



**CHAMUNDESHWARI ELECTRICITY SUPPLY CORPORATION
LIMITED, MYSORE**

(A Government, of Karnataka Undertaking)

Telephone: Office of the
Email ID:

Ref No.:

Date :

To,
(Name & address of the applicant)

Madam/Sir,

- Sub: Approval for installing Solar RTPV system ofkWp Capacity to the installation bearing RR No.....under Net/Gross metering reg.
- Ref: 1. Application Reg. No Dtd:
2. Revenue Report of AAO/SA,O&M Sub-Division, CESC dated:
3. Technical feasibility Report of SO/AEE,O&M section/SD, CESC Mysore No.dated:
4. PPA executed date.:
5. KERC approval letter No.:.....dated:.....

With reference to your application , Approval is herewith accorded, after verifying the Technical feasibility Report submitted by Section Officer,O& M Section, CESC/AEE(Elect),O&M Sub-Division, CESC vide ref(3) and as per PPA executed for installing Solar RTPV system of.....kWp on the rooftop of your existing installation bearing RR No..... with sanctioned load of.....kW/KVA/HP under Net/Gross Metering for the Net/Gross energy at Rs.....per kwh with the following conditions:

1. As per CEA guidelines, you are responsible for planning, design, construction, reliability, protection and safe operation of all the equipment's subject to the regulations for construction, operation, maintenance, connectivity and other statutory provisions.
2. You can select reputed system installer of your choice, who has experience in design, supply, installation and commissioning of SRTPV system.
3. Up gradation of infrastructure, if required, (service main, meter with CT, upgrade) up to the grid connectivity point is to be done at your cost.
4. Technical and Interconnection Requirements of the equipment's shall be as per the Clause (1) of PPA vide ref (4) and **Annexure-1** (enclosed).
5. The work of grid connectivity shall be carried out in accordance with the Net-

metering /Gross metering schematic diagram available in CESC website.

6. In Net –Metering system, Bi-directional meter (whole current/ CT operated) shall be provided before the point of interconnection and the existing meter shall be shifted to the generation side of SRTPV plant to measure solar power generation.
7. Both the meters shall be within the same proximity and easily accessible for taking monthly reading by the meter reader.
8. The Applicant shall provide Bi-directional check meter in series with the proposed Bi-directional meter (Main meter) when the SRTPV system capacity is more than 20 kWp.
9. As per KERC (Implementation of Solar Rooftop Photovoltaic Power Plants) Regulations, 2016 clause 5(3), the SRTPV plant shall be commissioned within six months days from the date approval PPA i.e. **dd/mm/yyyy**

Note:

- a. SRTPV capacities from **1kWp to 1000 kWp** - Within six months from the date of PPA
 - b. SRTPV capacities **above 1000kWp** – As specified in the KERC approval letter.
10. After completion of the work in all respects, you have to submit the work completion report in **Format – 8** along with following documents:
 - a. Test reports of PV modules and other equipment's (expect Grid tied inverter and bi-directional meter) as per IS/ IEC standards.
 - b. Test certificate of Bi-directional meter issued by MT division, CESC.
 - c. First sheet of Bank pass book containing details of Name of the Bank, Type of account, Account No, Name of the Branch, IFSC code etc.
 11. CESC, Mysuru will not be held responsible for any legal disputes between the applicant and SRTPV system installer arising out of the contract.
 12. **All the terms and conditions mentioned in the Power Purchase Agreement (PPA) vide ref(4) shall be complied.**

The SRTPV system is to be commissioned within stipulated period as stated above, failing which the approval will be terminated.

Yours faithfully,

AEE/Executive Engineer (Ele)
O&M Sub-Div/Division,
CESC

Copy:

1. Chief Engineer (Electy), O & M Zone, CESC.....
2. General Manager (Commercial), Corporate Office, CESC, Mysuru-570017.
3. Superintending Engineer (Elec), O&M Circle, CESC,.....

O.C/M.F.

