

# **Grid Connected Rooftop Solar Photovoltaic System Policy for the State of Sikkim**

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**Government of Sikkim**  
**Department of Power**

**Notification**

No.

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**Preamble**

Access to reliable and affordable electricity is the principal requirement for sustainable growth of the State. The Government of Sikkim is committed to provide 24/7 power supply to all in the State in a systematic manner. The Government is equally conscious toward the aspects related to climate change and environment and is committed to encourage the use of renewable energy in all its forms.

The Government of India (GoI) has set a target of 100 gigawatt (GW) of solar energy generation in India by 2022, of which 40 GW is to be achieved from grid connected rooftop solar photovoltaic (GRPV) systems. The Ministry of New and Renewable Energy (MNRE), GoI has subsequently allocated 40 GW of GRPV target to all the States.

Sikkim, the first organic State of India is part of the Eastern Himalayan region. Sikkim is the second smallest State in the country with an area<sup>i</sup> of 7,096 km<sup>2</sup> and is home to the third largest peak, mount Kanchenjunga. The State, known for its bio-diversity and subtropical climate is divided into four districts, i.e. North, South, East and West, with 16 sub-districts. The total population is 6.1 lakhs, out of which, only 1.53 lakh is urban population<sup>ii</sup>.

The estimated solar potential in Sikkim by National Institute of Solar Energy (NISE) is 4.94 gigawatt peak (GWp), despite the low irradiation level from cloud cover and rain. The State has already set-up around 681 kilowatt peak (kWp) off-grid solar PV installation commissioned under the National Solar Mission and Special Area Development Program. However, with increasing levels of electrification, these systems are becoming redundant. In the wake to achieve 100% electrification, installation of GRPV system vis-à-vis off-grid provides multiple benefits to the stakeholders.

Solar energy provides the ability to generate power on distributed basis in both rural and urban areas. The high forest cover provides GRPV systems with low ecological footprint stated as the best suited path for solar installations in the State. These systems, thus, facilitate minimization of distribution losses and helps to overcome the challenges posed by the difficult terrain. GRPV systems are consumer-driven deployment enabling rapid capacity addition with short lead times. From an energy security perspective, solar is available in abundance. Thus, solar is stated as the most secure of all sources.

Sikkim is among the fastest-growing States in terms of Gross State Domestic Production

(GSDP) with an estimated value of INR 16,637 Crore<sup>iii</sup>. Presently, the State is experiencing an increasing trend in economic activity. As a result, the State can benefit from the adoption of clean energy through GRPV systems. Further, to achieve a sustainable development route that provides advancement in economic as well as environmental objectives, the Government of Sikkim is determined and taking necessary steps to encourage generation based on renewable energy sources.

The per capita energy consumption of Sikkim in urban and rural areas amount to 482.63 kilowatt hour (kWh) and 262.33 kWh respectively<sup>iv</sup>. Sikkim is both energy and power surplus and majority of its energy requirement is met by the hydropower capacity installed within the State. However, owing to high seismic activities, difficult hilly terrains, sparsely populated remote areas in the State, Sikkim envisages to promote GRPV deployment with or without storage component to support its aging electricity grid. The State's plateau terrain, rich forest cover, climatic conditions, difficulty in land availability, GRPV deployment becomes relatively beneficial vis-à-vis large-scale ground-mounted system. Therefore, the Government of Sikkim understands that there is a need to lay down dedicated framework for this sector.

Accordingly, to align with the aim of GoI and to promote the GRPV systems, the Government of Sikkim, hereby notifies the **"Grid Connected Rooftop Solar Photovoltaic System Policy for Sikkim - 2018"**.

## 1. Title of the Policy

This policy shall be known as the “**Grid Connected Rooftop Solar Photovoltaic System Policy for Sikkim - 2018**”.

## 2. Definitions and Interpretations

- a. “Act” means Electricity Act 2003, including amendments thereto;
- b. “Distribution Utility” means a person granted license under Section 14 of the Act authorizing him to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply;
- c. “Eligible Entities” means any person which shall include any company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person shall be eligible to set up plant and receive benefits under this policy;
- d. “GRPV” means Grid Connected Solar Rooftop Photovoltaic System;
- e. “Nodal Agency” means the Sikkim Renewable Energy Development Agency;
- f. “Obligated Entities” means entities obligated to fulfil the Renewable Power Purchase Obligation as prescribed by the Electricity Regulatory Commission;
- g. “Open Access” means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any utility or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission;
- h. “Premises” means and includes rooftops in respect to which a separate meter has been provided by the Distribution Utility for the supply of electricity;
- i. “Rooftop Solar Photovoltaic Plant” or “Rooftop Solar PV System” or “Grid Connected Rooftop Solar Photovoltaic System” or “GRPV” means the solar photovoltaic power system installed on any part of the premises located within the area of Distribution Utility that uses solar energy for its direct conversion into electricity.

