EXPRESSION OF INTEREST

REIL invites EOI regarding supply of following items at REIL for SPV LED SLSs Systems:

1. Battery : 12.8 V, 30 Ah Lithium Ferro Phosphate Type
2. LED Luminary : 12 Watt White LED

Bidder can provide individual item / both items and can submit their EOI via e-mail as per format provided at Annexure-1.

S. No.	Description	Remarks
1.	EOI Issuing Date	08.05.2026
2.	EOI Submission Date	14.05.2026 (After EOI submission date, no further submissions will be accepted)
4.	EOI to be mailed	kuldeep.rathore@reil.co.in deepak.gupta@reil.co.in
5.	Contact Person for Query	Sh. Kuldeep Singh Rathore, Sr. Engineer (RE), +91-7727007749

Note: EOI shall be submitted through e-mail only.

Documents to be submitted:

1. Annexure-II : EOI Submission Interest Letter on letter head
2. Product Catalogue with all technical details
3. Manufacturer's Authorization Form (MAF) on letter head as per Annexure-III(B) & III(C)
4. Test Reports & Certificates required as per specifications attached
5. All pages of EOI sealed and signed

Additional Requirements:

Successful parties shall submit the sample within 5 days at location asked by REIL. Also, party shall arrange test report of complete product (REIL SPV Module with Party's LED Luminary & Battery) from NABL accredited lab in 7 days after REIL confirmation (if required by REIL). Sample submission receipt from NABL accredited Lab to be provided to REIL within 2 days after REIL confirmation (if required by REIL).

ANNEXURE-I

TECHNICAL SPECIFICATIONS FOR 12 W WHITE- LED BASED SOLAR STREET LIGHTING SYSTEM

Sr. No.	Components	Specification for Solar Street light fitting
1	PV Module	Minimum 75 Wp Under STC.
2	Battery	Minimum 12.8V, 30AH capacity Lithium Ferro Phosphate battery
3	Light Source	White light emitting Diode (W-LED) 12-Watt, W-LED luminaire, dispersed beam, shooting to eyes with the use of proper optics and diffuser. LED Chip should be compliant to IES: LM-80 (APPROVED Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). **A test report for the same should be submitted.**
4	Light Out put	The luminaire must use high efficacy W-LED with minimum 135 lumens per watt (and UV free). {A certificate to be submitted by the System supplier to the Test Lab during certification} **For single light level:** Minimum 24 Lux when measured at a point 4 meters below the light. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred. **For Multiple Light levels:** The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at a point 4 meters below the light (at'' High'' illumination level). The illumination should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level. (Higher light output will be preferred) The luminaire shall be tested for electrical, Photometry and Colour parameter as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like: 1) Total luminous flux: ≥1500 lm. 2) Luminous efficacy (efficacy (i.e. system efficacy): ≥125 lm/W. 3) Colour Temperature: Between 5500 K to 6500 k. 4) CRI≥70 5) Luminous intensity distribution should follow the batwing patterns in polar curves. 6) Require validation report using .ies file, which is generated during luminous intensity distribution test and using maintenance face factor 0.9 and pole height of 4m., Road width 5m and pole span 15m. The average luminance level and uniformity should comply with requirements as per IS 1944, where applicable. 7) The luminaire should be tested for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards
5	Mounting of light	Hot Dipped GI Pole height 5m above the ground level and 1m below the ground. Luminaire shall be at least 4.5 m above the ground level.
6	Electronics Efficiency	Overall total Efficiency of the Electronics should be Minimum 90%

7	Duty Cycle	Dusk to dawn: First 4 Hours full light (Min. 24 Lux), rest of the time at lower light (50% Min. 12 Lux) level. (Higher light output will be preferred)
8	Autonomy	3 days or Minimum 36 Operating hours per permissible discharge with fully charged Lithium-Ferro Phosphate- Battery.
9	Ingress protection	Optical and Control gear compartment – IP 65/ IP 66
10	Impact resistance of casing	≥ IK 08
11	Radiated Emission Test	As per CISPR-15.
12	ESD (Electro Static Discharge and Radiated susceptibility test)	As per IEC 61547.
13	RMS with monitoring dashboard	A Remote Monitoring System (RMS) for solar street lights provides real-time tracking of parameters like battery health, LED status, and charging via GSM/IoT. Key specs include IP65/66 waterproof housing, support for 12/24V, data transmission (MQTT/HTTP), and features like daily status reports, theft alerts, and remote load scheduling. The report should be available for downloading in PDf or Excel form as required.
14	Geo-Tagging	Geo-tagging specifications for solar street light systems are designed to ensure precise asset mapping, performance monitoring, and maintenance tracking, particularly for projects involving IoT-enabled Remote Monitoring Systems (RMS).

