

REF. NO.

ANERT-TECH/317/2018-PE1(RTS)

ANERT

Agency for Non-conventional Energy and Rural Technology

EXPRESSION OF INTEREST (EOI) for MANUFACTURERS & DISTRIBUTORS OF SOLAR MODULE, BATTERY& PCU (2018-19)

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1. Notice

Expression of Interest in accordance with the attached qualification criteria, technical specification and financial terms and conditions are invited from reputed & experienced manufactures/distributors for the empanelment as empanelled agencies for the implementation solar power plants in Kerala.`

The offers has to be filed based on the qualification criteria and as per the bid submission guidelines.

The listed (approved) components can be opted by any of the integrator empanelled by ANERT based on mutually agreed terms and conditions with the manufacturer / Distributor.

The guidelines and documents for Expression of Interest can be downloaded from the website (www.anert.gov.in) of ANERT.

The duly filled EoI (containing all Annexure documents) has to be submitted to Director ANERT, Vikas Bhavan (PO), Thiruvananthapuram, 695 033, along with application fee of Rs.25000/- as DD in favour of Director, ANERT.

Thiruvananthapuram

Sd/-

26.09.2018

Director



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2. Abstract

Reference No. <u>ANERT-TECH/317/2018-PE1(RTS)</u>

Superscription Invitation of Expression of Interest for

Empanelment of Manufacturers /

Distributors of battery, PCU and Solar Module for Solar Rooftop Programme in

Kerala under Distributed Power

generation.

Date of release of Invitation 09.01.2019

Date of submission EOI by Continuing

the agencies

Place of opening Submission by Office of the Director, ANERT, Vikas

Agencies Bhavan. PO, Thiruvananthapuram – 695

033, Kerala

Application fee Rs.25000/-

How to obtain the application formTo be downloaded from the website of

for submitting EoI ANERT <u>www.anert.gov.in/</u>

Thiruvananthapuram

Sd/-

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3. Solar Power Development Programme in Kerala-Opportunities

3.1 Introduction

Agency for Non-conventional Energy and Rural Technology (ANERT) is an autonomous organization established in 1986 under the Societies Act by the Government of Kerala. The objective of the Agency is to gather and disseminate useful knowledge in various fields of Non-Conventional Energy, Energy conservation and Rural Technology. ANERT is the State Nodal Agency (SNA) for the Ministry of New and Renewable Energy (MNRE), Govt. of India, to carry out centrally assisted programmes on Renewable Energy in Kerala.

Renewable energy development has become ever more significant in the present day context, for its potential to decelerate the impact of climate change, to augment energy availability, to conserve conventional energy and control the individual energy expenses. Utilizing the freely available abundant renewable energy sources like the solar energy, bioenergy and so on is indispensable for Kerala, a State that has to import more than half of the total electricity demand. However, this requires coordinated efforts to ensure wider participation of people as well as planners and developers.

State had announced a target of 1000MWgeneration from solar by 2021. Out of this 500MW from Rooftop solar Power Plants. As nodal agency to promote renewable energy in the state of Kerala, it is the mandate of ANERT to create an ecosystem system for achieving the target. ANERT proposes to empanel Manufactures and integrators / Contractors for implementing projects in Kerala. Empanelment will be based on their Technical Criteria, Financial Criteria, Experience criteria and mechanism for service and maintenance.



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In this context ANERT is inviting Expression of Interest from Manufacturers of Solar Modules, PCU and Batteries for Empanelment in Solar Rooftop Programmes in the state of Kerala.

3.2 E Market place for Renewable Energy Systems – buymysun.com

We have already established an E- Market place (First ever in India by a State Nodal agency) for Renewable Energy.

- This e-Marketplace is an intermediate platform for empanelled vendors of ANERT to sell to customers in Kerala to buy renewable energy products. The vendor/Seller Portal and buyer/client portal will be managed in the E Market Place.
- To sell/buy a product the seller/ buyer first has to get empanelled with ANERT and then ANERT will allow them to register their details in the E- market place and get the credentials.
- Manufactures/ distributors can enlist their product in the marketplace, by submitting product details including images, test certificates, etc. meeting ANERT requirements.
- In the case of distributors, an authorisation letter from the manufacturer stating that they are the sole distributor need to be submitted.
- On listing of the product, integrator has only to select from the list for opting a product. Based on the status updating from the manufacturer the availability product can also be ensured before offering system to the customer.
- ANERT can invite rate contract for any of the product, if required for a particular scheme and this process will be limited to already empanelled manufactures / distributors only.



