED chip Efficacy (Lumen/watt)	≥135
	Luminaire System Efficacy	≥120
	Lumen output - (Lumen/watt)	5500 degree K – 6500 degree K.
	The color temperature of white LEDs used in the system The temperature of heat sink	≤ 20 degree centigrade above ambient temperature during operation
	CRI	> 70 %
	Lighting quality	Free from glare, Flickering and UV
	Wattage	Power consumption of the LED Luminaire / Lighting unit ≤ 30W (including LED and Driver power loss)
	Ingress protection	IP65 or better
	Certification/ Test report	Yes test certificate from MNRE/ NABL accredited lab
6.	**Electronic Components**	
	Provision of Fuses	Fuses provided to protect against short circuit conditions
	Protection	Full protection against open circuit, accidental short circuit and for reverse polarity provided
	The self consumption of the charge controller	≤ 20 mA at rated voltage and rated current
	Indicators on the system	Provided with 2 LED indicators: a green light to indicate charging in progress and a red LED to indicate deep discharge condition of the battery. The green LED glow only when the battery is actually being charged.
	Total electronics efficiency	≥ 90 %
7.	**Mechanical Components**	
	A corrosion resistant metallic frame structure to hold the SPV module	Yes. Provided
	Provision on frame structure	Frame structure have provision that the module can be oriented at the suitable tilt angle
	Conformity of the specification for Steel tube for street light pole	as per IS:1161:2014 latest
	Hot dip galvanized condition the zinc coating on the tubes	as per IS:4736 latest
	Nominal bore size of tube / Thickness of tube	40 mm / 4 mm
	Height of pole (in m)	6
	Battery box	Battery included in the luminaire enclosure, with water proof (IP65 or better) and corrosion resistant
	Certification/ Test report for mechanical components	Yes test certificate from MNRE/ NABL accredited labs