

MINISTRY OF NEW AND RENEWABLE ENERGY

Operational Guidelines for Grid Connected Rooftop and Small Solar Power Plants Programme, Dated: 26.06.2014

Sl. No.	Description	Summary
1.	Grid connected Rooftop Solar Power Plant	<ol style="list-style-type: none"> 1. In grid connected rooftop or small SPV system, the DC power generated from SPV panel is converted to AC power using power conditioning unit and is fed to the grid either of 33 kV/11 kV three phase lines or of 440/220 Volt three/single phase line depending on the capacity of the system installed at institution/commercial establishment or residential complex and the regulatory framework specified for respective States. 2. The grid-interactive rooftop system can work on net metering basis wherein the beneficiary pays to the utility on net meter reading basis only. 3. Ideally, grid interactive systems do not require battery back-up as grid acts as the back-up for feeding excess solar power and vice-versa. 4. The electricity generation shall also contribute to meeting the demand and supply gap and shall also enable the obligated entities for complying with their solar purchase obligation targets as specified by appropriate Electricity Regulatory Commissions'.
2.	Objective of the Programme	<ol style="list-style-type: none"> 1. To promote the grid connected SPV rooftop and small SPV power 2. generating plants among the residential, community, institutional, industrial and commercial establishments. 3. To mitigate the dependence on fossil fuel based electricity generation and encourage environment friendly Solar electricity generation. 4. To create enabling environment for investment in solar energy sector by private sector, state government and the individuals. 5. To create enabling environment for supply of solar power from rooftop and small plants to the grid. 6. To encourage innovation in addressing market needs and promoting sustainable business models and ensure employment opportunities. 7. To provide support to channel partners and potential beneficiaries, within the framework of boundary conditions and in a flexible demand driven mode. 8. To create a paradigm shift needed for commoditization of grid connected SPV rooftop applications. 9. To support consultancy services, seminars, symposia, capacity building, awareness campaigns, human resource development, etc. 10. To encourage replacement of diesel, wherever possible.
3.	Eligibility	The grid connected rooftop solar photovoltaic power generation plants up to a maximum capacity of 500 kWp per project/system to generate electricity/power would be eligible under the Programme. The minimum capacity of 1.0 kW would be eligible under this programme.
4.	Implementation Arrangements	<ol style="list-style-type: none"> 1. The implementation will be carried out in both programme/project modes. The projects upto 50 kWp can be implemented in programme mode while projects above 50 kWp will be done on project mode. 2. Following categories of implementing agencies will be utilised:-
	State Nodal	<ol style="list-style-type: none"> 1. The yearly target will be allocated to the States/SNAs depending upon their interest, demand and the capability in the beginning of the Financial Year

	Agencies(SNAs)	(FY) or even in February for the preceding year. About 10% of eligible CFA can be released in advance at the time of target allocation. 2. The SNAs will keep/maintain all applications and records with them and will submit the requisite brief about the beneficiaries/projects duly certified by them. These records will be made available for the audit purpose or to the inspecting team/MNRE officials etc.
	Solar Energy Corporation of India (SECI)	1. The SECI will submit the plan for implementation, as and when necessary and depending upon the feasibility and availability of funds the MNRE after taking into account the feasibility shall consider the plan or may suitably modify the plan before approval. 2. SECI shall set up the allotted capacity/projects following the competitive bidding route.
	Channel Partners	1. These channel partners would help the individuals and small groups of clients to access the provisions/benefits available under the programme. 2. The Channel Partners enable significant reduction in the administrative/transaction cost and help in timely implementation of the projects. In 23rd, November 2017 MNRE has decided to discontinue the empanelment of channel partners under the Grid Connected Rooftop and Small Solar Power Plants Programme with immediate effect.
	Financial Institutions/Financial Integrators	1. The financial Institutions and financial Integrators i.e., NABARD, National Housing Banks, other Banks, IREDA, SECI etc. will also be eligible for implementing the programme. 2. They may source funds from MNRE, their own resources or any other sources i.e., carbon credits, National Clean Energy Fund, funds from States, beneficiary contribution, CSR sources etc.
	Other Govt. Departments/Agencies	The other Govt. Departments/Agencies i.e., Railways, Defence/Para Military Forces, Local Government Bodies including Municipal Corporations/Municipalities, PSUs, Institutions, Development Authorities, DMRC, State Departments interested in directly implementing the programme will also be encouraged.
5.	Project Cost, Benchmark Cost and Central Financial Assistance	The benchmark cost may be fixed by MNRE on yearly/half yearly basis. The Central Financial Assistance (CFA) would be 30 % / 70% of the benchmark cost or the actual project cost as applicable, whichever is lower. The level of CFA may be revised by MNRE from time to time.
6.	Funding Pattern	1. Funding under the scheme would be in Project mode for systems larger than 50 kWp or equivalent, i.e. there must be a project report which would, inter alia, include client details, technical & financial details, O&M and monitoring arrangements. 2. For lower capacity systems, i.e., below 50 kWp this would be operated in programme mode. 3. For the proposals upto 5 kWp the exact address of the beneficiary, project details with project cost etc. will be submitted by the implementing agencies in the list mode duly certified by them that their individual applications, beneficiary's identification, photo and the system photographs have been kept and maintained in their office for any audit and inspection purpose. 4. For the projects from 5 kWp to 50 kWp the proposals shall be submitted in the prescribed format. For the projects above 50 kWp the proposal along with detail project report will be submitted.

