No. 29/5/2012-13/JNNSNM
Government of India
Ministry of New and Renewable Energy
Solar Power Division

Subject: Invitation for Comments on Draft Guidelines for setting up of 750 MW Grid Solar PV power projects with Viability Gap Funding (VGF) under Jawaharlal Nehru National Solar Mission (JNNSM), Phase-II, Batch-I

Draft Guidelines for setting up of 750 MW Grid Solar PV power projects with Viability Gap Funding (VGF) under Jawaharlal Nehru National Solar Mission (JNNSM), Phase-II, Batch-I are given below. All concerned stakeholders are invited to send their valuable comments/ suggestions on the same by 30th April 2013 to facilitate finalization of the Guidelines.

A. K. Varshney
Director (Solar Power)
Tel/Fax: 011-24360885
E-mail: akvarshney@nic.in

Dated: 18/4/2013

JAWAHARLAL NEHRU NATIONAL

SOLAR MISSION

Phase-II

Draft Guidelines

for

Selection of 750 MW

New Grid Connected Solar Power Projects

Under Batch-I

(Revised after Stakeholders Consultation Meet held on 8 April 2013)

Government of India

Ministry of New and Renewable Energy

April 2013

"Sustainable development also mandates the efficient use of available natural resources. We have to be much more frugal in the way we use natural resources. A key area of focus is energy. We have to promote, universal access to energy, while, at the same time, promoting energy efficiency and a shift to cleaner energy sources by addressing various technological, financial and institutional constraints."

Dr. Manmohan Singh, Prime Minister of India

During the Rio+20 Summit in Brazil (20-22 June, 2012)

Guidelines for

SELECTION OF *750 MW NEW GRID CONNECTED*
SOLAR PV POWER PROJECTS

PHASE-II Batch-I

SECTION 1: BACKGROUND AND INTRODUCTION

1.1. Preamble

The Jawaharlal Nehru National Solar Mission is a major initiative of the Government of India with active participation from States to promote ecologically sustainable growth while addressing India's energy security challenge. It will also constitute a major contribution by India to the global effort to meet the challenges of climate change.

The objective of the Mission is to establish India as a global leader in solar energy, by creating the policy conditions for its large scale diffusion across the country as quickly as possible. The Mission has set a target, amongst others, for deployment of grid connected solar power capacity of 20,000 MW by 2022 to be achieved in 3 phases (first phase upto 2012-13, second phase from 2013 to 2017 and the third phase from 2017 to 2022).

The first phase (up to 2013) focused on promoting scale-up in grid-connected solar power capacity addition of 1000 MW through scheme of bundling with thermal power operated through NVVN for minimizing the financial burden on Government, and a small component of 100MW with GBI support through IREDA . In the second phase, further capacity addition of 3000 MW under Central Scheme is envisaged through various schemes.

1.1.2. Status and achievement of 1000 MW Capacity Grid Solar Projects under Phase-I taken up through NVVN

In the Phase 1 of the Mission, 950 MW solar power projects (excluding 84 MW selected under migration scheme) were selected in two batches (batch-I during 2010-11 and batch-II during 2011-12) through a process of reverse bidding. The resulting tariffs in Batch-I for SPV projects ranged between Rs.10.95 and Rs.12.76 per unit, with average of Rs.12.12 per unit and for solar thermal projects the tariff ranged between Rs.10.49 and Rs.12.24 per unit, with average tariff being Rs.11.48 per unit. In Batch-II, for solar PV projects, the tariff ranged between Rs.7.49 and Rs.9.44 per unit, with average tariff being Rs.8.77 per unit.

The power from the plants is being purchased by the NTPC Vidyut Vyapar Nigam Limited (NVVN) and being sold to distribution utilities/ Discoms after bundling with power from the unallocated quota of power from coal based stations of NTPC on equal capacity basis, thus effectively reducing the average per unit cost of solar power. A total capacity of 420 MW has been commissioned under these Batches by the end of Phase-1. In addition, a capacity of 50.5MW under migration scheme, 88.8 MW under IREDA-GBI scheme and 21.5 MW under old Demonstration scheme has been commissioned, taking the total capacity commissioned during Phase-I to 580.8 MW.

