

No. 32/5/2015-16/50MW-Spl

भारत सरकार/Government of India

**नवीन और नवीकरणीय ऊर्जा मंत्रालय / Ministry of New & Renewable Energy
(Grid Solar Power Division)**

Block NO. 14, CGO Complex,
Lodi Road, New Delhi-110 003,
Dated: 29th January, 2016

To,
**The Pay & Accounts Officer
Ministry of New and Renewable Energy
New Delhi.**

Subject: Scheme for setting up of over 50 MW of Grid-Connected Solar PV Power Projects in High Visibility areas with Viability Gap Funding (VGF) under Batch-VI of Phase-II of JNNSM.

Sir,

I am directed to convey the sanction of President of India for implementation of a Scheme for setting up of over 50 MW of Grid-Connected Solar PV Power Projects in High Visibility areas with Viability Gap Funding (VGF) under Batch-VI of Phase-II of JNNSM. The scheme will be implemented through Solar Energy Corporation of India (SECI), as per MNRE Guidelines.

2.0 SCOPE

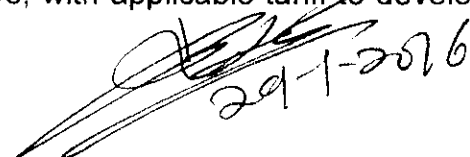
The recent announcement of Government of India for revision of the target for solar power under National Solar Mission to 1,00,000 MW by 2022 has generated great enthusiasm towards solar energy from all quarters. In order to emphasize the importance of solar energy and to spread awareness of its benefits, several high-visibility projects are being set up in various parts of the country. These projects are special projects, being developed primarily as demonstration for solar technologies. In order to make these projects commercially viable so as to make them affordable for Discoms, this scheme of Viability Gap Funding (VGF) has been envisaged. This scheme facilitates setting up of 'special' solar power projects by private developers on Build Own Operate (BOO) basis by bringing down tariffs from these projects at par with the other schemes of Gol through CPSUs (bidding by a CPSU). The purpose is to demonstrate new technologies or set up projects in areas where solar projects have not come up in order to demonstrate and create awareness.

3.0 TARGET CAPACITY

The total target capacity is 50 MW under this scheme, which would be set up in a period of two years i.e. 2015-16 and 2016-17.

4.0 VGF SUPPORT

The upper limit for VGF will be Rs. 1.00 crore per MW. However, upper limit upto Rs. 2.50 crore per MW may be allowed for some specific projects involving storage/new technology etc, as mentioned in para 6.0, with the approval of Secretary, MNRE. The total VGF requirement under the scheme of Rs. 126.25 crore will be utilised in next 5 years, with applicable tariff to developers would be from Rs.


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4.43 to Rs. 5.43 per kWhr fixed for 25 years, based on the varying nature of projects. The VGF will be released in six tranches. 50% on successful commissioning of the full capacity of the project and the balance 50% over next 5 years (i.e. 10% each year), subject to the project meeting generation requirements.

5.0 APPLICABILITY

Projects being set up as Special projects in high visibility areas, primarily as demonstration for emerging solar technologies (with/without storage). Individual project size would vary from 1 to 5 MW. Latest Solar Technologies like, Concentrated Photo Voltaic (CPV), use of dual-axis tracker, use of high efficiency mono-crystalline cells, solar with storage, etc can be used. These will be set up in areas where there will be good visibility and accessibility for the public. Even projects already taken up by a CPSU for which tenders have been issued after 1st August, 2015 and in principle approval given by MNRE may also be considered under the scheme.

6.0 HIGH VISIBILITY AREAS

- i. Projects in major towns, where land cost is high, but lot of people visit for demonstration purpose.
- ii. Adarsh Gram Yojana Villages.
- iii. Demonstration projects in Technology parks, locations where public visit like Museums, main markets, islands etc.

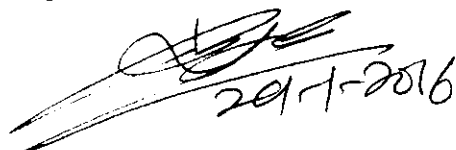
7.0 SOLAR TARIFF

Tariff payable to developers under this scheme would be from Rs 4.43 to Rs.5.43 per kWhr fixed for 25 years. Tariff applicable to the Buying Utilities / Discoms/ Other consumers will be fixed from Rs 4.50 to 5.50 per kWh (inclusive of SECI's trading margin of 7 paisa per kWh). Tariff may be decided on each case/project, based on the recommendations of the Committee, consisting members of MNRE, SECI, CERC, NRVN, with the approval of the Secretary, MNRE.

8.0 SCHEME DETAILS

The Scheme provides Viability Gap Funding for setting up grid-connected solar PV power projects of an aggregate capacity of 50 MW in various parts of the country as special projects, primarily for demonstration purpose. The salient features are as under:

- i. 50 MW of solar PV power projects would be set-up in various parts of the country as special demonstration projects. These projects would preferably be located in high visibility areas. Projects would be implemented during the period 2015-16 to 2016-17.
- ii. The scheme would be handled by CPSUs. CPSU to whom the project are allotted, would award the projects to private developers on Build Own Operate (BOO) basis.
- iii. Agencies would be selected through a competitive e-bidding process with reverse bidding on VGF amount required by them.



