ROOFTOP PV & SMALL SOLAR GENERATION PROGRAMME (RPSSGP) UNDER JAWAHARLAL NEHRU NATIONAL SOLAR MISSION

WBGEDCL

EXPRESSION OF INTEREST

Pre-registration of Solar Photovoltaic Power Projects of 100 KW to 2 MW capacity.

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WBGEDCL
Invites proposal for Solar PV Projects
(100 kW to 2MW capacity)
Under
Rooftop PV & Small Solar Power Generation Programme (RPSSGP)
Jawaharlal Nehru National Solar Mission

No.WBGEDCL/RPSSGP/EOI/03/2010-2011/176/515 **Dated, 29.06.2010**

West Bengal Green Energy Development Corporation Ltd (WBGEDCL) invites Expression of Interest for pre-registration of Solar PV Projects of 100kW to 2MW capacity in West Bengal under JNNSM (RPSSGP).

The detailed information brochure& EOI application form can be purchased from WBGEDCL office on payment of Rs.15000/- in favour West Bengal Green Energy Development Corporation Ltd through A/C payee demand draft/Bankers cheque payable at Kolkata. The application form and brochure shall be available from 02.07.2010 to 009.07.2010 at 11.00 am to 4.00 p.m. Last date of submission of application is 12.07.2010 up to 2.00 p.m.

Sd/-
(S.P. Gon Chaudhuri)
Managing Director

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:CONTENTS:

1. INTRODUCTION:

The state of West Bengal has done significant work in the sector of Renewable Energy sources. However, most of the Renewable Energy systems are off grid type. Only in the recent past grid connected Renewable Energy project have already commissioned in the state. The present estimated potentials (already identified) of Renewable Energy Sources other than solar energy are as follows:

- Solar Photovoltaic : 16000 MW
- Small and Mini Hydel : 250 MW
- Biomass : 250 MW
- Wind Power : 450 MW
- Energy from Municipal Solid Waste : 150 MW
- Biogas based Power Generation : 10 MW
- Biomass (non grid connected type in Sundarbans) : 5 MW

Promoting of Renewable Energy seems to be strategically an important issue keeping in view energy security and sustainable development while encouraging clean technology for this purpose. Generally the Renewable Energy Power Generation Projects are eligible for CDM benefits. In addition Renewable Energy Projects are also eligible for various financial incentives.

It is in this context, West Bengal Green Energy Development Corporation Limited (WBGEDCL), a Government of West Bengal Company invites ***Expression of Interest for pre-registration of Companies/Institutions/Organizations who are willing to set up such type of grid connected Solar PV Power Plant.***

This booklet will provide the information to the prospective investors in regard to the procedures to be followed for investment of private sectors / corporate body / institutions etc. for pre-registration for setting up of Grid interactive Solar Photovoltaic Power Projects of 100KW to 2MW capacity across the state under RPSSGP.

Out of many forms of Renewable Energy, Solar Energy appears to be most promising. The Govt. of India has recently launched the National Solar Mission with a target to generate 20000 MW of Solar Power in the Country by the year 2022. One of the components of Solar

Mission is to set up Rooftop PV & Small Solar Generation Programme under Generation Based Incentives Scheme. (Guidelines enclosed)

2. WEST BENGAL GREEN ENERGY DEVELOPMENT CORPORATION LIMITED:

West Bengal Green Energy Development Corporation Ltd (WBGEDCL) has been created by the Govt. of West Bengal to promote Private Sector participation in the Renewable Energy. The objectives of the Company to promote investment in grid connected renewable energy projects and various green energy sources and develop and execute special renewable energy projects on commercial/demonstration basis. The Corporation will also assist the Developers in respect of getting different incentives in regard to implementation of Renewable Energy Projects. The Corporation will also assist the private Developers in regard to coordination with various line departments.

3. RENEWABLE ENERGY POWER GENERATION TECHNOLOGIES:

3.1 Solar Photovoltaic Power Generation:

Many parts of West Bengal are endowed with abundant amount of Solar Radiation, which can be directly converted into grid quality power. This is done by use of Solar Photovoltaic cells, which directly convert the visible spectrum of incoming Solar Radiation onto them into electricity and directly fed to grid after reconditioning the power. The potential of such power generation in West Bengal is estimated to be 16000 MW though it is not possible to tap all of it but a substantial amount of it can be tapped depending upon the availability of sufficient land and some other factors such as availability of optimum solar radiation, sufficient sunshine hours, availability of grid etc. The main advantages of producing power through Solar Photovoltaics are eternal source, clean & ecofreindlyness due to no carbon generation, low maintenance.