1.1.3. Approach of Viability Gap Funding in Phase-II Batch-I of JNNSM

To incentivize setting up of a large number of Solar Power Projects and minimizing the impact of tariff on the distribution companies, various alternatives have been considered viz. (i) Bundling Scheme (ii) Viability Gap Funding (VGF) Scheme and (iii) Generation Based Incentive (GBI) Scheme. Phase-I was largely based on the option of Bundling Scheme and on GBI option to some extent. In Phase-II Batch-I of JNNSM, the option of "Viability Gap Fund" Scheme has been selected.

1.1.4. Mechanism of Viability Gap Funding in Phase-II Batch-I of JNNSM

The mechanism of operation of Viability Gap Funding shall be as enumerated below:

1) The tariff to be paid to the developer is fixed at Rs.5.45 per kWh. This tariff will remain firm for 25 years project period. In case benefit of accelerated depreciation is availed for a project, the tariff will get reduced by 10% to Rs.4.95 per kWh in line with CERC regulations.
2) The developer will be provided a viability gap fund based on his bid. The upper limit for VGF is 30% of the project cost or Rs.2.5 Cr./MW, whichever is lower. The developer will be required to indicate his preliminary estimate of project cost as per format in Annexure-A.
3) The developer has to put his own equity of at least Rs.1.5 Cr./MW.
4) The remaining amount can be raised as loan from any source by the developer.
5) The VGF when paid by the *SECI* may be used to return part of the loan or developer contribution (in excess of Rs.1.5 Cr./MW) or a combination thereof as the case may be, in case investments have already been made. *SECI* will issue a letter confirming release of VGF so that bidder is able to achieve financial closure for full amount if required at the time of signing of PPA.
6) The VGF will be released in three tranches as follows:
   i) 25% at the time of delivery of at least 50% of the major equipment at the site and after inspection by a Committee to be constituted by MNRE. The major equipment will comprise of (a) Modules-40%, (b) Mounting Structures-15%, (c) Power Conditioning Units-25% and (d) Switchgear and Transformers-20%. In case the inspection is taking time, SECI may release the VGF due on self-certification by the developer against BG of equivalent amount.
   ii) 50% on successful commissioning of the full capacity of the plant. The project's commissioning will be declared by a Committee to be constituted by MNRE. The project would be considered as Commissioned if energy has flown into the grid after the entire plant equipment is installed and connected.
   iii) Balance 25% after one year of operation meeting requirements of generation.

7) If the project fails to generate any power continuously for 1 year within 25 years or its assets are sold or the project is dismantled during the tenure of the project, *SECI* will have a right to claim assets equal to the value of VGF granted and paid.

1.2. Scope and Objectives of the Guidelines

The scope of these guidelines is to select 750 MW grid connected solar projects and provide the necessary policy framework for development of projects under the *"Viability Gap Funding scheme for 750 MW of Phase II Batch-I of the JNNSM".*

The objectives of these guidelines are:

1. To enable scaling up of size of projects thereby leading to economics of scale of projects under JNNSM,
2. To facilitate speedier implementation of the solar power projects to be selected to meet the *Phase-II* Batch-I target of JNNSM;
3. To enhance confidence in the Project Developers and
4. To promote manufacturing in the solar sector, in India.
5. To create good business model and systems for various state Governments and Discoms to take forward.

1.3. Total Capacity and Portfolio of Solar PV Technology Projects

The total aggregated capacity of the grid connected solar projects to be developed under viability gap funding scheme in Phase-II Batch-I of JNNSM shall be 750 MW. The projects to be selected under this scheme provide for deployment of Solar PV Technology. However, the selection of projects would be technology agnostic and crystalline silicon or thin film or CPV, with or without trackers can be installed.

Already commissioned projects cannot be considered under this scheme. Projects under construction or projects which are not yet commissioned will, however, be considered.

1.4. Definitions

"Affiliate" shall mean a company that, directly or indirectly,

i. controls, or
ii. is controlled by, or
iii. is under common control with, a Company developing a Project or a Member in a Consortium developing the Project and control means ownership by one company of at least 26% (twenty six percent) of the voting rights of the other company.

"Company" shall mean a body corporate incorporated in India under the Companies Act, 1956;

"Financial Closure or Project Financing Arrangements" means arrangement of necessary funds by the Project Developer either by way of commitment of funds by the company from its internal resources and/or tie up of funds through a bank / financial institution by way of sanction of a loan.