All other words and expressions used in this Policy although not specifically defined herein above, but defined in the Act, shall have the meaning assigned to them in the Act. The other words and expressions used herein but not specifically defined in this Policy or in the Act but defined under any law passed by the Parliament/State Legislation applicable to the electricity industry in the State shall have the meaning assigned to them in such law.

## 3. Objectives

The Government introduces **Grid Connected Rooftop Solar Photovoltaic System Policy for Sikkim- 2018** with the following specific objectives:

- a. To drive the State towards net-zero and maintain the first organic State status;
- b. To add solar energy component and balance the renewable energy generation mix in the State;

- c. To promote GRPV deployment with battery storage for back-up for small size GRPV systems, and peak demand management as well as other value added functions for large size GRPV systems;
- d. To increase the dependence on solar energy and to disseminate environment awareness among the people of the State;
- e. To create a robust investment climate and explore the feasibility of new and innovative metering arrangements and business models;
- f. To promote skill development, and create local entrepreneurship and employment opportunities in the State;
- g. To enable the obligated entities of the State in complying with the Solar Purchase Obligation as specified by the Sikkim State Electricity Regulatory Commission (SSERC).

#### **4. Legislative Framework for Policy**

Several provisions under the Electricity Act, 2003 (EA 2003) mandates the Electricity Regulatory Commission and Government to take necessary steps for promotion of renewable energy. Section 108 of the EA 2003 mandates the Government to give directions to the State Commission in the matter of policy involving public interest. Accordingly, the State Government, in exercise of its powers, formulates this policy.

#### **5. Operative Period**

1. The policy shall come into effect from the date of its notification and shall remain valid up to FY 2021-22, until superseded or modified by another policy.
2. The Government may undertake review of this Policy at regular time intervals and modify/amend the provisions of the Policy as and when required with a view of any technological advancement and/or to remove difficulties.
3. The Eligible Entities participating under this policy shall continue to be eligible for the incentives declared under this policy for an envisaged period.

#### **6. Operating Modes**

The general configuration adopted for deployment of GRPV systems in India is without storage capacity. However, Sikkim had pursued deployment of solar PV systems with storage in the past as off-grid systems. The storage component has been an enabling feature for the State prone to climatic and seismic sensitivities. By allowing GRPV systems with storage, the State strives to set an example in the region. Thus, the State endeavours to promote GRPV systems, both, with and without storage. A minimal storage component shall enhance the reliability of power supply in the region. The State envisages to design and promote a unique and innovative GRPV program incorporating the storage component which opens pathways to increased self-consumption and improved grid services.

The State strives to promote GRPV systems with battery back-up for residential and other LT consumers, and GRPV systems with advanced storage options capable of peak power management for industries and other HT consumers.

Therefore, the Nodal Agency shall submit a concept note within three months of notification of this policy highlighting the possibilities and action plan to convert existing off-grid solar PV systems into GRPV systems.

## 7. Target

1. The State shall strive to achieve the objectives of the policy and aim to comply with the target of 50 MW by 2022 as proposed by MNRE for the State.
2. The State Distribution Utility and State Nodal Agency shall take necessary measures and ensure that **at least** 1 MW GRPV system is installed in each division of the area of Distribution Utility. Special consideration shall be given while defining the targets for rural divisions of the Distribution Utility.
3. In the last financial years, there has been minimal GRPV installation in the State of Sikkim. The State shall revise the target to achieve its 50 MW solar rooftop by FY 2022. The revised target distributed during the policy period is shown in Table 1.

**Table 1: Revised Target During Policy Period**

RTSPV Target	Yearly Target Distribution			
	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
50	02 MW	10 MW	16 MW	22 MW

4. To help develop a robust implementation plan, the GRPV target is further apportioned based on the consumer segment. The domestic consumer category is the largest consumer in Sikkim. This target trajectory and target segregation among various consumer categories shall guide Sikkim Renewable Energy Development Agency (SREDA) and Distribution Utility to design/develop an approach that may help accelerate GRPV deployment in the State.