The basic system components of a typical Grid connected Solar Photovoltaic (SPV) Power Plant are:

- ♦ SPV Arrays consisting of SPV modules
- ♦ Module Interconnection arrangement
- ♦ Power Conditioning Units

- ♦ Suitable control systems with metering
- ♦ Power transformers
- ♦ Power evacuation arrangement

3.2 Rooftop Solar Power Generation:

Often called Solar Electricity "Photo Voltaic (PV)" is a direct conversion of Sun light to electricity. Generally, the following types of PV systems are working through out the world:

1. Standalone type.
2. Grid Connected type.
3. Grid-cum-Standalone type.
4. Hybrid PV system.

Although Photo Voltaic is capable for powering houses and business without any connection to electricity infrastructure, such arrangements are not always most practical solution. When PV works in a standalone mode it requires batteries which are expensive and has limited life. The battery needs regular maintenance. Such systems are known as standalone system.

In order to supplement the grid power, the grid connected Solar PV systems are becoming popular day by day. Worldwide small and large size grid connected PV systems are being installed to augment the grid capacity and also to reduce burning of coal. Such system comprises only Solar PV modules, cables, and power conditioning unit. The power generated from grid connected solar power plant is evacuated to the grid through transformer and switchgear.

Hybrid PV system comprises of different sources like Solar PV with diesel back up or Solar PV with Biomass energy generation back up or Solar PV with Wind energy back up. Such systems are only installed in remote locations where there is no electricity.

Under this Expression of Interest only small grid connected roof top or land based system will be considered. The minimum capacity of the system should not be less than 100 kW and the maximum capacity of the system should not be more than 2 MW. The developer must have land/roof and grid connectivity to set up such type of power plant. In general, 4 acres of land or roof is required for installing one MW Solar PV power plant.

WBGEDCL will pre-register the projects and issue necessary pre-registration certificate for submission of the same to IREDA. However, the developer has to sign PPA with Utilities before approaching IREDA. The Tariff Order in this respect will be issued by

West Bengal Electricity Regulatory Commission. Thereafter the project is to be got registered with the Programme Administrator (IREDA). WBGEDCL will extend all necessary assistance to the developer during execution of the project.

4. JAWAHARLAL NEHRU NATIONAL SOLAR MISSION

Realizing the need for promoting power generation from solar energy, **Govt. of India has taken the initiative to launch Jawaharlal Nehru National Solar Mission under the brand name "Solar India".** The objective of the Solar Mission is to create conditions, through rapid scale up of capacity and technological innovation to drive down costs of solar electricity towards grid parity. The Mission anticipates achieving grid parity by 2022 and parity with coal based thermal power by 2030. West Bengal has been at the forefront in the use of Renewable Energy and demonstrate its effective utilization.

5. ROOFTOP PV & SMALL SOLAR GENERATION PROGRAMME (RPSSGP)

In the said Mission, a new scheme named as '**Rooftop PV & Small Solar Generation Programme (RPSSGP)'** to be implemented by **Indian Renewable Energy Development Agency (IREDA)** through State Nodal Agencies has been introduced for setting up of smaller solar projects including rooftop installations ranging from 100 KW to 2 MW capacity (total 90 MW in phase-I). These projects shall be connected to the grid at below 33 KV level & the power shall be directly purchased by the State Utilities for which the State Electricity Regulatory Commission has to notify the tariff. Under this programme, the WBGEDCL being the Competent Authority shall has to pre-register the projects with a cumulative capacity of 20 MW as per eligibility criteria. (Guidelines enclosed)

6. ELIGIBILITY CRITERIA:

West Bengal Green Energy Development Corporation Ltd (WBGEDCL) **invites Expression of Interest from prospective promoters, developers and companies regarding pre-registration for setting up of Grid interactive Solar Photovoltaic power projects of 100 KW to 2 MW capacity** across the state as detailed in this document.

