EMPANELMENT OF SOLAR PV MODULES

(II Edition –February 2021)

(Guidelines and Application Form)

AGENCY FOR NEW AND RENEWABLE ENERGY RESEARCH AND TECHNOLOGY

ANERT
PMG - Law College Road
Vikas Bhavan P.O.
Thiruvananthapuram.
PIN- 695 033.
Tel: 0471 - 2338077, 2334122,
2333124, 2331803
Email: director@anert.in
Web: www.anert.gov.in

NOTICE

Application for the Empanelment of Solar PV Modules

ANERT invites direct applications from the reputed manufactures of Solar PV modules for the second edition of OEM Empanelment process. The companies who desires to apply for the process must submit a cover letter and attach the details as per the format, along with the detailed datasheet of the PV module/ Modules. Those companies who have already participated in the First Edition of OEM Empanelment held in February 2020, can now apply for their newer models which are not empanelled in the first edition.

Applications must be submitted online on or before 25-02-2021 along with the application fee.

Documents to be attached:

1. Cover letter for the submission on letterhead of the firm.
2. Manufacturer Registration Certificate (Annexure 1)
3. Company Profile (Restricted to 5 pages)
4. GST registration Certificate (Annexure 2).
5. Acknowledgement of Payment (Annexure 3)
6. List of Undertakings (Annexure 4, 5)
7. Application for the Empanelment of PV Module (Form 1)
8. IS/ IEC Certifications (Annexure -6)
9. ISO Certifications for the OEM Company(Annexure 7)
10. Audited Certificate to prove the Turn Over (Annexure 8)
11. Technical Details (Form 2)
12. List of PV Module (s) to be submitted for Empanelment (Form 3)
13. Data sheet of the PV module/ modules (Annexure -9)
14. **Those companies who had already empanelled in the First Edition of OEM Empanelment of ANERT held in February 2020 need not submit the documents required under Sl. No 2, 3, 4, 9 and 10. However, they shall upload an Undertaking stating that the company is already empanelled in the I Edition of OEM Empanelment Process in the provisions in the online application form instead of the documents actually required for Sl. No 2, 3, 4, 9 and 10.**

Application fee – 25,000/- (NEFT/ RTGS) + 3,000 (For each product Empanelment)

*Annual Fee – 5,000/-(NEFT/ RTGS) (*applicable only for the OEM's empanelled in the First Edition of **OEM Empanelment of ANERT Feb 2020**)

Bank: State Bank of India
LIC Junction Branch
Pattom, Thiruvananthapuram

Name: Director ANERT
Account number: 67242882331
IFSC: SBIN0070212

Note: Please refer to the guidelines on specification before filling the form.

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1. GENERAL INSTRUCTIONS

1. Only Original Equipment Manufacturer (OEM) is eligible for empanelment in ANERT.

2. The OEM shall be either Proprietary/ Limited Company/ PSU registered in India with a valid Company Registration Certificate. Please attach the registration certificate as Annexure 1.

3. The OEM shall be in the concerned business for last two years in India.

4. The firm should have registration number with GST. Please attach the GST certificate as Annexure2.

5. The interested OEMs of PV Module (s) shall submit the application through the link of ANERT website www.anert.gov.in.

6. The cell type shall be Mono-Crystalline/ Poly Crystalline/ Thin Film. The OEMs of mono PERC/ Half Cut/ Bi Facial type PV Modules are also encouraged to apply and decision on these types of PV modules will be reserved with ANERT based on the certifications.

7. Empanelling the manufacturers of PV module(s) will be conducted once in 3 months.

8. The Applicant shall pay an Empanelment Fee of Rs.25000/- initially and an annual fee of Rs 5000/- in subsequent years. In addition to the above amount, the Manufacturer shall pay an additional payment at the rate of Rs 3000/- for each product to be empanelled in ANERT. The payment shall be done through NEFT/RTGS channel to the following account number and the details (UTR No, Name of the Remitter, Date of Payment, Total Amount Paid, the Split up of Payment, Bank from which the Payment is made) shall be furnished in the space provided in Form -1. Please attach the online payment acknowledgement as Annexure 3.

