P7-ITCSR/7742/21/CET 22.12.2021

QUOTATION EXTENSION NOTICE

Quotation Number	**09/21/P7/ITC&SR(SR)ANERT**
Due date and time for receipt of quotations04	04/01/2022 3 PM
Date and time for opening of quotations	05.01.2022 11 AM
Date up to which the rates are to remain firm for acceptance	30.06.2022
Designation and address of officer to whom the quotation is to be addressed	The Principal, College of Engineering Trivandrum, Thiruvananthapuram-16.
Superscription :**Purchase of 1 kWp Solar System (3*330Wp) (1No.)**	

Sealed quotations are invited for the supply of the materials specified in the list attached given below/overleaf. The rates quoted should be for the delivery of the articles at the places mentioned below the schedule. The necessary superscription, due date for the receipt of quotations, the date up to which the rates will have to remain firm for acceptance and the name and address of officer to whom the quotation is to be sent are noted above. Any quotation received after the time fixed on the due date is liable to be rejected. The maximum period required for delivery of the articles should also be mentioned. Quotations not stipulating period of firmness and with price variation clause and/or 'subject to prior sale' condition are liable to be rejected.

The acceptance of the quotations will be subject to the following conditions.

1.Withdrawal from the quotation after it is accepted or failure to supply within a specified time or according to specifications will entail cancellation of the order and purchases being made at the offers expenses from elsewhere, any loss incurred thereby being payable by the defaulting party. In such an event the Government reserves also the right to remove the defaulter's name from the list of Government suppliers permanently or for a specified number of years.

2.Samples, duly listed, should be forwarded if called for under separate cover and the unapproved samples got back as early as possible by the offers at their own expenses and the Government will in no case be liable for any expenses on account of the value of the samples or their transport charges, etc. In case, the samples are sent by railway, the railway receipt should be sent separately, and not along with the quotation since the quotation will be opened only on the appointed day and demurage will have to be paid if the railway parcels are not cleared in time. Quotations for the supply of materials are liable to be rejected unless samples, if called for of the materials tendered for are forwarded. The approved samples may or may not be returned at the discretion of the undersigned. Samples sent by V.P.Post or "freight to pay" will not be accepted.

4.No representation for enhancement of price once accepted will be considered during the currency of the contract.

5.Any attempt on the part of tenderers or their agents to influence the Officers concerned in their favour by personal canvassing will disqualify the tenderers.

6.If any license or permit is required, tenderers must specify in their quotation and also state the authority to whom application to be made.

7.The quotation may be for the entire or part supplies. But the tenderers should be prepared to carry out such portion of the supplies included in their quotation as may be allotted to them.

8. In cases where a successful tenderer, after having made partial supplies fails to fulfill the contracts in full, all or any of the materials not supplied may, at the discretion of the Purchasing Officer be purchased by means of another tender/quotation or by negotiation or from the next higher tenderer who had offered to supply already and the loss, if any, caused to the Government shall thereby together with such sums as may be fixed by the Government towards damages be recovered from the defaulting tenderer

9.The prices quoted should be inclusive of all taxes, duties, cesses, installation charges etc., which are or may become payable by the contractor under existing or future laws or rules of the country of origin/supply or

delivery the course of execution of the contract.

10.a) Ordinarily payments will be made only after the supplies are actually verified and taken to stock but in exceptional cases, payments against satisfactory shipping documents including certificates of Insurance will be made up to 90 per cent of the value of the materials at the discretion of Government. Bank charges incurred in connection with payment against documents through bank will be to the account of the contractor. The firms will produce stamped pre-receipted invoices in all cases where payments(advance/final) for release of railway receipts/shipping documents are made through Banks. In exceptional cases where the stamped receipts of the firms are not received for the payments (in advance) the unstamped receipt of the Bank (i.e. counterfoils or pay-in-slips issued by the Bank alone may be accepted as a valid poor for the payment made. b)The tenderers shall quote also the percentage of rebate (discount) offered by them in case the payment is made promptly within fifteen days/within one month of taking delivery of stores.