TECHNICAL DETAILS

1. **PV MODULE: -**

i. The PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II/ BIS 14286 from an NABL or IECQ accredited Laboratory.

ii. The power output of the module under STC should be a minimum of 75 Wp.

iii. The module efficiency should not be less than 14%.

iv. The terminal box on the module should have a provision for opening it for replacing the cable, if required.

v. There should be a Name Plate fixed inside the module which will give:

   a. Name of the manufacturer or Distinctive Logo.
   b. Model Number
   c. Serial Number
   d. Year of manufacture

A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

2. **WARRANTIES: -**

a) **Material Warranty: -**

i. Material Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/ or failures specified below for a period not less than seven (07) years from the date of sale.

ii. Defects and/or failures due to manufacturing

iii. Defects and/or failures due to quality of materials

iv. Non conformity to specifications due to faulty manufacturing and/ or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owners sole option

b) **Performance Warranty**: -

The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 years period and not more than 10% after ten years period of the full rated original output.

3. **BATTERY**

i. Minimum 12.8 V, 30 AH capacity Lithium Ferro Phosphate Battery.

ii. Battery packs should have proper 'Battery management System'(BMS) for cell balancing, over charge and over temperature protection.

iii. Battery should conform to the latest BIS/ International standards.

4. **LIGHT SOURCE**

i. The light source will be white LED Type.

ii. The colour temperature of white LED used in the system should be in the range of 5500^0K-6500^0K.

iii. W-LEDs should not emit ultraviolet light.

iv. The light output from the white LED light source should be constant throughout the duty cycle.

v. The lamps should be housed in an assembly suitable for outdoor use.

vi. The temperature of the heat sink should not increase more than 20C above ambient temperature during the dusk to dawn operation.

Note: Apart from automatic on-off system, it is required that a manual ON-Off switch be provided to switch off the luminary in case of war like situation to meet the blackout requirement.

5. **ELECTRONICS**

i. The total electronic efficiency should be at least 90%.

ii. Charge controller should be MPPT Type.

iii. Electronics should operate at an appropriate voltage suitable for proper charging of the battery.

iv. No Load current consumption should be less than 20 mA.

v. The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.

vi. The PCB containing the electronics should be capable of solder free installation and replacement.

vii. Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

6. **ELECTRONICS PROTECTIONS**

i. Adequate protection is to be incorporated under "No Load" conditions e.g. when the lamp is removed and the system is switched 'ON'.

ii. The system should have protection against battery overcharge and deep Discharge conditions.

iii. The system should have protection against short circuit conditions.

iv. Protection for reverse flow of current through the PV module(s) should be provided.

v. Adequate protection should be provided against battery reverse polarity.
vi. Load reconnect should be provided at 80% of the battery capacity status.

7. **MECHANICAL COMPONENTS**

i. A Hot dipped GI Module frame structure should be fixed on the pole to hold the SPV module.
ii. The frame structure should have provision so that the module can be oriented at the suitable tilt angle. 35 X 35 X 5mm angle iron should be used for the Module frame.
iii. The hot dipped GI pole should be as per IS 1161 or 1239 & IS 4736 i.e. class B.
iv. Pole height 5 m above the ground level and 1 m below the ground. Luminaire shall be at least 4.5 m above the ground level.
v. The pole should have the provision to hold the luminaire.
vi. The battery shall be either included in the luminaire enclosure, which should be water proof (IP 65) and corrosion resistant or outside the luminaire enclosure in a vented, acid proof and corrosion resistant, Battery Box of suitable size of GI sheet of box Minimum thickness 1 mm with anti-theft locking arrangement for outdoor use.

8. **INDICATORS**

- The system should have two indicators, green and red.
- The green indicator should indicate the charging under progress and should glow only when the charging is taking place. It should stop glowing when the battery is fully charged.
- Red indicator should indicate the battery “Load Cut off” condition

9. **QUALITY AND WARRANTY**

i. The street lighting system (including the battery) will be warranted for a period of seven years from the actual date of commissioning.
ii. The PV module(s) will be warranted for a minimum period of 25 years from the actual date of commissioning. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of the Ten (10) years and 80% at the end of Twenty-five (25) years.
iii. The Warranty Card to be supplied with the system must contain the details of the system.

OPERATION AND MAINTENANCE MANUAL

An operation instruction and maintenance manual, in English and Punjabi, should be provided with the Solar Street Lighting System. The following minimum details must be provided in the Manual.

- Basic principle of Photovoltaics.
- A small write-up (with a block diagram) on Solar Street Lighting System- its components, PV module, Battery, electronics and Luminaire and expected performance.
- Type Model number, Voltage & capacity of the battery, used in the system.
- The make, model number, country of origin and technical characteristics (including IE PEDA LM-80 report) of W-LEDs used in the lighting system.
- About Charging and Significance of indicators.
- Clear instruction about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
- Clear instructions on regular maintenance and troubleshooting of the Solar Street Lighting System.
- DO’s and DON’T’s
- Name and address of the contact person for repair and maintenance, in case of non-functionality of the Solar Street Lighting System.

List of BIS standards applicable for components of Solar PV Applications.

