

No.32/72/ 2008-09/PVSE
Government of India
Ministry of New and Renewable Energy

Block No. 14, C.G.O. Complex,
Lodi Road, New Delhi -110 003
Dated: 28th February, 2009

To
The Pay & Accounts Officer,
Ministry of New and Renewable Energy,
New Delhi-11003.

Subject: Demonstration Programme on Tail-end grid connected Solar Power Plants.

Sir,

I am directed to convey the sanction of the President for undertaking a Demonstration Programme on Tail-end grid connected Solar Power Plants in the country during the 11th Plan period, as per the provisions given in the following sections and in the enclosed Annexure-I.

2. Objective

The main objective of the Demonstration Programme is to connect solar power plant at the tail-end of the grid for providing voltage support to strengthen the grid and to provide additional power for day time use.

3. Implementation Arrangements

Any distribution company or Electricity Board which is authorized in the State / UTs to distribute or generate electricity will be eligible to take up the projects under the demonstration programme. In addition, State Nodal Agencies are also eligible, provided they connect the plant to the grid at the tail-end and feed power to the tail-end grid. Any of the above mentioned eligible organizations can submit a proposal directly to the Ministry for seeking financial support and that organization will be considered as the project implementing agency. Each proposal must be supported by a Detailed Project Report (DPR).

4. Targets and Central Financial Assistance

Tail-end grid connected solar power plants, with an aggregate capacity up to 4 MWp may be supported under the demonstration programme. The Ministry will provide Central Financial Assistance (CFA) up to 50% of the '**installed cost**' of Solar Power plant, excluding cost of land, extension of line for power evacuation, civil works and cost of AMC, or a **maximum of Rs.10.00 crore (Rupees ten crore) per MW** of solar capacity used in the tail-end supported solar power projects. Cost of preparation of DPR will also not be covered under the eligible CFA.

One percent (1%) of the MNRE CFA will be provided as administrative charges to the implementing agency, subject to a maximum of Rs. 10 lakh per project. Ministry will provide, on case-to-case basis, full support for training; capacity building; third party monitoring; and impact assessment studies relating to the Demonstration Programme.

5. Technical & Performance Requirements

The broad technical and performance requirements of tail-end grid connected solar power plants covered under the Demonstration Programme are given in **Annexure – I**.

6. Monitoring Arrangements

The implementing agencies will devise suitable arrangements for monitoring and evaluation of tail-end grid connected solar power plants sanctioned under this Demonstration Programme in accordance with the guidelines given in **Annexure-I**. They may also take other measures as considered appropriate for monitoring/inspection / performance evaluation of grid interactive solar PV power generation projects in the field. In addition, if considered necessary, Ministry may inspect the plant or commission other organizations/experts to inspect the plant and undertake performance evaluation study.

7. Necessary funds for implementation of the Demonstration Programme during 2008-09 will be drawn from the Ministry's budget head – '2810' Non-Conventional Sources of Energy (Major Head), 02.120-Photovoltaic (Minor Head), 05-Grid Interactive SPV Power Projects 05.01-Research & Development, 05.01.31-Grants-in-aid, during the year 2008-09 (Plan).

8. This sanction issues in exercise of powers delegated to this Ministry and with the concurrence of IFD vide No IFD/2134/08 dated 19/2/2009 and concurrence dated 28/2/2009

9. This sanction has been entered at Sl. No 39 on page No. 14 in the register of Grants.

Yours faithfully,

(H.R. Khan)

Director

Telefax: 011 24368917

Copy to:-

1. Principal Director of Audit (Scientific Departments), AGCR Bldg., I.P. Estate, New Delhi – 110 002
2. Chief Secretaries of the State Governments / Union Territories.
3. Directors/Chief Executive Officers of all State Nodal Agencies.
4. CMD/Chief Executives/Heads of all Utilities
5. PS to Minister (NRE)
6. Sr. PPS to Secretary, MNRE
7. AS&FA/All Advisers/ JS (GS) /JS(HK)
8. Chairman & Managing Director, Indian Renewable Energy Development Agency, India Habitat Centre, Lodi Road, New Delhi 110003.
9. Director (Bh)/ Dir (HRK) / Dy. Secy.(F)/ US(Fin)/ SO (SE)/SO (F)
10. Sanction Folder

(H.R. Khan)

Director

Guidelines for Demonstration Programme on Tail-end grid connected Solar Power Plants

Following are the broad guidelines for submission of proposals by the implementing organizations, technical and performance requirements of tail-end grid connected solar power plants, eligibility criteria, Central Financial Assistance (CFA), monitoring & feedback mechanism and documents required to be submitted.