6.1 **FINANCIAL CRITERIA**

6.1.1 The **net worth** of the company should be equal to or greater than the value calculated at the rate of **Rs.2.00 crore per MW** of the project capacity. The computation of the net worth shall be based on unconsolidated audited annual accounts of the company. For the purpose of computation of the net worth, the best year in the last three years shall be considered. The company would thus be required, to submit annual audited accounts for the financial year 2006-07, 2007-08 & 2008-09, while indicating the year, which should be considered for evaluation.

6.1.2 If the EOI is submitted by a Consortium/ SPV specially created for solar projects, the financial strength of parent company shall be considered for meeting the above financial criteria.

6.1.3 For companies which are newly incorporated, the net worth should be met seven days prior to the date of submission of EOI by the project developer. To demonstrate fulfillment of the criteria, the project developer shall submit a certificate from the Chartered Accountant certifying the net worth on the date seven days prior to the submission of EOI. Further the project developer shall submit the un-audited statement of the company for the date on which certificate of Chartered Accounts has been obtained.

6.1.4 The developer shall submit the **letter of commitment** along with board resolution for equity investments in the project calculated on the basis of Rs. 4.00 crore per MW on a pro-rata basis.

6.2 INFRASTRUCTURE CRITERIA: LAND/ROOF REQUIREMENT

The developer should have made arrangements for land / roof required for the project. Documentary evidence regarding availability of the land /roof for the solar project should be submitted along with the proposal. The applicant having proof of evidence regarding availability of land/roof for the project shall get priority.

6.3 INFRASTRUCTURE CRITERIA: GRID CONNECTIVITY REQUIREMENT

The plant should be designed for interconnection with the grid at distribution network at the voltage level depending on installed capacity of rooftop PV or small Solar system generator.

HT level (below 33 KVA) at distribution network.

In this regard, the developer shall submit **a letter from the concerned distribution utility** confirming technical feasibility of connecting the plant at the distribution sub-station.

6.4 TECHNICAL CRITERI A

The proposals to deploy PV modules & Inverter system shall be considered for pre-registration to be technically qualified and eligible for participation in the RPSSGP only if they comply with relevant IEC/BIS standards and/or compliant with applicable standards as specified by the Central Electricity Authority. For solar PV projects based on crystalline silicon technology selected under this programme, **it will be mandatory to use modules manufactured in India. The project proponent shall submit the documentary evidence and undertaking in this regard along with the application for pre-registration.** The standards and technical requirements for grid solar projects are enclosed as **Annexure- V**.

7. **INTRUCTION TO THE BIDDERS**

7.1 The tariff & grid connectivity shall be as per order of WBERC. At present WBERC has issued draft tariff order for RE projects vide no. WBERC/Regulation/28/2/08-09/0232 dated 31st May 2010.

7.2 Total project capacity to be allocated under this programme, generation based incentive, tariff and other terms and conditions shall be done in accordance with guidelines of MNRE, GOI/IREDA for ROOFTOP PV AND SMALL SOLAR GENREATION PROGRAMME. This is a **pre-registration programme** under which the project developers applications shall be scrutinized and pre-registered for issue of requisite certificate by WBGEDCL. Thereafter, the developer has to apply to IREDA for registration and grant of GBI. Project Developers fully complying with eligibility criteria shall only be considered for project pre-registration. **WBGEDCL shall in no way be responsible for non-allocation/sanction of the projects/GBI to any project developer/s by IREDA** during the registration process and in no way be liable for any costs incurred by unsuccessful bidders. Bidders are clearly informed that **pre-registration of projects should not be construed as sanction/grant of GBI by IREDA** and they are required to follow/adhere to the guidelines of the IREDA/MNRE,GOI.

7.3 Setting up of captive grid interactive solar PV power plant or captive utilization of

solar PV power is not covered under this programme and the projects to be set up are in IPP mode for sale of power to the State Utility/ licensee. Projects will be based only on Photovoltaic Technologies and no hybridization with other NRSE sources and / or conventional power sources is allowed / permitted.

7.4 The Bidders must submit the project technical details in terms of the technical specifications of the main equipments i.e. Solar PV panels, Power Conditioning Units/invertors, power evacuation/ synchronization scheme. The technical details of the project should be submitted separately.