		<p>5. The present CFA would be 30% of the benchmark cost of the grid connected rooftop and small solar power plants.</p> <p>6. In Special Category states viz. North Eastern States, Sikkim, Jammu & Kashmir, Himachal Pradesh and Uttarakhand, Lakshadweep, A&N Islands etc. the CFA upto 70% may be provided. This subsidy pattern can be accessed ONLY by Central and State Government Ministries, Departments and their organizations, State Nodal Agencies, SECI and Local bodies.</p> <p>7. Upto 3.0 % of CFA would be admissible as service charges to State Nodal Agencies, SECI/NHB/IREDA/DMRC or other govt. agencies etc. This would be provided by MNRE, in addition to the CFA.</p> <p>8. The amount of CFA to be given to the State Nodal Agencies/ SECI etc. as service charges would be determined as follows:-</p> <ul style="list-style-type: none"> • Efforts made in preparing innovative cases by deploying staff in the field preparing DPRs etc. and having dedicated units at Head Office for such purpose. • Providing technical assistance / help in implementation of the schemes. • Having an IT based real time monitoring mechanism in place to reflect not only the progress during implementation but also performance after installation. • MNRE may retain appropriate amount out of this 3% and provide to SECI or some other organization to give technical support to such Nodal Agencies which may be weak or not having enough technical staff. Experts or qualified professionals may also be placed with SNAs. <p>➤ Upto 1% of the total budget would be earmarked for R & D work purpose.</p> <p>➤ A total fund of upto 2% would be earmarked (for organizing seminars/workshops, trainings, awareness campaigns preparation of literature/guidelines, innovative projects or other miscellaneous work etc.) and about 100 such activities are proposed during the 12th Plan across the country.</p> <p>➤ In order to manage the all activities in MNRE, a project management cell, engagement of consultancy organization may be done. A total fund of upto 0.50 % may be utilized for the Project Management Cell/engagement of consultancy organization etc.</p> <p>➤ The present benchmark price for photovoltaic systems without battery backup support is considered as Rs.100/-per Wp for the systems upto 100 kWp and Rs. 90/- per kWp for the systems 100-500 kWp. This may be revised from time to time.</p> <p>➤ MNRE may work out a mechanism of disbursing subsidy through SECI/IREDA/any suitable government institution in a phased manner.</p>
7.	<p>Business models for grid connected rooftop and small solar power plants</p>	<p>There can be many possible business models, some of which can be considered are as follows:</p> <p>1. Solar installations owned by consumer</p> <ul style="list-style-type: none"> • Solar Rooftop facility owned, operated and maintained by the consumer(s). • Solar Rooftop facility owned by consumer but operated and maintained by the 3rd party. <p>2. Solar installations owned, operated and maintained by 3rd Party</p> <p>If the 3rd party implements the solar facility and provides services to the consumers, the surplus electricity may be injected to the electricity grid. The combinations could be:</p> <p>(a) Arrangement as a captive generating plant for the roof owners: The 3rd party implements the facility at the roof or within the premise of</p>

