Annexure I

Technical Specifications

For Solar rooftop Photovoltaic (PV) System with Grid connectivity

1. Solar Photovoltaic (SPV) Modules:

- The SPV Modules should as per MNRE ((Ministry of New and Renewable Energy, GOI) specifications.
- The vendor should install each SPV module of minimum 250 Wp Size.
- The minimum capacity of the SPV array shall be 2 KWp
- Mono/poly Crystalline type SPV modules of desired nominal voltage or peak power rating which meet specifications shall be supplied.
- Modules shall be supplied with a warranty that fabrication is in compliance with the standards approved by MNRE
- Offered module shall have a power output warranty for 25 years.
- Solar cells/modules used should have a proven record for the performance in actual field conditions.
- The Solar Modules to be supplied by bidders should be Indigenous.

2. Mechanical components

a. Array Support Structure

- SPV modules shall be mounted on a non-corrosive support structure suitable for site conditions.
- The inclination angle of the array support structure shall be in accordance with the site condition and latitude of the place of installation.
- There shall be mild steel frame structures for holding the SPV modules.
- Each panel frame structure shall be so fabricated as to be grouted using cement concrete foundation or clamped as per site.
- Each panel frame shall be complete with a weather proof junction box as per the relevant ISI specifications, where the module terminals shall be interconnected and output taken.
- The panel frame structure shall be capable of withstanding a wind load of 150 Km per hour after installation.

3. Electrical

a. Hybrid Solar Inverter

- The inverter shall convert DC power produced by SPV array into AC power.
- Primarily inverter shall supply power to load. The surplus or in no load condition shall be used to charge battery and then excess power shall be exported to grid through net-metering as per Discom policy of the respective state.
- The inverter should have protection circuit towards Grid Supply, SPV, Battery and Load.
- Inverter must have facility of data logging and a remote monitoring system.
- The data may be shared with EIA, NDDB and DCS through Web/mobile applications or email alerts.
- Vendor must incur the cost related remote monitoring at least for one year from commissioning of the system.
- The vendor should be able to provide break down services within 24 working hours from date of locking complaint.

b. Cables

- Cabling will be carried out as per Indian Electricity (IE) Rules 1956.
- Cable marking: All cables/wires shall be marked with good quality ferule.
- Cable Ends: All connections shall be made through suitable cable lugs/ tags crimped properly and with the use of cable glands. All cables shall conform to BIS standards.

c. Battery Bank

- Battery bank of minimum 48 V, 300 AH need to be supplied along with the system.
- Battery Rack should also be provided along with the supplied Battery Bank.
- Battery supplied along with system should have OEM Warranty for 5 years against any manufacturing defect.

d. Lightning protection

- The suitable lightning arrestors (ESE) installed in the array area.

- Lightning protection be provided by the use of metal oxide arrestors and suitable earthing such that induced transients find an alternate route to earth.
- Protection shall meet the safety rules as per Indian Electricity Act 2003/IE rules.

e. Earthing protection

- Each array structure of the PV yard shall be grounded/earthed properly.
- Provision shall be kept for shorting and grounding of the PV array at the time of maintenance work.
- All metal casing/shielding of the plant be thoroughly grounded in accordance with Indian Electricity Act/IE Rules.

f. Surge Protection

- Appropriate Surge protection must be provided in the system

g. Adhering to state policy and rules of DISCOMs

- System must adhere to the state solar policy and rules and regulations of state DISCOMs. All the safety measures as defined in the policy and rules.
- Vendor will ensure GRID connectivity of the system approaching DISCOM and concerned state departments and fulfil the necessary requirements. EIA and the beneficiary DCS will provide all the necessary support to Vendor for GRID connectivity in terms of submissions, documentary support, facilitating site inspections etc.