   The Director, ANERT

   Acc No : 67242882331

   Bank : State Bank of India

   Branch : LIC Junction, Pattom

   IFSC : SBIN0070212

9. PV Module of same Make/ Model in the same series shall be considered as a single product while making the payment as per MNRE Order No. 283/54/2018-Grid Solar (ii) Dt. 06- Feb-2020.

   Definition and explanation of 'model' for Empanelment purposes as per above MNRE order

   i. The "model" refers to modules/ Cells of same nominal power output rating. All BIS approved modules/ Cells of the applicant with same nominal power output rating shall be treated as one model.

   ii. Since, single model of a module has a range of power wattage, as often described in the manufacturer's datasheet for such model, Empanelment application form provides for specifying both the Mean wattage and applicable range of wattage. However, since such range of wattage may vary from manufacturer to manufacturer based on the methodology

of model categorisation adopted by them, it is hereby clarified that, for the Empanelment purposes.

a. All the modules based on same technology (multi- crystalline/ mono- crystalline/ mono-PERC/ bifacial/ half-cut, etc.) and having same no of cells and having power ratings within ± 5 % of the power rating of the mean wattage, as submitted by the applicant, shall be treated as one model.
b. The applicable range of wattage up to variation of ± 5% of the power rating of the mean wattage, as submitted by the applicant, shall be treated as one model.
c. If a module has variation in power ratings beyond ± 5% of the mean wattage of the module under consideration, the said module will have to be covered under another model.

iii. If two different modules have same technology (Say multi-crystalline), have same no. of cells (say 72 cells), have power ratings either identical (say 320 W_P and 320 W_P) or slightly varying but within the permissible variation range of ± 5% from the mean wattage (say W_P and 345 W_P which are within ± 5% of the mean wattage module of 330 W_P), they shall be treated as one model, subject to all other major technical aspects being similar.

iv. If there are two modules, both of which are multi- crystalline, have 72 no: of cells and have power rating 320 W_P, but have some difference in some technical feature like different voltage rating, different no. of bus bars, different anti-reflective coating etc. they will **not** be treated as one model.

10. Empanelment of PV manufacturers currently exempted from BIS Registration/ Certification.

i. The solar PV manufacturers who are exempted from BIS registration/ Certification, as per MNRE's Gazette Notification No. S.O. 3449 I. Dated 13th July, 2018 or any extension thereof, are eligible for Empanelment of their solar PV modules in ANERT. However, the validity of their Empanelment will be co-terminus with the validity of the exemption from BIS registration/ certification available to them as per MNRE's Gazette Notification No. S.O. 3449 I dated 13th July,2018 or any extension thereof, after which the Empanelment will be continued/ renewed only after submission of requisite documents, including documents pertaining to BIS Registration/ Certification".

ii. If the PV manufacturer who has Empanelled without BIS registration/ Certification, subsequently obtains BIS registration/ Certification and submits the requisite documents to ANERT, at least one month prior to the date of expiry of his Empanelment, his Empanelment shall be considered valid based on the validity of BIS Registration.

11. The Empanelment is valid as per the validity of the corresponding certifications (IEC/ IS etc.) provided the OEMs renews their empanelment status by paying annual fee of Empanelment status.

12. The Manufacturer shall submit the IEC certificates along with test reports of Solar PV Modules as per technical specifications with respective filled Performa's for each product. The PV modules

should be tested from the MNRE approved test centers / NABL/ BIS/ IEC accredited testing-calibration laboratories. In case of imported PV modules, these should be approved by international test houses. However the utilisation of imported PV modules will be under the regulations and rules of MNRE.

13. Datasheet of all Empanelment products to be attached.

14. Proposed minimum capacity of solar PV module for Empanelment shall be of 250 W_P. Each Make/Model with the range of capacities shall be listed in a row in the application form. The definition of a single product (with different capacities in steps) is clarified under General Instructions, Clause No.10.