		<p>the consumers; the consumer may or may not invest as equity in the facility as mutually agreed between them.</p> <p>(b) Solar Lease Model, Sale to Grid: The 3rd party implementing the solar facility shall enter into a lease agreement with the consumer for medium to long term basis on rent.</p> <p>3. Solar Installations Owned by the Utility</p> <p>(a) Solar installations owned operated and maintained by the DISCOM: The DISCOM may own, operate and maintain the solar facility and also may opt to sub contract the operation and maintenance activity. The DISCOM may recover the cost in the form of suitable tariff.</p> <p>(b) Distribution licensee provides appropriate viability gap funds: The DISCOM may appoint a 3rd party to implement the solar facilities on its behalf and provide appropriate funds or viability gap funds for implementing such facility.</p>
8.	Requirements for grid connected rooftop and small solar plants	<p>The following points may be considered</p> <p>1. Connectivity Regulations: (CEA) has notified “CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations, 2013”.</p> <p>2. Tariff determination: The projects can be installed on Net Metering or Feed-in-Tariff (FIT) basis. This will be decided by Regulators/DISCOMs/Distributed Licensee in consultation with the implementing agencies.</p> <p>3. Availability of Electricity Grid: The availability of electricity grid near the solar installation is an essential component which needs to be provided by the concerned agencies.</p> <p>4. Signing of MOU/Agreements If required, an MoU will need to be entered into among the beneficiaries / DISCOMs / Distribution Licensees and the other involved parties</p>
9.	Classification of Projects based on Grid Connectivity	<p>The Projects under these guidelines fall within two broad categories:</p> <ul style="list-style-type: none"> • Category 1: Projects connected at HT level (below 33kV) of distribution Network: The Projects with proposed installed capacity of minimum 50 kW and upto 500 kW and connected at below 33kV shall fall within this category. • Category 2: Projects connected at LT level (400 Volts-3 phase or 230 Volts-1 phase): The Projects with proposed installed capacity of less than 100kW and connected to the grid at LT level (400/ 415/ 440 volts for 3-phase or 230V for 1-phase) shall fall within this category.
10.	Modus Operandi and submission of Proposals	<p>1. The project site/rooftops at office buildings, commercial buildings, residential complexes etc. can be selected on the basis of total energy requirement of the premise and the area available for installation of roof top Solar PV system.</p> <p>2. Though rooftop systems shall be generally connected on LV supply, large solar PV system may be connected to 11kV system. Following criteria is suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers however, the connectivity level may be decided depending upon the site conditions and policies:</p> <ul style="list-style-type: none"> • Up to 10 kW solar PV systems the connectivity may be at Low Voltage single phase supply point. • Between 10-100 kW solar PV systems, the connectivity may be at three phases low voltage supply • Above 100 kWp upto 500 kWp capacity, system connection can be