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- In such cases payment shall be effected by ANERT or ANERT authorised persons through 'www.buymysun.com' portal and payment will be credited on line to the account.
- Features such as Online Product reviews and ratings, Offering online promotions and rewards, will also be made available in due course.
- The E-marketplace will also get integrated with the CRM/ service-support portal being developed by ANERT, which are linked to the Urja Mitra service centres.

3.3 Akshaya -urja Centres

ANERT had established 140 Akshaya Urja centres throughout Kerala. This is to provide proper service and maintenance to the customers as soon as possible. Manufactures/ Integrators can avail this service also.

- They can have a tie up with these centres to provide an initial complaint check up in case their service personnels are not immediately available.
- Master trainers from Manufactures/ Integrators may also be provided to train the technicians of Akshaya-urja for their respective components.

4. General Conditions of Empanelment

- 4.1 The agency should have positive net worth
- 4.2 The agency should have a valid GST registration.
- 4.3 The agency should have a service facility in Kerala to meet the time line for service.
- 4.4 Agency has to submit an undertaking regarding supply and service conditions with ANERT.
- 4.5 Registration certificate of the firm which is issued by registrar of companies or other competent authority under which firm is registered has to be submitted.



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- 4.6 The Agency should submit the application fee of Rs.25,000/- (Rupees Twenty Five Thousand only) as DD in favour of Director ANERT payable at Thiruvananthapuram.
 - 4.7 Agency has to submit the list probable list of products proposed to be listed in ANERT
- 4.8 On Empanelment agencies will be provided with user name and password so that they can add product details for listing in ANERT site.
 - 4.9 Product submitted should comply all technical requirements by ANERT and required valid certifications has to be submitted online.
 - 4.10 The quantity available may also to be updated so that Integrator can intend for that before accepting work order from the beneficiary.
 - 4.11 3% spares has to be maintained at service facility in Kerala
 - 4.12 All the warrantee conditions should be as per ANERT guidelines.
 - 4.13 A copy of warrantee card has also be provided to end user
 - 4.14 Any changes/ updates in MNRE guidelines will be binding on all the stakeholders.
 - 4.15 Director, ANERT reserves the right to add, remove, and clarify any of the terms and Conditions contained herein.
 - 4.16 Manufacturers should also provide an operational manual, Do's and Don'ts along with the video link for their corresponding products.
 - 4.17 While a product is supplied, internal (factory) test certificate / conformity certificate should be provided
 - 4.18 All the lists/ announcements including dates related to the empanelment process, will be published on ANERT's website (www.anert.gov.in) and ANERT will not be responsible for delays or non-receipt of individual communications in this regard, if any.



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5. Technical Specifications- Requirements for product listing

5.1. SPV Modules

- (a) Only crystalline silicon cell PV modules of 200Wp or higher capacity should be submitted for empanelment
- (b) Shading correction/ bypass for optimizing array out to be incorporated in each solar module or panel level and shading optimization to be provided.
- (c) Each PV module used in any solar power project must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module laminate, but must be able to withstand harsh environmental conditions.
 - (a) Name of the manufacturer of PV Module
 - (b) Name of the manufacturer of Solar cells
 - (c) Month and year of the manufacture (separately for solar cells and module)
 - (d) Country of origin (separately for solar cell and module)
 - (e) I-V curve for the module
 - (f) Peak Wattage, Im, Vm and FF for the module
 - (g) Unique Serial No. and Model No. of the module
 - (h) Date and year of obtaining IEC PV module qualification certificate
 - (i) Name of the test lab issuing IEC certificate
 - (j) Other relevant information on traceability of solar cells and module as per ISO 9000 series
- (d) The following details should be provided on the module
 - i. Name of the manufacturer
 - ii Month and year of

manufacture iii.Rated Power at

STC iv.Vmp, Imp, Voc, Isc



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- (e) The PV modules must qualify (enclose Test Reports/Certificates from IEC/NABL accredited laboratory) as per relevant IEC/BIS standard. The Performance of PV Modules at STC conditions must be tested and approved by one of the IEC/NABL Accredited Testing Laboratories.
- (f) PV modules used in solar power plants/ systems 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.