7.5 Qualification of PV modules and inverters, to be used in grid interactive power plants should comply with IEC certification. The electronics, cables, controls, structures etc. must qualify to latest BIS or international standards which are acceptable to utilities and which fulfill all safety norms for grid power projects as per details enclosed in **Annexure- V**. The ensuring of appropriate protection mechanisms both on the plant DC side and AC grid side have to be ensured.

7.6 The project if approved by IREDA under "RPSSGP" scheme, WBGEDCL will have full rights to inspect the project any time with prior intimation during construction phase, before and after commissioning. Grid synchronization shall only be allowed with utility if all the technical parameters/specifications are adhered to by the developer company. It is the responsibility of the bidder to ensure technical feasibility of the Grid substation to which the power is to be evacuated.

8. OTHER TERMS AND CONDITIONS

8.1 WBGEDCL reserves the full right to accept or reject all or any number of proposals. WBGEDCL shall also not be responsible / liable in any manner what so ever if later due to any change in the Government of India / IREDA guidelines, the project developers are unable to get the GBI incentive. Project developers are advised to adhere to the terms and conditions / guidelines of IREDA / MNRE, GOI for registration / sanction of GBI incentive and should also adhere to the mile stones for financial closure and later on project commissioning.

8.2 The Bidders must demonstrate that they have access to or has available liquid assets, lines of credit and other financial means sufficient to meet the construction and commissioning of the project. For this purpose the Bidders must submit the complete audited balance sheets of the company or consortium and also comfort letters

from the bankers /FI's for financial closure/providing the debt/loan. The Bidder shall also inform the Project financial parameters i.e. Cost of the project, means of finance, access to project financing/financial closure lines of credit / methodology. Bidders will mention the financial year from which they expect to start the commercial generation. Bidders are requested to submit complete data and details sought and are cautioned not to submit incomplete/confusing/unclear information/details, as these will lead into rejection of their EOI. EOIs will not be made eligible/qualified by seeking clarifications/information after EOI submission.

8.3 After, pre-registration, MOU's will be signed between the developers and the utility as the case may be.

8.4 Project developers shall be required to further follow procedures for registration with IREDA as per guidelines of MNRE,GOI/IREDA.

8.5 The power to be generated from these projects is for the purpose of sale to the state grid.

8.6 All the statutory / non-statutory clearances shall have to be obtained by the developer. However, WBGEDCL will facilitate in obtaining these clearances from the competent authorities.

8.7 Conditional EOI are liable to be rejected.

8.8 The Bidders shall conclude the EOI information in prescribed formats placed in this booklet.

8.9 If any terms/clause has been left out that will be as per guidelines of Ministry of New & Renewable Energy/IREDA for this programme as amended from time to time.

8.10 State Utilities shall be requested to sign MOU/Power Purchase Agreements at the tariff to be paid by the utility in accordance with the Rooftop PV and Small Solar Generation Programme guidelines and as approved by WBERC.

8.11 After Pre-registration and signing of MOU, Project developer shall be required to submit the project proposals to IREDA/MNRE, GOI for sanction and grant of GBI incentives by complying with the needed documentation required by IREDA.

8.12 One Firm/Company/Consortium **can submit only one proposal for setting up of grid connected Solar PV Power plant ranging from 100 kW to 2 MW.**

9. PREPARATION AND SUBMISSION OF PROPOSALS

9.1 The Bidders shall submit the proposal in sealed large envelope bear the name and address of the Bidder company/Lead member of the Consortium and details of the

project EOI for, as follows:

"**Expression of Interest for pre-registration of Solar PV Power Projects**"

Name of Project Site Village, Block, District	**Proposed Project Capacity in kW/MW.**