**Table 2: Consumer Segment Wise Target**

Consumer Segment	FY 18-19	FY 19-20	FY 20-21	FY 21-22	Incentive Mechanism, if any
Residential					MNRE - CFA 70%, until applicable
Commercial					Achievement linked incentive, until applicable
Industrial					-
Bulk Supply (Non-Commercial Supply)					
Total	02 MW	10 MW	16 MW	22 MW	-

## **8. Metering Arrangement**

The State shall promote the development of GRPV on rooftops for meeting electricity needs and/or injecting surplus electricity into the distribution grid in compliance with the appropriate Sikkim State Electricity Regulatory Commission (SSERC) Regulations, applicable from time to time. Thus, GRPV systems can be installed on Government/social/public buildings/non-government buildings, domestic, commercial and industrial establishments on all applicable metering basis. The consumer(s) is/are free to choose any of the applicable metering arrangements listed under this policy. The applicable tariff regulation including tariff for GRPV systems for either of the cases shall be notified by SSERC.

### **A) Net Metering**

In this arrangement, the energy generated from GRPV systems installed at the premises of eligible entity is consumed by the consumer and surplus electricity, if any, is delivered to the Distribution Utility after off-setting the electricity supplied by the Distribution Utility during the applicable billing period.

The metering and billing arrangement should comply with appropriate Regulations and Guidelines, technical standards and safety measures of CEA/SSERC.

- **Virtual Net Metering**

To extend the benefits of GRPV systems to eligible entities with shared rooftop space and/or without suitable rooftop space, the policy shall promote the concept of virtual net metering. Virtual net metering is an energy credit accounting through billing which allows a person/ entity with multiple electricity connections across consumer categories to share the benefits from a GRPV system.

The detailed implementation framework/guidelines for Virtual Net Metering shall be issued by the Electricity and Power Department/Nodal Agency.

### **B) Gross Metering**

In this arrangement, the energy generated from a GRPV system installed at the premises of eligible entity is delivered to the Distribution Utility. The State shall strive to promote gross metering arrangement through suitable mechanisms to harness the State's GRPV potential.

The metering and billing arrangement should comply with appropriate Regulations and Guidelines, technical standards and safety measures of CEA/SSERC.

## **9. Business Models**

Business models are critical to develop an investment-friendly climate in the GRPV sector. Further, to achieve the target of 50 MW as laid out under this policy, it is pertinent to incorporate the best possible business models to lay foundation for large scale deployment of

GRPV in the State. Robust business models ensure investors/developers adequate return on their business. There are multiple ways and means for an investor/developer to generate maximum possible revenue out of their investment such as, through a PPA with the Distribution Utility/rooftop owner/open access consumer or through direct sale of equipment and engineering services.

Additionally, large scale GRPV deployment needs proactive participation from the Distribution Utility. However, it is realized that the Distribution Utilities experience revenue impact due to adoption of GRPV. Nonetheless, in the wake of changing business environment, the Distribution Utility can ill afford to operate in the conventional way, i.e., maintaining wires/network and supplying power to consumers. Distribution Utility shall explore new business streams such as adopting utility-driven business models for GRPV. This approach shall not only facilitate and expedite rooftop deployment but also open up new revenue streams for the Distribution Utility.

To facilitate and achieve maximum possible GRPV in the State and to help Distribution Utilities minimize revenue impact due to large scale deployment of rooftop solar, it is advisable to actively explore utility-driven business models as laid out in this policy to open new revenue streams.

Accordingly, the Government of Sikkim envisage following business models to develop vibrant and dynamic market.

**A) Self-Owned**

Self-Owned business model, also known as capital expenditure based (capex) business model, is the most common business model for solar rooftop deployment. Under this business model, a consumer develops solar rooftop system within their premises to own, operate and generate electricity to be used for own consumption within the premises (under net metering) or sell to the Utility (under gross metering).

**B) Third Party/Renewable Energy Service Company**

Renewable Energy Service Company, popularly known as RESCO, is a third party based business model. Under this model, a RESCO builds, owns and operates solar rooftop plants in the consumer's premises to generate and sell electricity to the consumer (under net metering) Consumer and RESCO signs a Power Sale Agreement and/or Roof Lease Agreement on mutually agreed basis, which covers tariff of electricity, tenure of the agreement, ownership at the end of the tenure etc.

**C) Utility Driven**

Distribution Utility can increase their participation in the solar rooftop sector through facilitation and/or direct investment. Through facilitation, the Utility may aggregate demand and facilitate procurement of the systems (Self-Owned Model) or services (RESCO Model). As a facilitator, the Utility may charge a facilitation fee to enable solar



rooftop transaction. Through investing, the Utility may aggregate demand and invest equity in developing these projects (Self-Owned Model) or providing services (RESCO Model). Utilities can also play a key role in financing these systems by tying up with the financial institutions either as a lender or as a collection agency.

As distribution is a regulated business, the Government of Sikkim shall work with the SSERC, SREDA and Distribution Utilities in the State to develop detailed guidelines for utility-based business models to facilitate the growth of sectors and engage Utilities proactively.

SREDA shall submit a concept note on utility-driven business models within three months from the date of notification of this policy to the Government of Sikkim.