"Group Company" of a company means (i) a company which, directly or indirectly, holds 10% (ten percent) or more of the share capital of the company or (ii) a company in which the company, directly or indirectly, holds 10% (ten percent) or more of the share capital of

such company or (iii) a company in which the company, directly or indirectly, has the power to direct or cause to be directed the management and policies of such company whether through the ownership of securities or agreement or any other arrangement or otherwise or (iv) a company which, directly or indirectly, has the power to direct or cause to be directed the management and policies of the Company whether through the ownership of securities or agreement or any other arrangement or otherwise or (v) a company which is under common control with the company, and control means ownership by one company of at least 10% (ten percent) of the share capital of the other company or power to direct or cause to be directed the management and policies of such company whether through the ownership of securities or agreement or any other arrangement or otherwise.

Provided that a financial institution, scheduled bank, foreign institutional investor, non banking financial company, and any mutual fund shall not be deemed to be Group Company, and its shareholding and the power to direct or cause to be directed the management and policies of a company shall not be considered for the purposes of this definition unless it is the Project Company or a Member of the Consortium developing the Project.

"Inter-connection point / Metering point" shall mean the point at 33kV or above where the power from the solar power project is injected into the CTU/STU transmission system (including the dedicated transmission line connecting the power project with the CTU/STU system). Metering shall be done at this interconnection point where the power is injected into the CTU/ STU system.

"**Parent"** shall mean a company, which holds at least more than 50% equity either directly or indirectly in the Project Company or a Member in a Consortium developing the Project.

"Pooling Point" shall mean a point where more than one solar PV projects may connect to a common transmission line built and operated by the developer or any third party or by STU on behalf of the developer. This common transmission line may further connect with the interconnection/metering point. In this case, metering will be done at the interconnection point along with subsidiary meters at the pooling point to determine the generation by each project.

"Project" is defined by separate points of injection into the grid at inter-connection/metering point or in case of sharing of transmission lines by separate injection at pooling point. Each project must also have a separate boundary, control systems and metering.

"Solar PV Project" means the Solar Photo Voltaic power project that uses sunlight for direct conversion into electricity through Photo Voltaic technology.

"Technology Partner" shall mean an entity from which the Bidder proposes to take technology support. This entity can be a Member in more than one Bidding Consortium provided that it does not have more than 10% of equity commitment in each Consortium;

"Trading Margin" shall mean the margin on sale of Solar power to State Utilities/Discoms as fixed by MNRE under this scheme, subject to CERC applicable Regulations in this regard.

"Ultimate Parent" shall mean a company, which owns at least more than fifty percent (50%) equity either directly or indirectly in the Parent and Affiliates.

SECTION 2: GUIDELINES FOR SELECTION OF SOLAR PV PROJECTS

2.1. Capacity of Each Project

As mentioned under clause 1.4 and 2.5(C) of this guidelines, solar power projects are required to be designed for inter-connection with transmission network of STU/CTU at voltage level of 33 kV or above. Given this requirement, the Project capacity shall be at least 10 MW in case of Solar PV Projects and the maximum capacity of the Project shall be up to 50 MW. The plant capacity shall remain in multiples of 10 MW. The capacity shall mean the AC output at the project bus bar located within project premises.

2.2. Request for Selection for Short-listing of Projects

Solar Energy Corporation of India (SECI) shall invite project developers to participate in the bidding process against the Request for Selection (RfS) for development of Solar Photovoltaic Projects under this scheme. The Project Developer shall submit the RfS within 30 days of the invitation by *SECI*.

2.3. Processing Fees

The Project Developer shall submit along with the RfS non-refundable processing fee of Rs. 1 Lakh for each Project upto 20 MW capacity and of Rs.2 Lakh for each project above 20 MW capacity.

2.4. Number of Applications by a Company and capacity limit

The total capacity of Solar PV Projects to be allocated to a Company including its Parent, Affiliate or Ultimate Parent-or any Group Company shall be limited to 100 MW, out of the total capacity of 750 MW to be added under batch-I Phase-II. The Company, including its Parent, Affiliate or Ultimate Parent-or any Group Company may submit application for a maximum of three projects at different locations subject to a maximum aggregate capacity of *100* MW. The Company, including its Parent, Affiliate or Ultimate Parent-or any Group Company shall submit one single application in the prescribed format detailing all projects at multiple locations for which the developer is submitting the application.