11.Any sum of money due and payable to the successful tenderer or contractor from Government shall be adjusted against any sum of money due to Government from him under any other contracts.

12.Payment will be made only after installation, demonstration and satisfactory performance.

13.Special conditions, if any, printed on the quotation sheets of the tenderer or attached with the tender will not be applicable to the contract.

SPECIFICATION

Item No.	Item Name and Specification	Qty
1	Supply and Installation of 1 kWp Solar Sysytem (3*330Wp) technical Specification attached as Annexure 1,Annexure 2 and Annexure 3)	1No.

Terms and Conditions

The following are to be supplied along with the tender/Quotation

1. The rates are inclusive of all the taxes, duties, Handling and delivery on site
2. Payment will be done after installation and successful performance of the equipment
3. The items have to be supplied and installed to the Electrical Department of the college.
4. The item has to be supplied within 4 to 6 weeks from the date of receipt of this order
5. Demonstration should be done at the Electrical Department College of Engineering
6. Detailed Product catalog along with Suppliers/Manufacturer information,testimonies to be provided along with the tender
7. GST- 5% inclusive

Sd/-

Principal

Annexure-1

Technical Specifications of the Solar Panel

Electrical Data All data refers to STC (AM 1.5, 1000 W/m^2, 25 °C)

Peak Power P_{max} (Wp)	330
Maximum Voltage V_{mpp} (V)	38.61
Maximum Current I_{mpp} (A)	8.56
Open Circuit Voltage V_{oc} (V)	46.4
Short Circuit Current I_{sc} (A)	9.14
Module Efficiency (%)	17.01

1) STC:1000 W/m^2 irradiance, 25°C cell temperature, AM1.5g spectrum according to EN 60904-3. Average relative efficiency reduction of 5% at 200 W/m^2 according to EN 60904-1.

Electrical Parameters atNOCT

Power (W)	241.96
V@P_{max} (V)	34.67
I@P_{max} (A)	6.98
V_{oc} (V)	43.50
I_{sc} (A)	7.40

2) NOCT irradiance 800 W/m^2, ambient temperature 20°C, wind speed 1 m/sec

Temperature Coefficients (Tc)

Tc of Open Circuit Voltage (β)	-0.310%/°C
Tc of Short Circuit Current (α)	0.052%/°C
Tc of Power (γ)	-0.49%/°C
Maximum System Voltage	1000 V
NOCT	45°C ± 2°C
Temperature Range	-40°C to + 85°C

Mechanical Data

Junction Box	IP67, 3 bypass diodes
Cable & Connectors	1000 mm length cables (MC4 compatible)
Application Class	Class A (Safety class II)
Superstrate	4 mm high transmission low iron tempered glass, AR coated
Cells	72 polycrystalline PERC solar cells, 3 bus bars
Cell Encapsulant	EVA (Ethylene Vinyl Acetate)
Back Sheet	Composite film
Frame	Anodized aluminium frame with twin wall profile
Mechanical Load Test	5400 Pa
Maximum Series Fuse Rating	15 A

Warranty and Certifications

Product Warranty: 10 years

Performance Warranty: Linear power warranty for 27 years with 2.5% for 1st year degradation and 0.67% from year 2 to year 27