## **10. Implementation Plan for GRPV Systems Connected with the Network of Distribution Utility**

The State shall encourage implementation of the target specified for GRPV systems connected with the network of Distribution Utility as mentioned in segments below. Provided that the eligible entity shall own or be in legal possession of the rooftop or terrace on which the entity intends to install the GRPV system.

From the date of notification of the policy, all new buildings in the State shall install GRPV systems equivalent or greater than 10% of their connected load/ contract demand subject to maximum limits as per the appropriate Regulations of SSERC, to the extent technically feasible. The Building and Housing Department shall take the necessary steps for change in building - by laws within three months of notification of this policy.

### **A) Segment I: Gross Metering Mechanism**

To facilitate deployment of GRPV systems, the State shall encourage setting-up of GRPV systems under appropriate gross metering mechanisms.

### **B) Segment II: Net Metering Mechanism**

The State shall promote development of GRPV systems for meeting one's electricity requirements and injecting surplus electricity into the distribution system. These GRPV systems can be owned by the consumer or any other person permitted to implement the GRPV system in the premises of the consumer.

A suitable framework for the implementation of GRPV metering mechanism shall be specified by the SSERC for the development of GRPV sector in the State. The SSERC/ SREDA shall undertake GRPV system's capital cost benchmarking, both with and without storage,

The eligible entities shall be allowed one-time irrevocable option to participate under any possible metering arrangement as specified under this policy. However, the plants already implemented

under the respective framework prior to the announcement of this policy shall continue to enjoy the benefits of applied framework.

The State shall encourage implementation of GRPV systems as per the following consumer categories;

**A) Residential, Institutional and Social Sector**

1. SREDA shall undertake appropriate measures to satisfy the provisions of Grid Connected Rooftop and Small Solar Power Plants Programme of MNRE to avail Central Financial Assistance.
2. Facilitation shall be provided to avail the Central Financial Assistance, as available, for the installation of GRPV systems.
3. The consumers shall implement GRPV following the regulatory framework as specified by the SSERC.
4. SREDA shall develop specific schemes for promotion of GRPV adoption by residential category consumers with low energy consumption (less than 100 units per month).
5. The SREDA, if required, shall assess the requirement of a suitable payment security mechanism for the Institutional and Social Sector and shall submit it to the State Government for its perusal.
6. The SREDA shall evolve appropriate market-based mechanisms and submit to the Energy and Power Department, Government of Sikkim within six months from the date of notification of this policy to encourage and facilitate the installation of GRPV systems with net/gross metering on all residential buildings, colonies, townships, housing societies, private bungalows, farm houses, etc. All urban development and housing agencies, Municipal Corporation/Boards, banks etc. shall facilitate the deployment of solar project installations.

**B) Government/Government Institutions and Bulk/ Non-Commercial Supply Consumers**

1. The Government of Sikkim recommends deployment of GRPV system plants under gross or net metering on all existing, upcoming, or proposed buildings of Government organizations, Government owned or aided hospitals, schools and other educational/technical/research institutes, hostels and training institutes such as Industrial Training Institutes (ITI), Fire Stations, Prisons, Hospitals/Dispensaries, stadiums, bus depots and bus stops, railway stations, sheds, parking lots, and any other State Government buildings, Warehouses (both under State Government agencies and private), Industrial estates and Industrial and factory sheds.
2. The Nodal Agency shall ensure active participation in the MNRE scheme on implementation of GRPV systems on the premises of the State Government department and State Public Sector Units namely 'Achievement-Linked Incentive'

for Government Sector or any other incentive available under any Government scheme from time to time.

3. All the government owned organisation, semi government organisation, government aided organisation etc. shall endeavour to install GRPV system and generate and consume some percentage of their annual electricity requirements from such plant. In all situations, the Nodal Agency shall ensure that all such government/government institution buildings with suitable rooftop area of 500 m<sup>2</sup> or above shall install a solar PV plant with a minimum (kWp) capacity computed as Capacity in kWp = (Total shadow free rooftop area x 75%)/12 or 80% of the buildings' sanctioned connected load/contract demand whichever is lower. Area provisions may be calculated on rooftop @ 12 m<sup>2</sup> per 1 kWp, as suggested by Ministry of Urban Development, GoI, referring the MNRE or as may be notified by the Nodal Department. The Implementing Agency shall be authorized to survey and finalize the capacity of GRPV system to be installed on government rooftop.

The departments, whose rooftop size is less than 500 m<sup>2</sup>, shall also endeavour to install GRPV systems.