10. **LAST DATE OF SUBMISSION OF EOI WITH DOCUMENTS:**

10.1 Last date for submission of Application: 12th July 2010 up to 2.00 p.m.

11. CHECKLIST OF DOCUMENTS TO BE ENCLOSED

1. Draft format of covering letter at **Annexure-I**
2. Application in prescribed format at **Annexure-II**
3. A certified copy of the Memorandum & Article of Association of the public/private limited company and also copy of the company registration certificate.
4. Board Resolution clearly stating the intention of the company to develop the project and Letter of commitment for equity @ Rs. 4.00 crore/MW **(Annexure-III)**
5. Financial parameters eligibility as per **Annexure-IV**
6. Submit the project technical details in terms of the technical specifications of the main equipments i.e. Solar PV panels, capacity, efficiency, Power Conditioning Units/invertors, project power evacuation/ synchronization scheme. The technical details of the project should be submitted separately.
7. Annual Report of the Company for last three years.
8. Audited balance sheets for the year 2006-07, 2007-08 & 2008-09 .
9. Certified copy of Registration Certificate, Up-to-date Trade License, PAN, Service Tax Registration Certificate, VAT Registration Certificate.
10. Any other relevant document asked for in the application.

12. Annexure I - V

Annexure - I

DRAFT FORMAT OF COVERING LETTER

Bidder's Name:
Full Address:
Telephone No.:
E-mail address:
Fax / No.:

Dated,

To
Managing Director
Address of WBGEDCL

Subject : Submission of EOI for pre-registration of Setting up of _____ MW Solar Photovoltaic Power Project in the State of West Bengal under Rooftop PV & Small Solar Generation Programme of MNRE/GOI.

Ref:- EOI Specification No. WBGEDCL/2010-11/JNNSM/

Sir,

We, the undersigned Bidder having read and examined in detail the EOI documents for pre-registration for setting up of Solar Photovoltaic Power Project in West Bengal under Rooftop PV and Small Solar Generation Programme hereby submit our response in full compliance to the EOI document terms and conditions for ____ MW project. Our EOI is valid for 6 months.

I/ We hereby declare that the terms & conditions mentioned in the EOI have been read & I/ we agree that these conditions will be binding upon me / us. We are enclosing herewith duly signed formats as desired by you in your EOI document for your consideration.

Yours faithfully,

Signature…….
Name
Designation
Company's Seal

Annexure -I I

APPLICATION FORM FOR PRE-REGISTRAION OF SPV POWER PLANTS CONNECTED TO DISTRIBUTION NETWORK BELOW 33 KV UNDER ROOFTOP PV & SMALL SOLAR GENERATION PROGRAMME (RPSSGP) OF JAWAHARLAL NEHRU NATIONAL SOLAR M ISSION.

Number:

A. GENERAL

(Allotment will be given to only the Principal Applicant)

1. Name of the Promoter / Investor / Developer **:**

2. Registered Office Address **:**

   Telephone No. **:**

   Fax No. **:**

   E – Mail ID **:**

3. Nature/Status of Applicant Company **:**
   (Whether Sole Proprietary/Partnership/Private Limited/Public Limited/ Public Sector/Consortium)

B. Financial

1. Turnover during the three years of firm or lead firm in case of consortium/parent Company in case of SPV **:** 2007-2008:_____
   2008-2009:_____
   2009-2010:_____

2. Net worth during the three references years of firm or lead firm in case of consortium/ parent Company in case of SPV **:** 2007-2008:_____
   2008-2009:_____
   2009-2010:_____

3. Name of the Financial Institutions likely to fund the project(s) **:**

4. Means of Financing (Project – wise) **:**
   a) Promoter / Investor / Developer direct equity **:**
   b) Loan details from Financial Institution(s) **:**
   c) From other sources (specify) **:**

5. Solvency certificate from Banker(s) to be Enclosed **:**

C. Project Proposal

1. Details of the project site/location :

2. Has the project sites been visited by the engineers of the applicant company? :

3. Details of investigation carried out, if any :

4. Capacity of the proposed project.
   i) Proposed gross capacity (MW) …….MW
   ii) Auxiliary consumption …….Kwh
   iii) Net Capacity (MW) …….MW
   iv) Plant Load Factor (PLF) ……..%
   Net expected power generation per annum ……in kWh or inMU

5. Technology offered (Module) :

6. a) Name of the Owner of the transmission network and substation where power will be absorbed. :

   b) Give full detail with name of place of the nearest Grid substation. (only for MW scale project) :

7. Pre feasibility report of the project(s) proposed to be undertaken to be enclosed (only concept note) :

8. Expected time required to start physical execution of project work from the date of allotment of site(s). :

9. Proposed Project Completion Period :

D. Any other relevant informations :

i) I/We hereby, certify that the information furnished by me/us is a true statement of facts.

ii) I/We agree with selection procedure of WBGEDCL in respect of allotment of project in RPSSGP.

iii) I/We shall not have any dispute with WBGEDCL for non allotment of the Project .

iv) I/We agree to sign necessary agreement with WBGEDCL/IREDA/various line departments.