15. All the IEC certifications listed in Section no 6 are mandatory except the recommended ones (*).

16. During the selection of OEMs, ANERT may ask for any clarifications, if any, with a tentative deadline.

17. Qualified OEMs will be empanelled and notified by ANERT and will be given User Name and Password for uploading their products at ANERT through BuyMySun Portal, which will be verified, approved and published.

18. The Solar PV manufacturers shall have a minimum one number **service assistance unit/ Service Partner** in Kerala state. The manufacturers should provide the details of service assistance unit with address, name of the contact person, mobile no. and Email id, etc. (Form -1). If the manufacturer does not have a service assistance unit in Kerala, the firm should give an undertaking stating that the firm will set up a service assistance unit in Kerala, once empanelled.

19. The manufacturers shall furnish the warranty of Solar PV modules certificate as per MNRE guidelines.

    i. Product Warranty of 10 years shall be offered by manufacturer.

    ii. Output Warranty (The 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.)

20. The manufacturers shall submit an undertaking on a non-judicial stamp paper of Rs.200/- for providing service support during the entire warrantee period of 10 years. Please attach the undertaking as Annexure 4.

21. The manufacturers shall submit an undertaking on a judicial stamp paper worth of Rs200/- stating that they have not been blacklisted by any of the DISCOM's / Utilities/MNRE/ State Nodal Agencies (SNA) in the past. Please attach the undertakings as Annexure 5.

22. ANERT will conduct factory visits and witness the manufacturing process and tests, If found to be necessary.

23. ANERT reserves the right to delist such of the manufacturers from the Empanelment list in case, the performance of the module is not satisfactory within the guaranteed period.

2. APPLICATION FOR EMPANELMENT OF PV MODULES

The PV module manufacturer shall submit the following details in the company letter head, duly signed by the signing authorities.

FORM – 1

Sl No:	Particulars	Details
1.	Name of the Firm.	
2.	Address of the Firm with Telephone/ Fax no., E-mail and Web-site address.	
3.	Address of the Manufacturing Unit.	
4.	Name of the Authorized Contact Person with Mobile No. and E-mail address.	
5.	Annual Capacity of Module Manufacturing Plant (in MW_P)	
6.	Details of Test Certificates of Solar PV Module (Refer Section 4, "**Standards and Certifications").** Please attach the certificates as Annexure 6	
7.	Type of Solar PV Modules being Manufactured by the Firm i) Crystalline (Mono/ Poly) ii) Thin Film. iii) Any other	
8.	Mention no: of Products to be Empanelled with ANERT	
9.	Whether Plant qualifies to any International Standards: ISO 9000 ISO14000/ Any other standards. Please attach the certificates as Annexure 7.	
10.	GST Registration No.	
11.	Year wise Turnover of the firm for the last three years (Attach audited certificate as Annexure -8).	
12.	Experience as EPC company in solar PV Systems (if any).	
13.	Whether blacklisted by any of the Government Institution (Central/State Governments) or State Nodal Agency in the past. (Yes/	
14.	Application Fee Online Payment Details- (a)Name of the Remitter/ Company	

	(b) UTR No. I Date of Payment (d) Amount of Payment I Bank from which the payment is done I Split up of Payment (Example: - Rs25000/- + Rs3000/- per product)	

* The definition of a single product (with different capacities in steps) is clarified under General Instructions, Clause No.9.

Name & Signature of Authorized person with seal of the company

3. PV MODULE – TECHNICAL DETAILS

FORM 2

3.1 Data Set at Standard test conditions (STC)

Sl No:	Parameters	Data/ Values
1.	Nominal power output (W)	
2.	Voltage at P_{MAX} V_{MPP} (V)	
3.	Current at P_{MAX} I_{MAX} (A)	
4.	Open-circuit voltage V_{OC} (V)	
5.	Short-circuit current I_{SC} (A)	

3.2 Module General Characteristics

Sl No:	Parameters	Data/ Values
1	Module dimensions L X W X H (mm)	
2	Module weight (8pprox..) kg	
3	Number of cells and size (mm)	
4	No. of Bus bars in a cell	
4	Frame material	
5	Glass (type)	
6	Junction box (IP rating)	
7	Cable connector (Type/ Model name)	