4. The Nodal Agency shall develop a mechanism to identify the State Government buildings that fall under the above specified criteria (roof size 500 m<sup>2</sup> and above). Furthermore, the Nodal Agency shall define a time frame by which the buildings shall conform to the above specified requirements. The implementing Agency shall also define a penalty mechanism for those buildings who fail to comply.
5. The Nodal Agency shall assess the requirement of a suitable payment security mechanism and shall submit it to the State Government for its perusal.
6. The State Government shall also promote deployment of solar plants with net/gross metering on the rooftops of Central Government Organizations and other public bodies through suitable advisory and consultative means to facilitate the solar energy targets of the State.

**C) Commercial**

The State Government shall promote deployment of GRPV systems on the premises of hotels, private guest houses, private transit hostels, private students' hostels, marriage houses, commercial establishments, cinema hall and theatres, private warehouses, etc. These institutions shall be encouraged to implement GRPV systems of suitable capacity on the roof of their premises/area under appropriate metering arrangements as laid out in this policy.

**D) Industrial**

The State Government shall promote deployment of GRPV systems on the premises of industries. In the wake of increased industrialisation, primarily driven

by the pharmaceutical sector, and the ability of these stakeholders to invest in GRPV, industries shall be encouraged to implement GRPV systems of suitable capacity on the roof of their premises/area under appropriate metering arrangements as laid out in this policy.

The State Government mandates all pharmaceutical industries to set up GRPV systems of capacity at least 10% their contract demand, within two years from the date of notification of this policy. Additionally, this mandate shall be applicable on all the new industrial consumers availing electricity connection from the date of notification of this policy.

The SNA shall explore strategies to address challenges and facilitate deployment of GRPV systems for consumer categories having lower tariff.

## **11. Incentives, Financial Arrangement and Support**

The Nodal Agency shall assess need for any financial/non-financial assistance to eligible entities and submit a proposal to the State Government. The following incentives shall be available for the GRPV systems implemented by the eligible entities, as applicable, during the operative period of the policy,

### **A) Exemption from the Payment of Electricity Duty and Cess**

The electricity generated from GRPV systems and consumed by any person, shall be exempted from payment of the Electricity Duty and Cess as specified by the State Government, for a period of 10 years from the date of commissioning of the power plant. Provided the categories exempted from payment of the electricity duty as specified under The Electricity Duty Act and/or Rules or any other Guidelines, if announced, by the State Government shall be applied.

### **B) Payment of Open Access Charges**

The applicability of payment of Open Access Charges and Losses will be as per the appropriate regulations and the terms and conditions specified by SSERC, from time to time. SSERC shall consider for exemption of payment of Open Access Charges for a suitable term if the electricity is generated and consumed within the State.

### **C) Exemption from Payment of Conversion Charges**

The implementation of GRPV systems shall be permitted by the State planning department, after necessary scrutiny. The residential consumers opting for implementation of rooftop solar photovoltaic power plant under sale to grid shall be exempted from conversion of house tax and commercial tax.

### **D) Wheeling Charges**

The applicability of payment of wheeling charges and losses will be as per the terms and conditions specified by SSERC, from time to time. SSERC shall consider for exemption of payment of Wheeling Charges for a suitable term.

**E) Cross Subsidy Surcharge and Additional Surcharge**

For a period of 10 years from the date of commissioning of the GRPV system, the cross subsidy surcharge shall not be levied for sale of electricity to a person other than Distribution Utility. Provided that the sale of electricity is taking place within the State boundary and/or the buyer is maintaining contracted demand with the Distribution Utility. The eligible entities shall continue to pay additional surcharge, if applicable and as specified by SSERC. For captive consumption, cross subsidy surcharge shall not be levied.

**F) Height of the Module Structure**

The height of the module structure carrying rooftop solar panels, in addition to the building height, shall not be counted towards total height of the building as permitted by building bye laws, except near airports where building regulations issued by the Airports Authority of India take precedence.

No approval will be required from concerned Municipal Corporation or Urban Development Bodies for putting up solar plants in existing or new buildings. However, the Municipal Corporation or Urban Development Bodies shall undertake inspection of the plant from safety view point and suggest necessary improvements, if any. The support structure on which rooftop solar panels are installed shall be a temporary structure. The elevated structure should not be used for any other commercial activities. If structures are to be used for commercial activities, necessary approvals will be mandatory and fees shall be paid as per the rules of Municipal Corporation.

**G) Inspection by Electrical Inspector**

In compliance to the Rule 47A of Indian Electricity Rules, 1956 the installation and testing of rooftop solar power plant (if installed by an LT consumer), proposed to be connected to the network of the Distribution Utility, will be exempted from the inspection by the Electrical Inspector of the State. The appropriate Distribution Utility shall undertake inspection of the rooftop solar power plant set up by LT consumers before commissioning.