1. Eligible Organizations

- 1.1 Any company or Electricity Board which is authorized in the States / UTs to distribute or generate electricity will be eligible. In addition, State Nodal Agencies (SNAs) are also eligible, provided they connect the plant to the grid at the tail-end and feed power to the tail-end grid. Any of the above mentioned eligible organizations can submit a proposal direct to the Ministry for seeking financial support and that organization will be considered as the project implementing agency. Each proposal must be supported by a Detailed Project Report (DPR).

2. Eligible Projects & Eligibility Criterion

- 2.1 Tail-end grid connected solar power generation plants of a minimum installed capacity of 25 kWp per plant at a single location and a maximum capacity of 1 MWp per plant at a single location that can be connected to LT grid or 11 kV grid will be eligible for Central Financial Assistance (CFA) under this Demonstration Programme.
- 2.2 A maximum cumulative capacity of 4 MWp of tail-end grid connected solar power plants can be set up under the Demonstration Programme.
- 2.3 Any eligible organization which fulfills the procedural requirements and the guidelines specified by the Ministry will be eligible for consideration of CFA. The projects for tail end grid connected solar power plants will be owned by the concerned eligible agency to whom the project is sanctioned by the Ministry.

3.0 Procedures to be followed for availing Central Financial Assistance (CFA)

- 3.1 A proposal may be submitted to the Ministry to seek Central Financial Assistance (CFA) for setting up a tail-end grid connected solar power plant by any of the eligible organization. Each proposal must be supported by a Detailed Project Report (DPR).
- 3.2 The implementing agency will prepare a Detailed Project Proposal for installation of the solar power plant to the tail-end grid. Details of the selected site, the status of the tail-end grid, load profile, details of power shortage during day-time and its impact on load shifting to evenings, etc, would be covered in the proposal. The proposed capacity of the solar plant, its location, distance from the existing grid; estimated life of the PV power plant; quantum of electricity expected to be generated and fed to the grid; estimated benefit to the stability of the grid; and the likely benefits in terms of load being serviced during day-time, etc. will also be provided. The estimated cost of the solar power plants, technical specifications, plant layout, proposed implementation schedule, cost sharing, safety related aspects will also be included. PV modules, control electronics and storage battery etc. which qualify to the international or Indian module qualification standards will be eligible for use in tail-end connected solar power plants. Use of cables, structures

and other safety related instrumentation etc. will be as per the existing Indian standards and the provisions of the Indian Electricity Act. The concerned agency will be fully responsible to test and certify the plant for grid connectivity and compliance of related procedures

- 3.3 In addition, the proposal should be supported by (i) details of the power evacuation point and permission for connecting the solar plant; (ii) consent of the distribution company to take solar power in the tail-end distribution system; (iii) details of the land in possession for setting up the plant and status of clearances, if required.
- 3.4 If necessary, Ministry may request a presentation on the proposal or seek clarifications about the proposal.
- 3.5 The supply and installation of tail-end grid connected solar power plant will be done through tendering process, from qualified suppliers, who have experience in installation of grid connected solar power plants in India.
- 3.6 The implementing agency will be required to install and commission the tail-end grid connected power plants within the time frame communicated at the time of sanctioning the project. First progress report must be submitted to the Ministry within three months from this date. Thereafter, Quarterly Progress Report (QPR) should be submitted till installation and commissioning is reported.
- 3.7 A dedicated electronic meter or any other meter(s) as specified and approved by the utility will be installed at the point of power evacuation and/or any other point as considered necessary by the implementing agency. This will be used for monitoring the quantum of net electricity being fed in to the grid from that plant.
- 3.8 The implementing agencies will maintain a record of power generation, incident solar radiation on the PV array surface and other technical features of the power plant. A copy of the data should also be available in electronic form. This record will also be made available to the Ministry, when required.

4.0 Central Financial Assistance (CFA) and Release of Funds

- 4.1 The Ministry will provide Central Financial Assistance (CFA) up to 50% of the '**installed cost**' of the solar power plant, excluding the cost of land, extension of line for power evacuation, civil works and cost of AMC, or a **maximum of Rs.10.00 crore (Rupees ten crore) per MW** of solar capacity used in the tail-end supported solar power projects. Cost of preparing DPR will also not be covered under the eligible CFA.
- 4.2 One percent (1%) of the MNRE CFA will be provided as 'Administrative charges' to the implementing agency, subject to a maximum of Rs.10.00 lakhs (Rupees ten lakh) per project.
- 4.3 Ministry will provide full support, on case-to-case basis, for training, capacity building, third party monitoring and impact assessment studies relating to the demonstration programme.

Release of Funds:

- (i) 25% of the estimated CFA will be released at the time of the approval/ sanction of the project proposal under the demonstration programme.
- (ii) Another 60% of the eligible CFA will be released on submission of the purchase order placed for installation and commissioning of solar power plant and a progress report of the project in MNRE format as per **Annexure II**.
- (iii) The implementing agencies will submit in duplicate Utilization Certificate (UC) for the funds released by the Ministry; and audited Statement of Expenditure (SoE) as per formats at **Annexure-III and IV**.