Technical Specifications of SRTPV system

Item / System	Applicable BIS /Equivalent IEC Standards / Applicable MNRE Specifications		
	Standard Description	Standard Number	
Solar PV modules	Modules		
	i.	Crystalline Silicon Terrestrial PV modules Thin film Terrestrial PV modules	IEC 61215/IS14286 IEC 61646
	ii.	Solar PV module safety qualification requirements	IEC 61730 (P1 - P2)
	iii.	PV modules to be used in a highly corrosive atmosphere (Coastal area etc.) must qualify Salt Mist corrosion Testing	IEC 61701/ IS 61701
	Each PV module must use RFID tag which must contain the following information as per MNRE requirements:		
	i. Name of the manufacturer of PV Module ii. Name of the manufacturer of Solar Cells iii. Date and year of manufacture (separately for solar cells and module) iv. Peak wattage, Im, Vm and FF for the module v. Unique Sl. No. and model no. of the module vi. Date and year of obtaining IEC PV module qualification certificate vii. Name of the test lab issuing IEC certificate		
	WARRANTY: PV modules used in solar power system must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years		
Grid tied inverters	i.	Environmental Testing	IEC 60068-2 (1, 2,14,30) / Equivalent BIS Std.
	ii.	Efficiency Measurements	IEC 61683
	iii.	Product safety standard	IEC - 62109-1 (2010/4) IEC - 62109-2 (2011/6)
	iv.	Grid Connectivity standard and test procedure for islanding prevention measures for utility/interconnected PV inverters	IEC 61727 IEEE 1547 IEEE 1547.1
	v.	Electromagnetic compatibility &Electro Magnetic Interference	IEC 61000-6-3>16 Amps IEC 61000-6-4<16 Amps
	vi.	Ingress protection	IP 65 (for outdoor)/IP 21 (for indoor) As per IEC 529
	<ul style="list-style-type: none"> • For testing i,ii,vi beyond 10KVA self- certification by manufacturers are acceptable. • In case if the Charge controller is not built in the inverter, IEC 62093 test is required separately for Charge controller. 		
Cables	1	General Test and Measuring Method PVC insulated cables for working voltage up to and including 1100 V and UV resistant for outdoor	[EC 60227 / IS 694 IEC 60502 /IS 1554 (Part. I & II)
Earthing	1	Grounding	IS 3043
Switches/ Circuit Breakers/ Connectors	1	General Requirements Connectors - safety A.C. /D.C.	IEC 60947 part I, II, III / IS 60947 Part I,II,III / EN 50521
Junction Boxes/ Enclosures for Charge Controllers/ Luminaries	1	General Requirements	IP 65 (for outdoor)/ IP 21 (for indoor) As per IEC 529

Specifications of Inverter

Parameters	Detailed Specifications
Nominal Voltage	230V / 415V
Voltage range	+ 10% -20% at nominal voltage
Operating frequency range	50 Hz (47.5 to 52 Hz)
Waveform	Sine Wave
Harmonics	AC side total harmonic current distortion < 5%
Ripple	DC voltage ripple content shall be not more than 1%.
Efficiency	Efficiency shall >95%
Losses	Maximum losses in sleep mode: 2W per 5kW Maximum losses in stand-by mode: 10W
Casing protection levels	Degree of protection: Minimum IP-2 1 for internal units and IP 65 for outdoor units
Temperature	Should withstand from -10 to +60 deg Celsius
Humidity	Should withstand up to 95% (relative humidity)
Operation	Completely automatic including wake up, synchronization (phase- locking) and shut down
MPPT	MPPT range must be suitable to individual array voltages in power packs
Protections	Over voltage; both input & output
	Over current; both input & output
	Over/Under grid frequency
	Over temperature
	Short circuit
	Lightening
	Surge voltage induced at output due to external source
	Islanding
Parameters	Detailed Specifications
Recommended LED indications	Inverter ON
	Grid ON
	Inverter Under / Over Voltage
	Inverter Overload
	Inverter Over Temperature
Recommended LCD Display on Front Panel	Accurate displays on the front panel:
	DC input voltage
	DC current
	AC Voltage (all 3 phases)
	AC current (all 3 phases)
	Ambient temperature
	Instantaneous & cumulative output power
Daily DC energy produced	
Communication interface	RS485 / RS 232