Corrigendum to the “e” Tender Call Notice No: 4822/OREDA DTD: 19.12.2017 and Subsequent Revision on Dtd: 15.01.2018

The following amendments are hereby made to the above tender document:

<table>
<thead>
<tr>
<th>S/N</th>
<th>Reference</th>
<th>Page No.</th>
<th>Original Clause mentioned in the revised document</th>
<th>To be amended as</th>
</tr>
</thead>
</table>
| 1   | Clause-d: Street Lights        | 6        | Valid test certificate for street lights composite system in the name of bidder from any MNRE approved Test Lab. | • Valid test reports of street lights (composite system) as per MNRE Model-III, 2016-17 with Lithium ion family batteries (As per technical specification given at Annexure-A) in the name of bidder should be submitted along with bid.  
• In case bidders have not been able to obtain the above test certificate on the date of submission of the bid, they may submit valid test certificate for solar street light (Composite system) with LMLA/GEL/VRLA batteries in the name of bidder from any MNRE approved test lab along with bid. However it may be noted that it is mandatory to submit test report of MNRE Model-III solar street light with Lithium ion family battery as described above prior to issue of work order. |
| 2   | Technical Specification- Solar Power Plant-Battery Bank | 25       | The batteries should be VRLA Type and shall have long service life. | The batteries should be tubular plate Gel / VRLA type and shall have long service life.                                                                                                                                            |

By order of Chief Executive

[Signature]

Deputy Director
(Technical Division-II)
MODEL- III

- With Lithium Ferro phosphate Battery;
- Operates from dusk to dawn at full Brightness

BROAD PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>PV Module</th>
<th>40 Wp under STC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>Minimum 160 Wh Lithium Ferro phosphate battery</td>
</tr>
<tr>
<td>Light Source</td>
<td>White Light Emitting Diode (W-LED)</td>
</tr>
<tr>
<td></td>
<td>7 Watt (Max.), W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser</td>
</tr>
<tr>
<td>Light Output</td>
<td>Minimum 16 Lux when measured at the periphery of 4 meter diameter from a height of 4 meter. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.</td>
</tr>
<tr>
<td>Mounting of light</td>
<td>Pole mounted, Minimum 5 meters above the ground level</td>
</tr>
<tr>
<td>Electronics Efficiency</td>
<td>Minimum 85% total</td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>Dusk to dawn</td>
</tr>
</tbody>
</table>

TECHNICAL DETAILS

PV MODULE

i. Indigenously manufactured PV module should be used.

ii. 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.

iii. The power output of the module(s) under STC should be a minimum of 40 Wp at a load voltage* of 16.4 ± 0.2 V.

iv. The open circuit voltage* of the PV modules under STC should be at least 21.0 Volts.

v. The module efficiency* should not be less than 12 %.

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

vii. 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

viii. 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.

*The load voltage and Voc conditions of the PV modules are not applicable for the system having MPPT based charge controller

BATTERY

i. Minimum 160 Wh capacity Lithium Ferro Phosphate Battery.

ii. Battery should conform to the latest BIS/ International standards.
LIGHT SOURCE
i. The light source will be a white LED type.
ii. The colour temperature of white LED used in the system should be in the range of 5500°K–6500°K.
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 heat sink should not increase more than 20°C above ambient temperature during the dusk to dawn operation.

ELECTRONICS
i. The total electronic efficiency should be at least 85%.
ii. Electronics should operate at 12 V and should have temperature compensation for proper charging of the battery throughout the year.
iii. No Load current consumption should be less than 20 mA.
iv. The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
v. The PCB containing the electronics should be capable of solder free installation and replacement.
vi. Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

ELECTRONIC 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. Fuse should be provided to protect against short circuit conditions.
iv. Protection for reverse flow of current through the PV module(s) should be provided.
v. Electronics should have temperature compensation for proper charging of the battery throughout the year.
vi. Adequate protection should be provided against battery reverse polarity.
vii. Load reconnect should be provided at 80% of the battery capacity status.

MECHANICAL COMPONENTS
(i) A corrosion resistant metallic 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.
(iii) The pole should be made of Galvanised Iron (GI) pipe.
(iv) The height of the pole should be 5 metres above the ground level, after grouting and final installation.
(v) The pole should have the provision to hold the luminaire.
(vi) The Luminaire housing should be water proof (IP 65) and should be painted with a corrosion resistant paint and should be housing the battery. Alternatively, A vented, acid proof and corrosion resistant metallic box or plastic box [made of Polypropylene-Copolymer (PP-CP)] with a locking arrangement for outdoor use should be provided for housing the battery.
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.

QUALITY AND WARRANTY

i. The street lighting system (including the battery) will be warranted for a period of five years from the date of supply.
ii. The PV module(s) will be warranted for a minimum period of 25 years from the date of supply. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 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 the local language, should be provided with the Solar Street Lighting System. The following minimum details must be provided in the Manual:

- Basic principles 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 IESNA LM-80 report) of W-LEDs used in the lighting system.
- About Charging and Significance of indicators.
- Clear instructions about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
- Clear instructions on regular maintenance and trouble shooting of the Solar Street Lighting System.
- DO’s and DONT’s.
- Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.