- (iv) At the time of seeking the final release of CFA, the implementing agencies will submit a detailed project completion report as per **Annexure-V** and Utilization Certificate & consolidated audited Statement of Expenditure for settlement of accounts as per **Annexure III and IV**.
- (v) The balance 15% CFA will be released after successful commissioning of the solar power plant and submission of UC for the funds already released, SoE and the project completion report in the MNRE formats.
- (vi) The administrative charges will be released at the time of release of the third installment of CFA, on commissioning of the plant.
- (vii) For all other activities, the funds will be released in a maximum of two installments. The first installment will be atleast 50% of the sanctioned amount.

5.0 Technical Performance Optimization

- 5.1 With a view to encourage technology development and reduction in the cost of the PV power plant projects, the implementing agencies are expected to utilize the state-of-the-art technology to set up the plants. They are expected to use large capacity and higher power output PV modules available for the specific technology used in setting up the power plant.
- 5.2 Qualification of PV modules, to be used in tail-end grid connected solar PV power plants, in accordance with the standards issued by BIS or IEC 61215 certification or other international certification on qualification of PV modules will be necessary. Use of modules which do not conform to BIS or any international certification is not permitted.
- 5.3 The electronics, cables, controls, structures, storage batteries (if any), etc. must qualify to latest BIS or international standards which are acceptable to utilities and which fulfill all safety norms for grid connected power projects.
- 5.4 The PV power project connected to tail-end grid should be designed to optimize generation in electricity in terms of kWh generated per MWp of PV capacity installed vis-à-vis available solar radiation at the site (may be obtained through use of efficient electronics, lower cable losses, maximization of power transfer from PV modules to electronics and the grid, maximization of power generation by enhancing incident radiation by optional methods like seasonally changing tilt angles etc).

6.0 Monitoring and Progress Report

- 6.1 The implementing agencies will install suitable instruments and make adequate arrangements to monitor the technical performance and ensure satisfactory operation of the tail-end grid connected solar power plants.
- 6.2 The concerned State Nodal Agency may also visit the project site and provide their feed back and recommendation to the implementing agency and the Ministry.
- 6.3 All projects set up under the demonstration programme will be open to inspection by the officials from Ministry, IREDA, concerned state nodal agency and any independent organization appointed by the Ministry/IREDA for performance monitoring.
- 6.4 The Ministry may also undertake field evaluation studies for any of the tail-end grid connected solar plants through professional and independent organizations.
- 6.5 The implementing agencies will be required to submit quarterly and annual progress report about the project to the Ministry.
- 6.6 The implementing agencies will furnish an annual report on generation of electricity from each plant, in the format given in **Annexure-VI**.

FORMAT FOR THE QUARTERLY PROGRESS REPORT (QPR)

1. Name of the State:
2. Name of the Implementing agency:
3. Project Location
4. Name of utility & location where power evacuation is done
5. Approved PV Capacity for which funds are disbursed
6. Present status of the plant
7. Date of project commissioning
8. Duration for which power is fed to the grid (Quarter No/Year) to
9. Total number of units actually fed to the grid in the quarter
- 10 Funds released by the Ministry so far
- 11 Funds required from the Ministry (Please enclose details on separate sheet)
- 12 Other promotional activities performed

Certified that

- (i) The above mentioned tail end grid connected solar PV power project is under installation and likely to be commissioned by which is as per approved schedule. A report on the recent progress is enclosed. (In case of delays detailed justification will be necessary)
- or
- (i) The above mentioned tail end grid connected solar PV power project has been commissioned and functioning successfully The progress of implementation of the project is satisfactory and the detailed progress on installation of the tail end solar power plant is enclosed.
- (ii) Complete technical, performance, generation and other details for the project are available with the agency

Date
Place

Signature
(Name & Designation of the Authorized Officer)
Date & Office Seal

FORMAT FOR SUBMITTING UTILISATION CERTIFICATE

(To be submitted in duplicate on the letterhead)

S. No.	Letter No. & Date	Amount
		(Sanctioned)
		(Released)
TOTAL		-----

Certified that out of Rs..... of grants-in-aid released during the year ---- in favour of -----
-----under this Ministry Letter No. given in the margin and Rs.-----
on account of unspent balance of the previous year, a sum of Rs.----- has been utilised for the
purpose of ----- for which it was sanctioned and that the balance of Rs.-----
- remaining unutilised at the end of the year has been surrendered to Government (vide No. -----
----- dated) / will be adjusted during ----- towards the grants-in-aid payable during the next year --
-----.

2. Certified that I have satisfied myself that the conditions on which the grants-in-aid was sanctioned have been duly fulfilled / are being fulfilled and that I have exercised the following checks to see that the money was actually utilised for the purpose for which it was sanctioned.