Approvals and Certificates: As per Government of India norms

15. TECHNICAL SPECIFICATION

Parameters			
System Rating		1kVA	
Operating DC Voltage		12V	
Switching Element		Mosfet	
Charger Topology		Boost Mosfet	
Grid			**Setable Range**
Nominal Grid Voltage		230V	
Battery Low Buzzer		10.8V	Battery Low Cut - 0.3V
Battery Low Cut		10.5V	10-11.5V
Battery High Cut		16.5	16.5-17.5V
SPV Charging Current		18A	11-40A
SPV Charging Voltage Boost	SMF	13.7V	13.5-14.5V
	TUB	15V	14-15.5V
SPV Charging Voltage Floot	SMF	13.7V	13.5-14.5V
	TUB	14.2V	13.8-14.5V
Grid-Battery Charging Voltage Boost	SMF	13.5V	13.5-14.2V
	TUB	14.5V	13.5-15V
Grid-Battery Charging Voltage Float	SMF	13.5V	13.5-14.2V
	TUB	13.8V	13-14.2V
Grid-Battery Charging Current		10A/15A	3A-15A
Grid Reconnect @ Battery Voltage		11.8V	11-12V
Grid Low Cut Voltage	IT Mode Enable	170V±10V	
	IT Mode Disable	100V±10V	
Grid Low Cut Recovery	IT Mode Enable	180V±10V	
	IT Mode Disable	110V±10V	
Grid High Cut Voltage	IT Mode Enable	265V±10V	
	IT Mode Disable	290V±10V	
Grid High Cut Recovery	IT Mode Enable	255V±10V	
	IT Mode Disable	280V±10V	
Change Over (Battery to Mains)	IT Mode Enable/Disable	<5ms	
Change Over (Mains to Battery)	IT Mode Enable	<10ms	
	IT Mode Disable	<60ms	
Operating Mode		Smart/PCU/Hybrid, Default - SMT	
Inverter			
Output Phase		1 Phase,3 Wire	
Nominal Output Voltage		220 ±8%	
Nominal Frequency		50 ±1%	
Load Power Factor		0.8	
Output Waveform		Sinewave	
Typical Efficiency		>80%	
Voltage Harmonic		<3% (Liner Load)	
*Overload Capacity (IT Load Enable)%		100-110:10 Min 150-200:2 sec 110-120:2 Min 200-300:1Sec 120-150 :30sec >350:20ms	
* Overload Capacity (IT Load Disable)%		100-120 (3time auto reset):60 sec 250-350:1 sec 120-150 (3time auto reset) : 30 sec >350:20ms 150-200 : 2sec	
Protection		Overload, Battery Low, Battery High, Output Short Ckt, Battery Reverse, Phase reverse, Over Heat, Over frequency, Under frequency, SPV High	
LED Indication		System ON, (IT mode, SMF/TUB, Boost Chd, DG mode, Grid Chg.) Enable/Disable	
Switches		Reset for System ON/OFF, UP, Down, Back, Enter (For LCD Calibration)	
Display		Battery Voltage, Charging Current, Grid Voltage, Grid Frequency, Output Voltage, Output Frequency, Load %, Battery Graph, Overheat, SPV Current, Working Mode(HYB/PCU/SMT)	
Solar			
Switching Element		Mosfet	
Controller		Yes	
Type of Charger		MPPT with PWM	
Efficiency		>94%	
Input Voltage Range (Min - Max) Voc		15-45V	
Maximum PV Power Recommended		1000W	
Environment			
Operating Temperature		0-50°C	
Cooling		Fan	
Max. Relative Humidity @ 25°C (Non Condensing)		95%	
Noise @ 1meter		50dB	
Standard Compliance		IP20	
Dimension (LXWXH)mm		305.5 x 327.8 x 116	

Note. Specification are subject to change without prior notice due to constant improvement in design & technology.

Technical Specifications of Solar Tubular Battery

1. Nominal Voltage:12 V
2. Capacity @C10 up to 1.8 v.p.c at 27°C : 150 Ah
3. Charging Efficiency
   a) Ah Efficiency: Greater than 90%
   b) Wh Efficiency: Greater than 80%
4. Cycle life at C10 discharge at 25°C
   a) 1500 cycles at 80% DOD
   b) 3000 cycles at 50% DOD
   c) 5000 cycles at 20% DOD
5. Charging Characteristics

Modes of operation	Voltage setting for ambient temperature 20-30°C
Float	13.7±0.1 V
Boost	14.5 ±0.1 V

6. Standards complied: IS 13369 and its amendments