		<p>made at 11 kV/33 kV level.</p> <p>3. Export Import meters/two way/bi-directional meters need to be installed with the facility of net metering. The CEA regulations on metering arrangements may also be followed.</p> <p>4. A Power Purchase Agreement (PPA) needs to be signed between the owner of buildings, 3rd party and the DISCOMs as applicable.</p> <p>5. The proposal can be submitted in the format as prescribed by MNRE with details of grid connectivity & metering arrangements, agreement signed with DISCOM etc. to this Ministry as per the Programme. For the small category residential users up to 5.0 kWp the bulk proposals can be submitted by SNAs along with the list of beneficiaries duly certified by them (ref para 6.1) in the format as prescribed by MNRE.</p>															
11.	Release of Funds	For setting up of the projects the release of funds for various Implementing Agencies would be as follows:															
		<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Implementing Agency</th> <th>Pattern for Release of Funds</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>State Nodal Agencies and State Nodal Departments</td> <td>Upto 30% of the eligible CFA and services charges at the time of sanction of the proposal in the project/programme mode. However, 10% advance may be given at the time of allocation of targets on programme mode. Balance 70% after successful commissioning of the projects after sample verification on submission of requisite claims</td> </tr> <tr> <td>2.</td> <td>Solar Energy Corporation of India (SECI)</td> <td>Upto 30 % after submission of detailed proposal on the costs firmed up on tender basis. However, 10% advance may be given on allocation of targets/sanction of the preliminary proposal on programme mode. Balance 70% on completion/ commissioning, performance report for about one month and due verification/third party inspection thereof on submission of requisite claims.</td> </tr> <tr> <td>3.</td> <td>Channel Partners</td> <td>On reimbursement basis on completion/commissioning, performance report for about one month and due verification/third party inspection thereof on submission of requisite claims. 50% of the eligible CFA may be released at the stage of claims submitted after completion/commissioning and balance 50% after verification/3rd party inspection.</td> </tr> <tr> <td>4.</td> <td>Financial Institutions/Financial Instigators</td> <td>Upto 30% of the eligible CFA and services charges at the time of sanction of the proposal in the project/programme mode. Balance 70% after successful commissioning of the projects after sample verification on submission of requisite claims.</td> </tr> </tbody> </table>	Sl. No.	Implementing Agency	Pattern for Release of Funds	1.	State Nodal Agencies and State Nodal Departments	Upto 30% of the eligible CFA and services charges at the time of sanction of the proposal in the project/programme mode. However, 10% advance may be given at the time of allocation of targets on programme mode. Balance 70% after successful commissioning of the projects after sample verification on submission of requisite claims	2.	Solar Energy Corporation of India (SECI)	Upto 30 % after submission of detailed proposal on the costs firmed up on tender basis. However, 10% advance may be given on allocation of targets/sanction of the preliminary proposal on programme mode. Balance 70% on completion/ commissioning, performance report for about one month and due verification/third party inspection thereof on submission of requisite claims.	3.	Channel Partners	On reimbursement basis on completion/commissioning, performance report for about one month and due verification/third party inspection thereof on submission of requisite claims. 50% of the eligible CFA may be released at the stage of claims submitted after completion/commissioning and balance 50% after verification/3rd party inspection.	4.	Financial Institutions/Financial Instigators	Upto 30% of the eligible CFA and services charges at the time of sanction of the proposal in the project/programme mode. Balance 70% after successful commissioning of the projects after sample verification on submission of requisite claims.
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		5.	Other Government Agencies for the Govt. Projects	Upto 30% of the eligible CFA and services charges at the time of sanction of the proposal in the project/programme mode. Balance 70 % after successful commissioning of the projects after sample verification on submission of requisite claims.
12.	Approval Mechanism	1.	At the beginning of each year MNRE will estimate broadly the capacity available under the scheme in that year. Not more than 50% of the capacity shall be available for execution through the channel partner route.	
		2.	Proposals of State Nodal Agencies, SECI and other Govt. Agencies, NHB, PSUs and IREDA will not require PAC approval and will be directly processed/sanctioned by the division.	
		3.	The entire process of receiving proposals, processing them and giving approvals would be preferably IT enabled.	
		4.	MNRE reserves the right to decentralise the whole process of administering the Channel Partners to SNAs.	
13.	Project Management Consultant (PMC)		The government may engage a reputed agency as a Project Management Consultant (PMC) to handle all the processes such as assistance for formulation, appraisal and screening of proposals preceding the formal approval which would be a function of MNRE.	
14.	Monitoring and Evaluation	1.	National monitors, Consultants, Institutions, Reputed Civil Society Groups, eminent persons, Corporate Houses (as an activity under Corporate Social Responsibility) with relevant experience, SNAs, other govt. organizations and MNRE officials would be involved, for ground verification/performance evaluation on random sample basis.	
		2.	The electricity generation data should be available at the beneficiary level. However, for projects above 5 kW, the system providers would also make available generation data to MNRE at intervals specified.	
		3.	For the projects 50 kWp and above 100% field inspection would be required and the claim will contain the inspection report.	
		4.	Information and Communication Technology must be used for ensuring fool proof monitoring.	
15.	Technical Requirements	1.	The scheme requires the project proponents to adhere to the national/international standards specified by the Ministry from time to time.	
		2.	Grid interactive SPV power plants and/ systems, inverters, meters, cables, mounting structures and other balance of systems etc. should have the minimal technical requirements and Quality Standards as specified by MNRE from time to time.	
16.	Supporting Innovation		In very special and rare cases, the Ministry could consider higher CFA for undertaking pilot and demonstration projects either for demonstrating new and innovative applications or for demonstrating new technologies.	
17.	Natural Calamities and Disasters		Ministry could consider providing 100% funding in case of natural calamity for installation of grid connected rooftop and small solar plants on humanitarian ground.	
18.	Interpretation of the Guidelines		In case of any ambiguity in interpretation of any of the provisions of these guidelines, the decision of the Ministry shall be final.	

19.	Review	<ol style="list-style-type: none"> 1. The scheme would be reviewed by an Internal Review Committee at 6 month/yearly interval and modifications therein as and when recommended would be incorporated by the Ministry in the programme time to time. 2. In (specific guidelines for various products and various categories) these guidelines MNRE may exclude certain provisions if they are not required for that product category or if it is felt that lesser support is required.
20.	Fixing of CFA and Benchmark cost	<ol style="list-style-type: none"> 1. All CFA values will be based on bench mark cost and would be fixed in absolute value i.e. in Rs/Watt. There could also be other parameters like efficiency of system. 2. Benchmark cost will be determined separately for the Grid Connected Rooftop Photovoltaic (PV) plants including the cost of components. 3. Separate committee would be constituted in MNRE for the grid connected categories. 4. The committee may also relook the benchmark cost after 6 months in case it is felt that there is a major change in the market. Benchmark cost will also get rationalized as technologies improve.
21.	Tatkal Scheme	There would be provision for reserving quantities of various solar systems at lower subsidy levels along with the facility of disbursal on priority basis in a definite time period.
22.	Hybrid systems	There would be a provision to promote hybrids like Wind-solar etc. within the defined CFA and subsidy limits for that particular component in this scheme.
23.	Monitoring and System life	<ol style="list-style-type: none"> 1. Online monitoring will be compulsory for all systems more than 10 kWp capacity for PV and equivalent of 10 kW capacity for thermal systems. 2. Real time monitoring may be specified by MNRE for large systems and online monitoring would be eventually extended to 1 kWp systems as well.
24.	Redundancy and interpretation	In case of any ambiguity regarding interpretation of the guidelines, the decision of MNRE shall be final.