**H) Budgetary Support (CFA and Incentive on First-Come, First-Served Basis)**

The Nodal Agency shall undertake detailed assessment of the support required for encouraging implementation of targets identified under this policy for implementation of GRPV and submit the fund requirements for consideration of the Government for budgetary support.

**I) Creation of Sikkim Solar Rooftop Fund/Sikkim Solar Rooftop Battery Fund**

The State Government shall devise creation of a Green Fund. The fund so created shall be utilized for organizing capacity building and training programme, creating awareness, offsetting upfront capital cost, interest subvention through banks and any other aspect deemed necessary for the easy adoption of solar plants in the State.

**J) Generation Based Incentives (GBI)**

The SSERC and SREDA shall undertake feasibility studies to identify list of consumer categories that requires GBI support. The GBI, if applicable, shall be made available by the Distribution Utility as part of the consumer's electricity bill. The entire GBI amount incurred by the DISCOM shall be socialised vide passing it through as a part of Aggregate Revenue Requirement.

**K) Private Investment**

The State Government shall attract private investments for installation of GRPV systems. The Nodal Agency shall facilitate and provide clearances and approvals from concerned departments.

**12. Role of Nodal Agency**

SREDA, the State Nodal Agency, for the purpose mentioned in this Policy shall be responsible for effective implementation of this Policy in consultation with the State Government, eligible consumers, the Central Government and other stakeholders. The Nodal Agency shall undertake following roles and responsibilities.

The Nodal Agency shall facilitate eligible entities in implementing the solar plant and undertake the following activities;

**A) Announcement of Scheme**

The Nodal Agency shall bring out a comprehensive scheme to implement the targets specified under the policy. The scheme should elaborate the appropriate process for invitation of bids/applications, incentives and central financial assistance, if any, targets, implementation mechanisms etc.

**B) Demand Aggregation**

The Nodal Agency with the help of local urban bodies shall, from time to time, undertake the process of demand aggregation in the residential, institutional, social sector and Government/Public institutions for the deployment of GRPV system.

All the State Government Departments are mandated to share details of buildings (owned/ leased), such as location, rooftop area, connected load or contract demand, and contact details of concerned personnel with SREDA within 3 months of the date of notification of this policy.

**C) Empanelment of Vendors**

To accelerate GRPV deployment in the State, the Nodal Agency shall notify vendor empanelment guidelines within 03 months from the date of notification of the policy.

**D) Plug-n-Play GRPV Kits**

The Nodal Agency shall work with GRPV system and equipment suppliers to build

solar kits/packs to facilitate easy demonstration/buying of plants by the consumers.

**E) Facilitation in the Development of GRPV System**

The Nodal Agency shall facilitate project developers in setting up of GRPV including sanctions/statutory clearances that may be essential for the development and commissioning of GRPV projects from various Government agencies/departments. SREDA will provide requisite clearances through a “Single Window Clearance Mechanism” for the development of GRPV system.

The Nodal Agency shall be a single point of contact for potential investors/consumers. This can go far off in improving the overall investment climate of the State.

**F) Support in Establishing Protocols/Procedures for Easy Adoption of Solar Power**

The Nodal Agency shall also support the Distribution Utility in developing protocols and procedures for metering, connectivity with the electricity system, and Power Purchase Agreements etc. for easy adoption of GRPV power plants by the stakeholders.

**G) Online Portal for Application Processing and Awareness Building**

The Nodal Agency shall facilitate implementation of an elaborate and user-friendly platform (online portal, telephonic helpline) providing all the relevant information related to clearances and approvals, technology, incentives, system integrators, quality management and regulatory framework etc.

The Nodal Agency shall support all eligible entities in implementing GRPV system and shall introduce a web enabled platform, prepared with the support of the State Distribution Utility, to submit the application for registration, for providing clearance and approvals by the Distribution Utility and energy accounting from the respective GRPV systems etc.

**H) Support in Availing Subsidy**

The Nodal Agency shall facilitate the eligible entity to avail subsidy from Central and/or State Government. The subsidy may be credited directly to the eligible entity, upon submission of necessary documents.

**I) Amendment in Bye-Laws**

The Nodal Agency shall coordinate with the Housing and Urban Planning Department, identify and recommend necessary amendments in the Bye-Laws to facilitate extensive adoption of GRPV systems.

- i. The height of module structure carrying solar panels shall not be counted towards the total height of the building as permitted by building bylaws, except near airports where building regulations issued by the Airports Authority of India take precedence.
- ii. No approval will be required from concerned Municipal Corporation or other

Urban Development Bodies for putting up solar plants including any additional system for monitoring the performance of solar plant in existing or new buildings.

- iii. The support structure on which rooftop solar panels are installed shall be a temporary structure built in accordance with local building codes.