Note:

The manufacturers must submit the above technical parameters for each Product (one form can be submitted for a particular series)

Fill the appropriate data based on the product applied for empanelment (Mono/ Poly crystalline/ Thin –film/ Mono –PERC/ Half-Cut/ Bi Facial)

4. LIST OF PV MODULE PRODUCTS SUBMITTED FOR EMPANELMENT

FORM 3

SL No:	Make	Model	*IS 14286	IEC 61215 / IEC 61646	IEC 61730-1	IEC 61730-2	IEC 61701	IEC 62716	Datasheet (✓)
1									
2									
3									
4									
5									
6									

*The exemption of this certification and other details are described in Section No.1. Clause No 10.

Note:

(i) Please attach the data sheet as Annexure 9

(ii) Proposed minimum capacity of solar PV module for Empanelment shall be of 250 W_P. Each Make/Model with the range of capacities shall be listed in a row in the application form. The definition of a single product (with different capacities in steps) is clarified under General Instructions, Clause No.9.

(iii) Please tick the IEC certifications submitted along with the corresponding make.

5. TECHNICAL SPECIFICATIONS FOR THE SOLAR PV MODULES

The specifications of Solar PV module are discussed below;

a. Technical Requirements

SL No:	Parameter	Specification
1.	Module efficiency	Minimum 16%
2.	PV cell	Minimum 4 Busbar
3.	Linear Degradation for 1st year	Maximum 2.5%
4.	Linear Degradation after 1st year up to 25 years	Maximum 0.7% per year

5.1 General Specifications:

i. The PV modules must be PID compliant, salt, mist & ammonia resistant and should withstand weather conditions for the project life cycle.

ii. The back sheet of PV module shall be minimum of three layers with outer layer (exposure to ambience) and shall be made of PVDF or PVF. The Back sheets for PV Module with 2 layered or 3 layered Polyester types or the back sheets with Polyester (PET type) at Air side material are not permitted for the empanelment; The minimum thickness of the core layers (without adhesive and inner EVA coated) must be 300 microns. The maximum allowed water vapour transmission rate shall be less than 2 g / m^2/day and shall have a Partial Discharge > / = 1500V DC

iii. The front glass shall meet the following specifications:

   a. The facing glass must be Tempered, PV grade with Low iron and high transmission.

   b. The transmission shall be > 93 %

   c. Thickness shall be min 3.2 mm

   d. Textured to trap more light

   e. The glass shall have an Anti-reflective coating for the better transmission and light absorption.

   f. Tempered glass to meet the external load conditions

iv. The encapsulant used for the PV modules should be UV resistant in nature. No yellowing of the encapsulant with prolonged exposure shall occur. The sealant used for edge sealing of PV modules shall have excellent moisture ingress Protection with good electrical insulation and with good adhesion strength. Edge tapes for sealing are not allowed.

v. Anodized Aluminium module frames of sufficient thickness shall be used which are electrically & chemically compatible with the structural material used for mounting the modules having provision for earthing.

vi. UV resistant junction boxes with minimum three numbers of bypass diodes and two numbers of MC4 connectors or equivalent with appropriate length of 4 sq.mm Cu cable shall be provided. IP67 degree of protection shall be used to avoid degradation during Life.

vii. The PV module should have IS14286 qualification certification for solar PV modules (Crystalline silicon terrestrial photovoltaic (PV) modules — design qualification and type approval). The exemption of this certification and other details are described in Section No.1. Clause No 10.

viii. In addition, the module must conform to IEC 61730 "Photovoltaic (PV) Module safety qualification, Part-1 – Requirements for construction & Part-2 Requirements for testing.

ix. The PV Module should have IEC 61215 Certification (Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval).

x. The Thin film modules must comply with "Design, Qualification and type approval" IEC 61646.

xi. The PV module should comply with the Salt Mist Corrosion Test IEC 61701.

xii. The PV Module must comply IEC 62716 which describes the resistance of PV Modules to Ammonia (NH_3).

xiii. Shading correction/ bypass diode for optimizing PV out to be incorporated in each solar module or panel level.