2.5. Waiting List

A waiting list of up to 100 MW may be maintained by SECI up to date of Financial Closure. SECI may allocate projects to the waiting list developers after approval of the quantity to be allocated by MNRE. Only developers who agree to be in waiting list will be kept there. SECI will retain EMD BGs for the waiting list developers.

2.6. Qualification Criteria for Short-Listing of Solar PV Projects

A. Financial Criteria

Net Worth:

The Net Worth of the company should be equal to or greater than the value calculated at the rate of Rs *2* Crore or equivalent US$ per MW of the project capacity upto 20 MW. For every MW additional capacity, beyond 20 MW, additional net worth of Rs. 1 crore would need to be demonstrated. The computation of Net Worth shall be based on unconsolidated audited annual accounts of the company. The Company would be required to submit annual audited accounts for the last four financial years (or if the period of existence of the Company is less than four Years, then starting from the year of incorporation) viz. 2008-09, 2009-10, 2010-11 2011-12 and 2012-13 (if available), indicating the year which should be certified for evaluation along with a net worth certificate from a Chartered Accountant. However, the Net Worth criteria should be met not more than seven days prior to the date of submission of RfS by the bidding Companies. To demonstrate fulfilment of this criteria, the Company shall submit a certificate from a Chartered Accountant certifying the availability of Net Worth on the date not more than seven days prior to submission of RfS along with a Certified copy of Balance Sheet, Profit & Loss Account, Schedules and cash flow statement supported with bank statement. {Note: For the Qualification Requirements, if data is provided by the Project Developer in foreign currency, equivalent rupees of Net Worth will be calculated using bills selling exchange rates (card rate) USD / INR of State Bank of India prevailing on the date of closing of the accounts for the respective financial year as certified by the Project Developer's banker.

For currency other than USD, Project Developers shall convert such currency into USD as per the exchange rates certified by their banker prevailing on the relevant date and used for such conversion. }

Net Worth

=	Paid up Equity share capital
Add:	Free Reserves
Subtract:	Revaluation Reserves
Subtract:	Intangible Assets
Subtract:	Miscellaneous Expenditures to the extent not written off and carry forward losses

For the purposes of meeting financial requirements only unconsolidated audited annual accounts shall be used. However, audited consolidated annual accounts of the Company may be used for the purpose of financial requirements provided the Project Developer has at least twenty six percent (26%) equity in each Company whose accounts are merged in the audited consolidated account and provided further that the financial capability of such Companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Bid.

If the RfS is submitted by a Consortium the financial requirement to be met by each Member of the Consortium shall be computed in proportion to the equity commitment made by each of them in the Project Company. Any Consortium, if selected, shall, for the purpose of supply of power to *SECI*, incorporate a Project Company with equity participation by the Members before signing the PPA with *SECI*. The Project Developer may seek qualification on the basis of financial capability of its Parent Company and / or it's Affiliate(s) for the purpose of meeting the Qualification Requirements. In case of the Project Developer being a Bidding Consortium, any Member may seek qualification on the basis of financial capability of its Parent Company and / or its Affiliate(s).

B. Technical Criteria

Under the VGF scheme in Phase II Batch-I of the JNNSM, it is proposed to promote only commercially established and operational technologies to minimize the technology risk and to achieve the commissioning of the Projects. The detailed technical parameters for Solar PV Projects are at Annexure-B.

C. Connectivity with the Grid

(i) The plant should be designed for inter-connection with the transmission network of STU/CTU or any other transmission utility at voltage level of 33 KV or above. The Project Developers should indicate to the transmission - licensee the location [Tehsil, Village and District, as applicable] of its proposed project. In this regard, the Project Developer shall submit a letter from the STU / CTU/Transmission Utility along with RfS confirming technical feasibility of connectivity of plant to substation.