Kinds of checks exercised

- 1.
- 2.
- 3.
- 4.
- 5.

Signature -----

Designation -----

Date -----

Official seal

ANNEXURE – IV

(To be submitted on the Letter Head)

FORMAT FOR SUBMITTING AUDITED STATEMENT OF ACCOUNTS

Name of the State	
Name of the Implementing agency	
Project Approval Details	
Total installed capacity (MWp)	
Funds released by MNRE (sanction order & date wise details)	
CFA sanctioned	
Actual date of commissioning of the plant	

(a) Total expenditure incurred on setting up the plant	
(b) Expenditure incurred on eligible cost of the plant	
(c) Eligible CFA as 50% of the eligible cost, subject to a maximum of Rs. 10 cr per MW, which ever is lower	
(d) Administrative charges for @ 1% of the eligible CFA	
(e) Total funds to be received from MNRE (c+d)	
(f) Funds already released by MNRE	
(g) Interest Accrued on funds released by MNRE	
(h) Total funds available with the agency (f+g)	
(i) Balance funds to be released by MNRE (e-h) or to be refunded to MNRE	

The above information is based on audited accounts and verifications carried out by the agency and the auditors.

Place : Signature
Date (Name & Designation) and Seal
 of implementing agency

Signature
(Name & Designation) and Seal
of Auditor

Consolidated Statement of Expenditure

(To be sent in duplicate to the Ministry of New and Renewable Energy
for the financial year (from _____ to _____)

1. Title of the Project/Demonstration programme :
2. Name of the organization:
3. Ministry of New and Renewable Energy letter
No. and date of sanctioning the project :
4. Amount brought forward from the previous financial year :
quoting Ministry of New and Renewable Energy
letter No. and date on which the authority to carry forward
the said amount was given :
5. Amount released by Ministry of New and Renewable Energy
during the financial year :
(please give letter No. & date of sanctions showing the amount paid)
6. Interest accrued on funds available
7. Total amount (Sr. No. 4+5+6):
8. Actual expenditure incurred during the financial year :
9. Balance amount available at the end of the financial year :
10. Unspent balance refunded, if any.
(Please give details of cheque no. etc.)
11. Amount allowed to be carried forward to the next
financial year vide letter no. and date :

Certified that the expenditure of Rs. _____ (Rupees _____ mentioned against Column
7 was actually incurred on the Project / Demonstration programme for the purpose for which it was
sanctioned and balance amount of Rs. _____ is available on _____ or refunded on

Date
Place

(Signature & Seal of
Head Finance of organization)

(Signature of Head
of the organization)

(Signature & Seal of Auditor)

Accepted by

COMPETENT AUTHORITY
MINISTRY OF NEW AND RENEWABLE ENERGY

PROJECT COMPLETION REPORT

1. Name of the State:
2. Name of the Implementing Agency:
3. Project Location
4. Name of utility
5. Approved PV Capacity for which funds are sanctioned and disbursed
6. Present status of the plant
7. Date of project commissioning
8. Duration for which power is fed to the grid
9. Total number of units actually fed to the grid (Quarter No/Year)
11. Expenditure Incurred on the project (as per SoE)
12. Funds released so far & balance requested from Ministry (Please provide details)

Certified that

- (i) The above mentioned tail end grid connected solar PV power plant project has been successfully completed in accordance with the guidelines of the MNRE demonstration programme
- (ii) Complete technical, performance, generation and other details for the project are available with the agency. Performance data is being collected regularly. The performance of the plant has been inspected by the agency and found to be satisfactory. In addition third party monitoring has been/not been conducted. (Please provide details)
- (iii) Financial year-wise Audited SOE and UC have been submitted (copies enclosed) to the Ministry.

Place

Signature
(Name & Designation of the Authorized Officer)
Date & Office Seal

FORMAT FOR THE ANNUAL PROGRESS REPORT

1. Name of the State:
2. Name of the Implementing agency:
3. Project Location
4. Name of utility& location where power evacuation is done
5. Approved PV Capacity for which funds are disbursed
6. Present status of the plant and performance data
7. Date of project commissioning
8. Duration for which power is fed to the grid (Quarter No/Year) to
9. Total number of units actually fed to the grid in the quarter
- 10 Funds released by the ministry so far
- 11 Funds required from the Ministry (Please enclose details on separate sheet)
- 12 Other promotional activities performed

Certified that

- (i) The above mentioned tail end grid connected solar PV power project has been commissioned and functioning successfully / is under installation and likely to be commissioned by which is as per approved schedule. (In case of delays detailed justification will be necessary)
- (ii) Complete technical, performance, generation and other details for the project are available
- (iii) Audited SOE and UC have been submitted (copy enclosed) to the Ministry.

Date

Place

Signature
(Name & Designation of the Authorized Officer)
Date & Office Seal