xiv. 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.

i. Name of the manufacturer of PV Module.
ii. Name of the manufacturer of Solar cells.
iii. Month and year of the manufacture (separately for solar cells and module).
iv. Country of origin (separately for solar cell and module).
v. I-V curve for the module.
vi. Peak Wattage, I_M, V_M and FF for the module.
vii. Unique Serial No. and Model No. of the module.
viii. Date and year of obtaining IEC PV module qualification certificate.
ix. Name of the test lab issuing IEC certificate.
x. Other relevant information on traceability of solar cells and module as per ISO 9000 series.

xv. The following details should be provided on the module

i. Name of the manufacture.
ii. Month and year of manufacture.
iii. Rated Power at STC.

iv. V_{MP}, I_{MP}, V_{OC}, I_{SC}.

xvi. 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.

xvii. The PV modules must qualify (enclose Test Reports/Certificates from IEC/NABL accredited laboratory) as per relevant IEC standard. The Performance of PV Modules at STC conditions must be tested and approved by one of the IEC/NABL Accredited Testing Laboratories.

xviii. PV modules used in solar power plant/ systems must be warranted for 10 years for their material, manufacturing defects, workmanship. The 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.

xix. Original Equipment Manufacturers (OEM) Warrantee of the PV Modules shall be submitted by the successful bidder when the materials delivered at site.

xx. The PV Module should be manufactured indigenously meeting the Domestic Content Requirement (DCR).

6. STANDARDS AND CERTIFICATIONS

Photovoltaic Modules shall comply with the specified edition of the following standards and codes.

Standard	**Description**
IS 14286*	Crystalline silicon terrestrial photovoltaic (PV) modules — design qualification and type approval.
IEC 61215 / IEC 61646	c-Si (IEC 61215): Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval Thin Film (IEC 61646): Design , Qualification & Type Approval
IEC 61730-1	Photovoltaic Module safety qualification- Part 1: Requirements for construction
IEC 61730-2	Photovoltaic Module safety qualification- Part 2: Requirements for testing
IEC 61701	Salt mist corrosion testing of photovoltaic modules
IEC 62716	Test Sequences useful to determine the resistance of PV Modules to Ammonia (NH_3)

*(Please refer to Section 1 (General Instructions), Clause 10 for details regarding the exemption for this certifications)

7. LIST OF ANNEXURES

The manufacturers must attach the list of annexures as per the attached format:

Sl No:	ANNEXURES	DESCRIPTION
1*	Annexure 1:	Manufacturer registration certificate
2*	Annexure 2:	GST registration Certification.
3	Annexure 3:	Acknowledgement of online payment.
4*	Annexure 4:	Undertakings on service support (in stamp paper worth Rs 200/-)
5*	Annexure 5:	Undertaking stating that the firm has not been blacklisted at any SNA/ DISCOM/ MNRE. (in stamp paper worth Rs200/-)
6	Annexure 6:	Test certificates. (IS/ IEC)
7*	Annexure 7:	Manufacturer plant certifications (ISO 9000/ 14000/ Any other).
8*	Annexure 8:	Year wise turnover of the firm for the last three years.
9	Annexure 9 :	Data Sheet
10	Annexure 10	Undertaking stating that OEM Company is already empanelled in the first edition of OEM Empanelment process completed by ANERT on Feb 2020

*Required for the OEM companies who are empanelling with ANERT for the first time

8. CHECKLIST FOR DOCUMENT SUBMISSION

The OEM companies must submit all the documents as per the attached format.

Sl No:	ANNEXURES	Remarks	Checklist (✓)
1	Cover letter on letterhead of the firm.		
2*	PV manufacturer registration certificate. (Annexure 1)		
3*	Company profile.		
4	Details of PV module manufacturers (Form 1)		
5	Panel data sets (Form 2)		
6	List of PV module submitted for Empanelment (Form 3)		
7	Name and Receipt/ Acknowledgement of online payment.		
8**	List of Annexures.		

*Required for the OEM companies who are empanelling with ANERT for the first time

** Please refer to Annexure List under Sl. No.7.