(ii) The responsibility of getting connectivity and open access with the transmission system owned by the STU / CTU or any other transmission utility, as may be required, will lie with the Project Developer. The transmission of power up to the point of interconnection where the metering is done for energy accounting shall be the responsibility of the SPD at his own cost. Interconnection with the Discom network may be accepted in exceptional cases where the Discom is the ultimate buyer of the entire quantity of power from that project; and SPD has signed Power Purchase Agreement with that Discom and Discom agrees to an agreed interconnection point and at an agreed voltage. This arrangement would be subject to arrangement of energy accounting with the SLDC. The maintenance of Transmission system upto the inter-connection point shall be the responsibility of the Project Developer.

(iii) The arrangement of connectivity can be made by the SPD through a dedicated transmission line which the SPD may construct himself or get constructed by STU or Discom or any other agency. The entire cost of transmission including cost of construction of line, wheeling charges, losses etc. from the project upto the interconnection point will be borne by the Project Developer and will not be met by the STU/Discom. This connectivity can also be achieved through a shared line with any agency or any existing line of Discom

or STU, provided the energy accounts are bifurcated and clearly demarcated for the power generated at solar project and are issued by the STU/ SLDC concerned.

(iv) The Project Developer may, however, shift interconnection point closer to his project if 33 kV substation comes closer to project during the tenure of PPA provided that the interconnection shall be maintained at 33 KV or above and energy at solar project is clearly demarcated for the power generated at solar project and energy accounts are issued by the STU/ SLDC concerned. The costs associated with this arrangement will also be borne by the project developer including the wheeling charges and losses up to the interconnect point. In case of nearby projects with Pooling point arrangement, the Project Developers may decide to share the cost of transmission charges and other associated charges from the pooling point up to the inter-connection point, amongst themselves.

D. Clearances required from the State Government and other local bodies

The projects developers are required to obtain necessary clearances as required for setting up the Solar PV Power Projects.

E. <u>Domestic Content Requirement</u>

Out of the total capacity under Batch-I Phase-II, some capacity will be kept for bidding with Domestic Content Requirement (DCR). Under DCR, the solar cells and modules used in the power plant must both be made in India.

2.7. Selection of Projects in the VGF scheme of Phase-II Batch-I

a. Based on the notification issued by *SECI*, the financial bid will be submitted separately by the developer. They will clearly indicate the per MW VGF required from *SECI* in Indian Rupees.

b. After financial bids are opened, these will be arranged in ascending order of per MW VGF. The lowest VGF bid will be identified and marked L1. The lowest bid without claim of AD will be identified and marked $L1_A$.

c. Selection of projects for allotment will start from L1 and go up to the level where 750 MW is reached or $L1_A$ bid price plus 10% is reached, whichever is earlier. In case $L1_A$ bid price plus 10% is reached and 750 MW capacity does not get allotted then the bidders over $L1_A$ plus 10% will be given an offer to match $L1_A$ plus 10% within 15 days from the offer.

d. In case the bidders matching $L1_A$ plus 10% is more than the left out capacity, then the bidders having the lowest original bids will be allotted project till the capacity of 750 MW is reached.

2.8. Power Purchase Agreement

A copy of Draft Power Purchase Agreement to be executed between SECI and the Project Developer shall be provided by SECI along with invitation for submission of RfS. The SECI shall simultaneously issue letters to all the State Utilities/Discoms inviting "Expression of Interest" from willing State Utilities/Discoms, who would be purchasing the solar power under VGF scheme @ Rs.5.50/ kWh (including Trading Margin of SECI @ 5 paisa/kWh) and sign the Power Sale Agreement (PSA) with SECI. Within 30 days of the date of issue of Letter of Intent (LoI), the Power Purchase Agreement between SECI and the Project Developer for purchase of power from the project will be executed. Back-to-back Power Sale Agreements will also be executed between SECI and the State Utilities/Discoms during this period for sale of solar power to them.

2.9. Bank Guarantees

The Project Developer shall provide the following Bank Guarantees to *SECI* in a phased manner as follows:

- Earnest Money Deposit (EMD) of Rs. 10 Lakh/MW in the form of Bank Guarantee along with RfS.
- Performance Bank Guarantee of Rs. 20 Lakh/MW at the time of signing of PPA.

In addition to the Performance Bank Guarantee of Rs. 20 Lakh/MW to be provided at the time of signing of PPA, the Bank Guarantee towards EMD will also be converted into Performance Bank Guarantee.