S/N	System Component	Capacity/ rating	Minimum Technical Compliance
1.		system selected	IEC 61215 / IS14286; IEC 61730 Part 1 & II; IEC61701 BIS Certificates With minimum efficiency of 16%

5.2. POWER CONDITIONING UNIT (PCU)- (Grid tied)

S/N	System Component	Minimum Technical Compliance
2.		IEC 61683 / IS 61683 (Efficiency 95% and above) IEC 60068-2 (1, 2, 14, 30) / Equivalent BIS Std. IEC 62116 – for islanding prevention Compliance to CEA (Distributed generation) regulation, 2013, IEC 61727 for utility interface

Technical Specification:

Output voltage	1 Phase, 230 V
	3 phase, 415 VAC
	Inverter/ PCU should be capable of synchronise with grid voltage
	between 110% and 80% of the rated output. Beyond this system



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	has to stop generating.
Over Voltage / Under Voltage trip	When Voltages reaches above 110% or below 80% respectively,
	with clearing time up to two seconds for reconnection.
Frequency	50 Hz. Inverter/ PCU should be capable to synchronise with grid
	for a variation of frequency between 50.5 Hz and 47.5 Hz. Beyond
	this system has to stop generating.
Over and Under frequency Trip	High frequency at 50.5 Hz and low frequency at 47.5 Hz clearing
	time upto 0.2 seconds.
Continuous rating	Rated capacity of the configuration.
Nominal Power	Rated power should not be less than the rated capacity of the SPV
	array at STC.
Total Harmonic Distortion	Less than 5%
Operating temperature Range	-50 to 60°C
Operating temperature Kange	-30 10 00 C
Housing cabinet	PCU to be housed in suitable switch cabinet, Within IP 21
	(Indoor)/ IP 54 (Outdoor) or higher
PCU efficiency	95% and above at full load.
Power Control	MPPT
Harmonic Current Injections	Shall not exceed the limits specified in IEEE519
Direct Current Injection	Less than 0.5 % of the full rated output at the interconnection
	point.
Flicker	Should be within the limits specified in IEC 61000
Synchronisation	Automatic (Built into the inverter)
Hysteresis required for reenergizing	Sixty seconds at stabilized condition.
Power Factor	The PCU power factor at the point of distribution Licensee service
	connection shall be 0.95 lagging or leading when operating at



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	above 25 percent of the rated output.
Maximum time for cease to Energise 2 in the case of formation of an unintended Island	Seconds

- (a) The PCU shall not produce Electromagnetic interference (EMI) which may cause malfunctioning of electronic and electrical instruments including communication equipment, which are located within the facility in which the PCU is housed.
- (b) The PCU shall have an appropriate display on the front panel to display the instantaneous AC power output and the DC voltage, current and power input. Each of these measurement displays shall have an accuracy of 1 percent of full scale or better. The display shall be visible from outside the PCU enclosure. Operational status of the PCU, alarms, trouble indicators and AC and DC disconnect switch positions shall also be communicated by appropriate messages or indicator lights on the front of the PCU enclosure.
- (c) The PCU shall include an easily accessible emergency OFF button located at an appropriate position on the unit.
- (d) The PCU shall include ground lugs for equipment and PV array grounding.
- (e) All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise suitably protected to survive a nominal 30 years design life of the unit.
- (f) The PCU enclosure shall be weather proof and capable of surviving climatic changes and should keep the PCU intact under all conditions in the room where it will be housed. The inverter shall be located indoor and should be either wall/ pad mounted. Moisture condensation and entry of rodents and insects shall be prevented in the PCU enclosure.
- (g) Components and circuit boards mounted inside the enclosures shall be clearly identified with appropriate permanent designations, which shall also serve to identify the items on the supplied drawings.
- (h) Maximum Power Point Tracker (MPPT) MPPT shall be integrated in the PCU to maximize the energy drawn from the array. The MPPT should be microprocessor based to minimize the power losses.



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5.3 POWER CONDITIONING UNIT (PCU)- (Off Grid)

Minimum Technical requirements

S/N	System Component	Minimum Technical Compliance
[1	Power conditioning Unit-	
	Off Grid	IEC 60068-2 (1, 2, 14, 30) / Equivalent BIS Std
2	Power Factor	The PCU power factor at the point of distribution Licensee service connection shall be 0.95 lagging or leading when
3	Continuous rating	operating at above 25 percent of the rated output. Rated capacity of the configuration.
4		
4	Nominal Power	Rated power should not be less than the rated capacity of the SPV array at STC.
5	Total Harmonic Distortion	Less than 5%
6	Operating temperature Range	-50 to 60°C
7	Housing cabinet	PCU to be housed in suitable switch cabinet, Within IP 21 (Indoor)/ IP 54 (Outdoor)
8	PCU efficiency	85% and above at full load.