Signature of the authorized Signatory of
the Company/Organization with Seal .

Date :
Place:

NOTES:

1. Where the space provided above is not sufficient extra sheet may be used.
2. The Bidder shall submit all the pages duly signed and stamped by the authorized person.

Annexure - III

LETTER OF UNDERTAKING BY THE COMPANY/CONSORTIUM FOR MINIMUM EQUITY PARTICIPATION IN THE PROJECT

Name of the Company:

Name of the Project site:

Installed capacity applied for :
(As per EOI document)

To,
_____

_____

Dear Sir,

We the undersigned Bidder company / consortium undertake that minimum equity participation of Rs. ___ crore in the project shall be ensured in full compliance in accordance with the EOI document terms and conditions and MNRE, GOI / IREDA guidelines.

Thanking you,

Yours faithfully,

Signature…….
Name
Designation
Company's Seal

Dated, ……

(Please also affix common seal of Bidding company / lead member in a Bidding consortium)

Annexure - IV

DETAILS OF FINANCIAL ELIGIBILITY PARAMETERS OF THE BIDDERS FOR APPLIED SOLAR PROJECT SITE FROM THE BALANCE SHEETS OF FINANCIAL YEAR 2006-2007, 2007-08 & 2008-09.

Name of the Company/Lead Company : M/s.

Total capacity of the firm / consortium
(as per Bid Document)

Sl. No.	Financial Parameters	Name of the Company		
		2006-2007	2007-2008	2008-2009
1	Turn over			
2	Net worth(calculated as per criteria at Sr. No. 6.1.1 of EOI Document)			
	A.Paid up Share Capital			
	B. Reserves			
	C. Revaluation reserves			
	D. Intangible assets			
	E. Misc. expenses to extent not written off & carry forward losses			

Signatures and stamp of Statutory Auditor

Signatures (Authorised signatory) Company Seal.

Notes:

The company shall enclose the brief notes to the financial parameters considered by the firm/company enabling us to understand the values & reasoning for such considerations.

Annexure – V

TECHNICAL SPECIFICATION

1. PV Module Qualification

1.1 The PV modules used in the grid connected solar power projects must quality to the latest edition of any of the following IEC PV module qualification test or equivalent BIS standards:

Crystalline Silicon Solar Cell Modules	IEC 61215 Edition II
Thin Film Modules	IEC 61646
Concentrator PV modules	IEC 62108

1.2 In addition, PV modules must qualify to IEC 61730 Part I & II, for safety qualification testing. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.

2. Qualification of BoS Items

2.1 The Solar PV power plants set up under the Mission must use PV modules and other balance of systems components, which must qualify to the latest edition of BIS or IEC standards issued in this regard. The project developers must provide a copy of the relevant test reports and certificates to IREDA.

3. Authorized Test Centers

3.1 The PV modules must be tested and approved by one of the IEC authorized test centers. Test certificates can be from any of the NABL/BIS Accredited Testing/Calibration Laboratories.

3.2 Ministry will review the list of authorized testing laboratories/centers from time to time.

4. Warranty

4.1 The mechanical structures, electrical works including inverters/charge controllers/power conditioning unit/maximum power point tracker, distribution board/digital meters and overall workmanship of the roof top and small grid solar power plants must be warranted for a minimum of 5 years.

4.2 PV modules used in solar power plants must be warranted for output wattage, which should not be less than 90% at the end of 10 yeas and 80% at the end of 25 years.

5. Identification and Traceability

Each PV module used in any solar power project must use a RF identification tag. The following information must be mentioned in the RFID used on each module. This can be inside or outside the 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

ii) Month and year of the manufacture (separately for solar cells and module)
iv) Country of origin (separately for solar cells and module)
v) I-V curve for the module
vi) Wattage, Im, Vm 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 or traceability of solar cells and module as per ISO 9000 series.