The Project Developers are required to sign PPA with State Utilities/Discoms in line with the Timeline given in the guidelines. In case, the Project Developer refuses to execute the PPA within the stipulated time period, the Bank Guarantees towards EMD shall be encashed by SECI as penalty. In case the Project is not selected, *SECI* shall release the Bank Guarantees within 15 days of the issue of LoI to selected Projects. All the Bank Guarantees shall be valid for a period of 16 months from the date of signing of PPA for the Projects.

2.10. Minimum Equity to be held by the Promoter

The Company developing the project shall provide the information about the Promoters and their shareholding in the company to *SECI* indicating the controlling shareholding before signing of the PPA.

No change in the shareholding in the Company developing the Project shall be permitted from the date of submitting the RfS till the execution of the PPA. However, this condition will not be applicable if a listed company is developing the Project.

After execution of PPA, the controlling shareholding (controlling shareholding shall mean more than 50% of the voting rights and paid-up share capital (including fully, compulsory and mandatory convertible Preference shares/Debentures) in the Company/Consortium

developing the project shall be maintained for a period of (1) one year after commencement of supply of power. Thereafter, any change can be undertaken under intimation to *SECI*.

2.11. Financial Closure/ Project Financing Arrangements

The Project Developer shall report tie-up of Financing Arrangements for the projects within *180* days from the date of signing Power Purchase Agreement. At this stage, the Project Developer would furnish within the aforesaid period the necessary documents to establish that the required land for project development is in clear possession of the Project Developer (minimum 2 ha per MW) and the requisite technical criterion have been fulfilled. The Project Developer would also need to specify their plan for meeting the requirement for domestic content. The developer may make financial arrangement for at least the project cost minus the VGF agreed for this project.

In case of delay in achieving above condition as may be applicable, *SECI* shall encash performance Bank Guarantees and shall remove the project from the list of the selected projects.

2.12. Commissioning

2.11.1 Part Commissioning:

Part commissioning of the Project shall be accepted by *SECI* subject to the condition that the minimum capacity for acceptance of part commissioning shall be *10* MW and in multiples thereof. The PPA will remain in force for a period of 25 years from the date of acceptance of respective part commissioning of the project.

2.11.2 Commissioning Schedule and Penalty for Delay in Commissioning:

In case of Solar PV, the Project shall be commissioned within 13 months of the date of signing of PPA. In case of failure to achieve this milestone, *SECI* shall en-cash the Performance Bank Guarantee (BG) in the following manner:

a. Delay up to one month - 20% of the total Performance BG on per day basis and proportionate to the Capacity not commissioned in lots of 10 MW each.
b. Delay of more than one month and up to three months – SECI will encash remaining Performance BG on per day basis and proportionate to the Capacity not commissioned in lots of 10 MW each.
c. In case the commissioning of the project is delayed 3 months, the pre-fixed levelized tariff of Rs.5.45 per unit shall be reduced at the rate of 0.50 paise per unit per day of delay for the delay in such remaining capacity which is not commissioned. The maximum time period allowed for commissioning of the full Project Capacity with

encashment of Performance Bank Guarantee and reduction in levelized tariff shall be limited to 24 months from the date of signing of PPA. In case, the Commissioning of the Project is delayed beyond 24 months from the date of signing of PPA, the PPA capacity shall stand reduced / amended to the Project Capacity Commissioned and the PPA for the balance Capacity will stand terminated and shall be reduced from the selected Project Capacity.

The funds generated from the encashment of the Bank Guarantees shall be deposited in a separate working capital account to be maintained by *SECI* under the guidance of MNRE. The decision regarding usage of this fund shall be communicated by MNRE to *SECI* separately.

2.13. Project Implementation Schedule for Solar PV Projects

Selection of Solar PV Projects shall be carried out according to the timeline given below:

Sl. No.	Event	Date
i)	Approval of proposal at NCEF	Zero date
ii)	Notice for Request for Selection	Zero date + 15 days
iii)	Submission of Applications	Zero date + 45 days
iv)	Short-listing of Projects based on RfS Applications received and evaluation of bids.	Zero date + 90 days
v)	Issue of letter of intent	Within 15 days from evaluation of bids (to be issued over a period of 15 days)
vi)	PPA Signing	Within 30 days from the date of issue of letter of intent
08	Financing Arrangement	Within 180 days from the date of signing of PPA
09	Commissioning of Projects	Within 13 months from the date of signing of PPA