5.4 Battery

Flooded type lead acid tubular battery/ VRLA/ Gel battery can be listed. Suitable ceramic vent plugs with float level indicators should be provided with the batteries

System Component	Minimum Technical Compliance
Battery	IS1651/IS13369 /IEC 61427/IS15549



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6. Important Dates

Sl. No.	Information	Details
1	Last date and time for submission of proposal	Continuing
2	Place, Date and Time or opening of proposals	Place: ANERT, Law College Road, VikasBhavan P. O. Thiruvananthapuram
		Date and Time: will be notified later
3	Officer in-charge for correspondence and address for communication	Radhika J M Project Engineer Ph: 7736411827
		E-mail: empanel@anert.in



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Annexure 1.Format for Covering Letter

Sir,	
I/We,, hereby expre Empanelled Manufacturers in Kerala under Solar terms, conditions and the technical specifications, Energy and Rural Technology (ANERT) and Min	Rooftop Power Plant Programme, as per the decided by Agency for Non-conventional
I am/we are remitting herewith the required amounts. No	nt of Rs. 25,000/- as application fee as DD bank in favour of Director, ANERT payable at
Yours faithfully	
Place:	Signature
Date:	Name Designation
(Offic	e Seal)

 $(\textit{This letter to be submitted on the official letter head of the Agency, signed by the authorised signatory.) \\$



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Annexure 2. Bid Submission form

(to be submitted by all agencies)

1.	Name of the bid	lder as in registration certificate		
	(Copy of registr	ration certificate to be enclosed)		Flag-1
2.	Address in full			
3	GST No			
	(Enclose a Cop	y of GST registration Certificate)		Flag-2
4.	Details of appl	ication fee Submitted		
	Amount ,DD N	o, Bank and date		L Flag-3
	Enclose DD of	Rs.25000/- in favour of director,		
	ANERT			
	Positive net wo	rth	Yes/No	
	,	icate from Registered Chartered		Flag-4
	accountant in th	nis regard)		
3.	Contact Details	Mobile		
		Land		l I
		Phone Fax		
		No Email		
	Bank account A	ccount No		
	details of the Bidder	Name of account holder		
	Diddel	Evalue of account notice		



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	Bank Branch Name Address of the bank IFS code	
5. N	Jame of the authorised signatory (Power of attorney to be enclosed)	Flag-5
6.	Designation of the authorised signatory	
	Service Centre in Kerala Please provide registration certificate. In case of 3 rd Party managed service centres, Submit copy of MoU/ agreement	Flag-6
	In case of sole distributor, enclose authorisation letter from Manufacturer	Flag 7

The details furnished above are true and correct and complete to my knowledge and belief. All the details furnished are supported by documentary evidence.

Date

Signature of the authorised signatory

Name

Designation

(Office Seal)



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Annexure 3. Service Centre Details

S1. No.	District	l	Own/		No./ Email ID	Copy of agreement/MOU Enclosed/Not enclosed

It is certified	that the detail	s furnished	above are	true and	l correct t	o my
knowledge ar	nd belief.					

Date

Signature of the authorised signatory

Name

Designation

(Office Seal)



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Annexure 4. Undertaking by the Agency

(In stamp paper worth Rs. 200/-(Rupees Two hundred only)

(Name, Designation) authorised signatory of
 (Name and full address of the bidder) hereby undertake that

- 1. We are not blacklisted/ De-registered/ debarred by any Government department/ Public Sector Undertaking/ Private Sector/ or any other agency for which we have Executed/ Undertaken the works/ Services during the last 5 years.
- 2. We have service facility in Kerala to meet the time line for service. Attending a complaint in 48 hrs. and rectifying it in 7 days
- We will submit products having necessary compliance and valid certifications only for approval
- 4. We will update on product availability in ANERT website.
- 5. 3% spares will be maintained at service facility in Kerala for immediate support for customers.
- 6. In the case systems products supplied under ANERT schemes, warrantee conditions specified by ANERT will be followed.
- 7. A copy of warrantee card has also be provided to end user and the warrantee will be honoured, directly to end user if it is in demand.
- 8. Director, ANERT reserves the right to add, remove, and clarify any of the terms and conditions contained herein.
- 9. We will provide an operational manual, Do's and Don'ts along with products.
- 10. Internal (factory) test certificate / conformity certificate will be provided with each product.



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11. The certification of this product is from MNRE/ NABL/IEC/BIS approved labs.

Date

Signature of the authorised signatory

Name

Designation

(Office Seal)



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Annexure 5. Organizational Strength and Organizational Chart

	Graduate d	iploma	skilled	non-skilled
Engineering:				
Manufacturing				
Quality				
Commercial / Service after sales :				
Others:				
Total				

Date

Signature of the authorised signatory

Name

Designation

(Office Seal)



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Annexure 6. Product volume already distributed in Kerala in last 5years

1	Product Category	Distribution in Kerala In kWp/kW/Whr

Date

Signature of the authorised signatory

Name

Designation

(Office Seal)