**J) Capacity Building, Awareness and Entrepreneurship**

The Nodal Agency shall organize certified training programmes in consultation with the Skill Council for Green Jobs. The Nodal Agency shall organize Capacity Building and Training Sessions for participation by the segment stakeholders. The Nodal Agency shall also take necessary steps in creating awareness among the citizens of the State. In addition, the specialised training programs, in association with NISE, shall be designed to train electricians, mechanical and civil experts on solar. Skills will be developed across segments including – installation, operation and maintenance of solar projects, testing of solar products, solar resource assessment, refurbishment, etc.

**K) Feasibility of Conversion of Off-Grid Systems to Grid Connected Systems**

The Nodal Agency shall explore feasibility of converting existing off-grid systems to GRPV. The Nodal Agency shall develop and submit a plan/proposal/pilot program to the Empowered Committee/State department within <xx> months.

**L) Coordination with Government Departments**

The State shall follow technical specifications and standards as specified by the MNRE, from time to time. The Nodal Agency shall provide its inputs to the MNRE for specifying new standards or amending existing technical specifications for different components of GRPV system.

**M) Adoption of Best Practices and Business Models**

The Nodal Agency from time to time, on its own motion or on the basis of a proposal received from stakeholders, shall undertake assessment of best practices adopted by other Indian States and Countries for the promotion of GRPV. The report of such assessment shall be submitted to the State Government for its consideration.

**N) Support to Urban Local Bodies/Smart City/Solar City Programme**

The Nodal Agency shall extend its full cooperation towards realizing the solar installation targets as emphasized under the Smart City/Solar City Programme of the Government of India. In addition, the Nodal Agency shall encourage and support urban local bodies for proliferation of GRPV system in the State.

**13. Roles of the Electricity Regulatory Commission**

The SSERC shall on priority basis, notify appropriate regulatory framework for the promotion and deployment of GRPV in the State. The regulatory framework shall include enabling provisions for the implementation of the policy.



#### **14. Role of State Distribution Utility**

The Energy and Power Department, Government of Sikkim shall be the implementing agency in their area of operations under this policy. Distribution Utility shall extend their support and guidance to the eligible entities interested in setting up GRPV systems and its connectivity with grid. Distribution Utility shall comply with the regulatory framework specified by SSERC as well as provisions contained in this policy.

Distribution Utility's role includes -

- A) Develop administrative procedure for application filling and processing within three months from the date of notification of policy.
- B) To set up GRPV cell headed by a Chief Engineer to administer the GRPV sector within three months from the date of notification of policy.
- C) To provide banking facility for solar energy, incentives in the form of exclusion from open access charges, wheeling charges, transmission and distribution (T&D) loss for solar power, etc. may be provided as specified under this policy.
- D) To perform feasibility study for connectivity with the local grid facility.
- E) To facilitate capacity building of field officers.
- F) To conduct technical studies to understand the impact of penetration of GRPV on the distribution system and evaluate the benefits from incorporating storage.
- G) The evacuation infrastructure for the GRPV system wherever necessary shall be developed and augmented by the distribution utility as per SSERC regulations in force.
- H) To undertake financial impact assessment due to GRPV on DISCOM's revenue and explore possibilities of utility-centric business models to promote GRPV.
- I) To finalize the specifications of the meters and empanel vendors. The rate of meters in respective categories should also be finalized so that the meter may be procured by the eligible entity and shall be installed by the Distribution Utility.

#### **15. Roles of the Inspectorate of Electricity**

The Inspectorate of Electricity, Government of Sikkim, shall on priority basis, notify appropriate time bound process and procedure, and safety framework for the promotion and deployment of GRPV systems in the State. This framework shall compliment the interconnection framework laid down by the Distribution Utility's regulatory framework and shall include enabling provisions for the implementation of the policy. The Inspectorate of Electricity shall develop appropriate web-based application system for providing/undertaking safety clearance. This web-based application system shall be linked with the DISCOM's web-based application system for GRPV.

## **16. Procedure for Interconnectivity with the Distribution Utility Grid**

The procedure for interconnectivity of GRPV systems with the Distribution Utility grid shall be in accordance with the provisions laid by the Utility and approved by SSERC. The Utility and the Nodal Agency shall submit, to the Government of Sikkim and SSERC, a standardized and consumer-friendly interconnection procedure within one month from the date of publication of this policy under official gazette. This procedure shall include both the grant of interconnectivity with the Distribution Utility's grid and subsidy approval.

Further, the Distribution Utility in association with the Nodal Agency shall develop a web-based GRPV application portal for the grant of interconnectivity and subsidy approvals.