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- iv. Tariff payable to developers for these projects would be from Rs 4.43 to Rs.5.43 per kWh fixed for 25 years.
- v. Tariff applicable to the Buying Utilities / Discoms/ Other consumers will be from Rs 4.50 to Rs.5.50 per kWh fixed for 25 years (inclusive of SECI's trading margin of 7 paise per kWh).
- vi. Viability Gap Funding (VGF) would be provided through SECI after successful commissioning of full project capacity in six instalments as mentioned in para 11.0.
- vii. If major assets (components) of the project are sold or the project is dismantled during its tenure, Gol will have a right to get refund of VGF on pro-rata basis.

9.0 DOMESTIC CONTENT REQUIREMENT

There is no commitment for Domestic Content Requirement (DCR), however MNRE will decide for these projects on case to case basis.

10.0 ESTIMATED FINANCIAL REQUIREMENT

Based on the price trends in the recent tariff based bids, it is estimated that the total VGF requirement will be Rs. 126.25 crores (including 1% for Monitoring and handling charges to SECI) over a period of two years. Release of funds is envisaged during 2016-17 onwards.

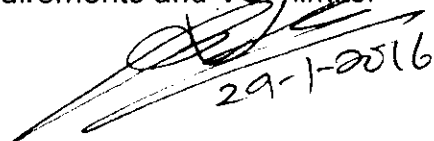
11.0 RELEASE OF VGF

VGF would be released through SECI in three installments after successful commissioning of the projects, upto five years thereafter. The VGF payment schedule is as under:

Schedule	VGF percentage	Rs crores
After commissioning of projects	50%	94.375
One Year after commissioning	10%	12.625
Two Years after commissioning	10%	12.625
Three Years after commissioning	10%	12.625
Four Years after commissioning	10%	12.625
Five Years after commissioning	10%	12.625
Total	100%	126.25

12.0 The expenditure involved will be debit to Demand no. 69, Major Head: 2810 New and Renewable Energy, Minor Head: 00.101 Grid Interactive and Distributed Renewable Power, Sub-Head: 01 Grid Interactive Renewable Power, Detailed Head, 04 Solar power, 31 Grant in Aid for 2015-16 (Plan). The fund will be met from NCEF Grant, managed by the Ministry of Finance

13.0 In case of any operational difficulties and in order to ensure timely implementation of the scheme, MNRE will be authorized to make amendments in the Terms & Conditions of the Scheme with the approval of the Minister, NRE without increasing the financial requirements and VGF limits.


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This issues under the powers delegated to this Ministry and with the concurrence of JS&FA dated 28.01.2016 and approval of Secretary dated 28.01.2016.

Yours faithfully,

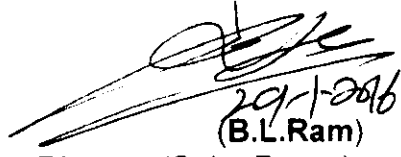

29/1/2016
(B.L.Ram)
Director (Solar Power)
Telefax : 011-24368894

Copy to:

1. The Managing Director, SECI, D-3, First Floor, A-Wing, Religare Building, District Center, Saket, New Delhi -110017.

Internal distribution:

1. PS to Hon'ble Minister (NRE)
2. PSO to Secretary, MNRE
3. JS(NSM)/JS&FA/EA
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5. Sanction folder


29/1/2016
(B.L.Ram)
Director (Solar Power)

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. SPV Modules

1.1 The SPV 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, SPV modules must qualify to IEC 61730 for safety qualification testing at 1000V DC or higher. The modules to be used in a highly corrosive atmosphere throughout their lifetime must qualify to IEC 61701.

2.0 Power Conditioners/ Inverters

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

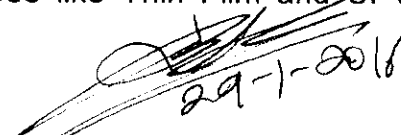
- Efficiency Measurements IEC 61683
- Environmental Testing IEC 60068 –2/ IEC 62093
- Electromagnetic Compatibility (EMC) IEC 61000-6-2, IEC 61000-6-4 & other relevant parts of IEC 61000
- Electrical Safety IEC 62103/IEC 62109-1&2
- Protection against Islanding of Grid IEEE1547/IEC62116/UL1741/ equivalent BIS Standard

3.0 Other Sub-systems/ Components:

Other subsystems/components used in the SPV power plants (Cables, Connectors, Junction Boxes, Surge Protection Devices, etc.) must also conform to the relevant international/ national Standards for Electrical Safety besides that for Quality required for ensuring Expected Service Life and Weather Resistance. (IEC Standard for DC cables for PV systems is under development. It is recommended that in the interim, the Cables of 600-1800 Volts DC for outdoor installations should comply with the draft EN50618/TUV 2pfg 1169/08/07 for service life expectancy of 25 years).

4.0 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 like Thin Film and CPV / equipment for which such Test


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facilities may not exist in India at present, test certificates from reputed ILAC Member Labs abroad will be acceptable.

5.0 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.

6.0 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, 250 C)
- vi 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

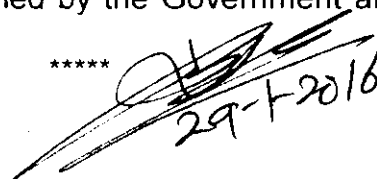
Site owners would be required to maintain accessibility to the list of Module IDs along with the above parametric data for each module.

7.0 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.

8.0 Safe Disposal of Solar PV Modules:

The developers will ensure that all Solar PV modules from their plant after their 'end of life' (when they become defective/ non-operational/ non-repairable) are disposed of in accordance with the "e-waste (Management and Handling) Rules, 2011" notified by the Government and as revised and amended from time to time.


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