SECTION 3: OTHER PROVISIONS

3.1. Role of State Level Agencies

It is envisaged that the State Government shall appoint any Agency as a State Level Agency, which will provide necessary support to facilitate the required approvals and sanctions in a time bound manner so as to achieve commissioning of the Projects within the scheduled Timeline. This may include facilitation in the following areas:

- Access to Sites
- Land acquisition for the project
- *Power Evacuation facility*

3.2. Amendment to the Guidelines

Any modification to these guidelines, if necessary, shall be carried out by the Ministry of New and Renewable Energy so as to successfully commission 500 MW Solar PV Projects under VGF scheme in batch-I Phase-II within the scheduled Timeline and thereby achieve the objectives of the Jawaharlal Nehru National Solar Mission.

3.3. Power to Remove Difficulties

If any difficulty arises in giving effect to any provision of these guidelines or interpretation of the guidelines or there is a requirement to modify the guidelines for better implementation, the matter will be referred to a Committee constituted by MNRE for this purpose. Thereafter, clarifications/modifications may be issued with approval of Secretary, MNRE.

Any inconsistencies, due to oversight, may be rectified, after obtaining the approval from the Secretary, Ministry of New and Renewable Energy.

3.4. Payment Security Mechanism

SECI shall set up a payment security mechanism in order to ensure timely payment to the developers. This fund will have a corpus to cover 3 months payment. The money received from encashment of BGs, interest earned on this fund, incentives for early payment, the extra money coming from 10% lower tariff to developers claiming AD and grants from Government/ NCEF will be used to build this fund. The Ministry of New and Renewable Energy will frame rules to operate this fund.

Annexure-A

Preliminary Estimate of Cost of Solar PV Power Project

Project Capacity: ……..MW

Location: ……..

Sr. No.	Particulars	Estimated Cost (Rs. in Lakh)
1.	SPV Modules	
2.	Mounting Structures	
3.	Power Conditioning Units	
4.	Cables / Inter-connects/ Switchgear/ Control Panel/ Monitoring and Control System	
5.	Power Evacuation Arrangement up to Inter-Connection Point (Cables and Transformers)	
6.	Land Acquisition	
7.	Civil and General Works	
8.	Preliminary and Pre-Operative Expenses including IDC and Contingency	
	Total Project Cost	

(Signature)

(Name of Bidder)

Annexure -B

Technical Requirements for Grid Solar PV Power Plants

The following are some of the technical measures required to ensure quality of equipment used in grid-connected solar photovoltaic power projects:

1. PV Module Qualification

1.1 The PV modules used in the grid solar power projects must qualify 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
Thin Film Modules	IEC 61646
Concentrator PV modules	IEC 62108

1.2 In addition, PV modules must qualify to IEC 61730 for safety qualification testing @1000V or higher. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.

2. Power Conditioners/ Inverters

2.1 The Power Conditioners/Inverters of the SPV power plants conform to the latest edition of IEC/ equivalent BIS Standards as specified below:

Efficiency Measurements	IEC 61683
Environmental Testing	IEC 60068 –2

3. Authorized Test Centres

The PV modules / Power Conditioners deployed in the power plants must have valid test certificates for their qualification as per above specified IEC/ BIS Standards by one of the NABL Accredited Test Centres in India. In case of module types/equipment for which such Test facilities may not exist in India, test certificates from reputed ILAC Member Labs abroad will be acceptable.

4. Warranty

PV modules used in grid solar power plants must be warranted for output wattage, which should not be less than 90% at the end of 10 years 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
iii. 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 at Standard Test Condition (1000 W/m2, AM1.5, 25^0 C)
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 on traceability of solar cells and module as per ISO 9000

Site owners would be required to maintain accessibility to the list of Module IDs along with the above parametric data for each module.

6. Performance Monitoring:

All grid solar PV power plants must install necessary equipment to continuously measure solar radiation, ambient temperature, wind speed and other weather parameters and simultaneously measure the generation of DC power as well as AC power generated from the plant. They will be required to submit this data to SECI and MNRE or any other designated agency on line and/or through a report on regular basis every month for the entire duration of PPA. In this regard they shall mandatorily also grant access to *SECI* and MNRE or any other designated agency to the remote monitoring portal of the power plants on a 24X7 basis.

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