## **17. Monitoring of Parameters**

All GRPV systems with system size of 10 kW and above reaping benefits under this policy shall install equipment to monitor climate parameters such as solar irradiance, wind speed, ambient air temperature, etc. and technical parameters such as electricity generated, electricity injected into the electricity system or self-consumed, current, voltage, etc. The monitoring report shall be submitted to the Distribution Utility and the Nodal Agency at regular intervals for the plant's useful life through online mechanism. The Distribution Utility and the Nodal Agency shall develop appropriate framework and necessary infrastructure to record such parameters within two months from the date of notification of this policy.

## **18. Solar Renewable Purchase Obligation**

The quantum of electricity consumed by the eligible consumer, who is not defined as obligated entity, from the GRPV system shall qualify towards the compliance of solar Renewable Purchase Obligation (RPO) for the Distribution Utility.

## **19. Empowered Committee**

To oversee, monitor and resolve various issues arising out of this policy, an Empowered Committee will be constituted under the chairmanship of the Chief Secretary of the State. The Committee will have the following members:

Chief Secretary	- Chairman
Managing Director, EPDS	- Member Secretary
Secretary/Principal Secretary, Renewable Energy	- Member
Secretary/Principal Secretary, Energy	- Member
Director, Nodal Agency	- Member
Secretary/Principal Secretary, Finance	- Member
Secretary/Principal Secretary, Planning	- Member
Secretary/Principal Secretary, Irrigation	- Member
Secretary/Principal Secretary, Revenue	- Member
Concerned Distribution Utility	- Member
Secretary/Principal Secretary Urban Development	- Member

The Chairman of the Committee is empowered to co-opt subject matter expert/s, if required. The Committee shall be authorized to deliberate and decide on the aspects related to implementation of this policy on its own motion or on the written representations by the stakeholder.

The Empowered Committee shall therefore provide their recommendations on,

- a. Resolving key bottlenecks in implementation of solar power plants;
- b. Deliberating on aspects to create fund for the development of GRPV systems;
- c. Issues regarding facilitation of framework for interconnection with the network of Distribution Utility;
- d. Resolving any other inter-departmental issues that arise from time to time;
- e. Suggesting necessary amendments to the policy to remove difficulties in implementation;
- f. Empowered Committee shall undertake half-yearly review of the sector and submit the report to the Energy and Power Department, Government of Sikkim;
- g. Any other relevant aspect.

## **20. Removal of Difficulties**

In case of any difficulty arising in giving effect to this policy, the Empowered Committee, is authorized to issue clarifications as well as interpretations to such provisions, as may appear to be necessary for removing the difficulty either on its own motion or after hearing those parties who have represented for change in any provisions.

Notwithstanding anything contained in these resolutions, the provisions of the Electricity Act 2003 and the applicable regulations issued by the State/Central Government from time to time shall prevail for the implementation of this policy.

## **21. Procedure for Modifications and Amendment of any Specific Provision**

The Nodal Agency shall collect modification/amendment in policy from the stakeholder. The Nodal Agency shall study the suggested modification and amendment and draft appropriate modification and amendment, if any, in policy and submit to the Empowered Committee for approval. The Empowered Committee shall examine the draft modification and amendment and suggest their recommendations to the Government of Sikkim. The Government of Sikkim shall then modify/amend the policy.

Principal Secretary (Government of -----)

## Glossary

### Abbreviations

- a. "CEA" means Central Electricity Authority.
- b. "FY" means Financial Year.
- c. "GST" means Goods and Services Tax.
- d. "kV" means kilovolt.
- e. "kW" means kilowatt.
- f. "kWh" means kilowatt hour.
- g. "kWp" means kilowatt peak
- h. "GWp" means Gigawatt peak
- i. "MNRE" means Ministry of New and Renewable Energy, Government of India.
- j. "MW" means Megawatt.
- k. "NISE" means National Institute of Solar Energy.

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<sup>i</sup> [http://sikkim.nic.in/sws/sikk\\_geo.html](http://sikkim.nic.in/sws/sikk_geo.html)

<sup>ii</sup> [http://censusindia.gov.in/2011census/dchb/1100\\_PART\\_B\\_DCHB\\_SIKKIM.pdf](http://censusindia.gov.in/2011census/dchb/1100_PART_B_DCHB_SIKKIM.pdf)

<sup>iii</sup> : [http://mospi.nic.in/sites/default/files/press\\_releases\\_statements/State\\_wise\\_SDP-28october2016.xls](http://mospi.nic.in/sites/default/files/press_releases_statements/State_wise_SDP-28october2016.xls)

<sup>iv</sup> <http://sikenvis.nic.in/WriteReadData/UserFiles/file/Per%20Capita%20Energy%20Consumption%202010-11%20to%202014-15.pdf>