Sr. No.	Product (2)	Indian Standard Number (3)	Title of Indian Standard (4)
1	Crystalline Silicon Terrestrial Photovoltaic (PV) modules (Si wafer based)	IS 14286	Crystalline Silicon Terrestrial Photovoltaic (PV module- Design Qualification and Type Approval
2	Thin- Film Terrestrial Photovoltaic (PV) Modules (a- Si, CiGs and CdTe)	IS 16077	Thin- Film Terrestrial Photovoltaic (PV) Modules - Design Qualification and Type Approval
3	PV Modules (Si wafer and Thin film)	IS/ IEC 61730 (Part-1) IS/ IEC 61730 (Part-2)	Photovoltaic (PV) modules Safety Qualification Part-1 Requirements for Construction Photovoltaic (PV) modules Safety Qualification Part-2 Requirements for Testing
4	Power converters for use in photovoltaic power system	IS 16221 (Part-1) IS 16221 (Part-2)	Safety of Power converters for use in photovoltaic power system Part-1 General Requirements Safety of Power converters for use in photovoltaic power system Part-2 Particular Requirements for Inverters
5	Storage Batteries	IS 16270 IS 16046	Secondary Cells and Batteries for Solar Photovoltaic Application General- Requirements and Methods of test Standard for Lithium-ion-battery
6	LED Lights & Luminaries	IS 16101 IS 16102 IS 16103 IS 16107	General Lighting- LEDs and LED modules- Terms and Definitions Self-Ballasted LED Lamps for General Lighting Services. LED Modules for General Lighting Luminaries Performance

(To be submitted on bidder's letter head)

ANNEXURE-II

To,

Addl. General Manager (RE),
Rajasthan Electronics & Instruments Limited,
2, Kanakpura Industrial Area, Sirsi Road,
Jaipur - 302 034

Sub: Submission of Expression of Interest regarding supply of Battery & LED Luminary at REIL for SPV LED SLSs Systems.

Dear Sir,

We, M/s ……..is having office at …….. We are manufacturer of …… Our product details with certificates are attached herewith.

Further, we would like to supply following item at REIL Jaipur (if REIL place order):

1.

For and on behalf of

Authorized Signatory

(To be submitted on bidder's letter head)

ANNEXURE-III (B)

BATTERY MANUFACTURERS' AUTHORIZATION FORMAT

E-Tender No. PEDA/2026-27/05

To,

The Director,
Punjab Energy Development Agency,
Plot No 1 & 2, Sector 33D,
Chandigarh.

Dear Sir,

We _____ are established and Manufacturers of Lithium Ferro Phosphate Battery, having factories at _____(address of factory) do hereby authorize M/s Rajasthan Electronics & Instruments Limited (REIL) to submit a bid, and sign the contract with you for the goods manufactured by us against the above e-tender. Our company shall be providing the Back-to-Back five (05) years warranty and five (05) years maintenance services as per terms of Bid.

We hereby extend our full guarantee and warranty as per Clause no. 9 of Annexure-I under Technical specifications for the goods and services offered for supply by the above firm against this e-tender.

In case supplier defaults at any stage of execution of warrantee/ guarantee/ AMC and after sale service of the said device, installed in reference to rate contract of the said tender, then our company will be responsible to execute the warrantee/ guarantee of the Lithium Ferro Phosphate Battery at site of installation as per the terms and conditions of e-tender no. PEDA/2026-27/05.

In case supplier defaults, the company will adhere to the direction of PEDA directly.

Yours faithfully,

(Name)_____

(Name of manufacturers)

Note:
This should be signed by a person competent and having the power of attorney to legally bind the manufacturer. It should be included by the Bidder in its bid.

(To be submitted on bidder's letter head)

ANNEXURE-III (C)

LED LUMINARY MANUFACTURERS' AUTHORIZATION FORMAT

E-Tender No. PEDA/2026-27/05

To,

The Director,
Punjab Energy Development Agency,
Plot No 1 & 2, Sector 33D,
Chandigarh.

Dear Sir,

We _____ are established and Manufacturers of LED Luminary, having factories at _____(address of factory) do hereby authorize M/s Rajasthan Electronics & Instruments Limited (REIL) to submit a bid, and sign the contract with you for the goods manufactured by us against the above e-tender. Our company shall be providing the Back-to-Back five (05) years warranty and five (05) years maintenance services as per terms of Bid.

We hereby extend our full guarantee and warranty as per Clause no. 4,5&6 of Annexure-I under Technical specifications for the goods and services offered for supply by the above firm against this e-tender.

In case supplier defaults at any stage of execution of warrantee/ guarantee/ AMC and after sale service of the said device, installed in reference to rate contract of the said tender, then our company will be responsible to execute the warrantee/ guarantee of the LED Luminary at site of installation as per the terms and conditions of e-tender no. PEDA/2026-27/05.

In case supplier defaults, the company will adhere to the direction of PEDA directly.

Yours faithfully,

(Name)_____

(Name of manufacturers)

Note:
This should be signed by a person competent and having the power of attorney to legally bind the manufacturer. It should be included by the Bidder in its bid.