

## Kerala Solar Energy Policy 2013

Manshi from Energetica India highlights the main points of the Kerala Solar Policy 2013.

**T**he JNNSM policy by Indian Ministry of New and Renewable Energy (MNRE) has brought a reform in the Indian Solar scenario. Apart from it, to promote Renewable Energy growth in India, various states have come up with their state Solar policies to provide an enabling framework for growth of Renewable Energy in the country. Recently, Kerala Government formulated such a solar policy for its state.

Kerala's Solar policy will ensure optimal usage of the available solar potential by increasing the installed capacity of the solar sector in the State to 500MW by 2017 and 2500 MW by 2030.

The main missions of the projects are to contribute to long term energy security of the State of Kerala as well as ecological security by reduction in carbon emission. It is also eyeing to define end users who can adapt solar in a big way and target them.

The policy will adopt a multi-pronged approach in targeting different groups of consumers and deploy package of incentives and disincentives for identified groups. It will also focus on adapting solar to trigger a paradigm shift in the usage of energy at the micro and macro levels and to create an R&D hub by establishment of institutional collaborations with educational institutions, research centres, industries, utility, etc. for working towards applied research and commercialization of nascent technologies to accelerate deployment of various combinations of solar power technologies and solar-based hybrid co-generation technologies which will focus on improving efficiency in existing systems, reducing cost of balance of system.

The strategies to achieve the policy objectives are outlined as below:

### Supply side interventions:

- Off-grid roof top systems at demand points / consumer premises like solar inverter installations, solar powered cellular towers, display boards/ hoardings, etc.
- Promoting conversion of existing inverter installations to solar power by way of providing suitable incentive schemes and Grid connected systems partly meeting requirements at demand points and feeding to the grid.
- Off site generation at locations like canals, reservoirs (floatovoltaic), waste lands, quarries, etc and Off shore generating plants - primarily solar-thermal systems.
- The off-grid solar applications will be promoted for replacement of diesel based generator sets. Guidelines and incentives issued by MNRE from time to time will be followed in the State for promotion of decentralized and off grid solar applications.
- Empanelment of Suppliers / system integrators as per the guidelines in force for implementation of the solar systems envisaged in the policy.
- Standards for grid connectivity at LT level will be notified for the State to promote decentralized solar power generation, which will remain applicable until national standards are notified and adopted by the State.
- Since large scale absorption of solar electricity into the system is impossible without sufficient storage, a program for exploring and developing Pumped Storage schemes in the state will be promoted as part of the Solar Policy. Also, since developing Balance Of Supply (BoS) plants is essential to tap the employment opportunities presented by Solar to the fullest measure, the state will promote public sector enterprises like Keltron etc. to manufacture BoS plants.



### Promotion of Solar Thermal Collectors:

- **Solar Water Heating System (SWHS):** The State will promote Solar Water heating system by adopting the key strategy of making necessary policy changes for mandatory use of solar water heating system (SWHS) in the following potential categories like all including Housing Complexes set up by Group Housing Societies/Housing Boards, Hostels in educational institutions/Pvt. Hostels, Testing Labs/Laboratories of Educational Institutes/Hospitals, Barracks of Police, Paramilitary Forces and Jails, Private/Government Guest Houses, Govt. Tourist Hotels, Inspection Bungalow, Circuit House and retiring rooms of Railways, Health Centres, Sports Complex and all weather swimming pools.
- **Solar Steam Systems:** The State will promote the use of solar steam systems for wider applications such as Community cooking in residential institutions/ industrial mess/Hotels /Barracks/ Mid day meal program/Hospitals etc.; Industrial application of steam in process industries such as Textile/Food industry etc. And Laundries
- **Industrial Applications:** The State will promote the use of Solar Water Heating System (SWHS), Solar Steam Systems etc. for Industrial applications such as Process requirements of hot water, Process requirements of steam, Pre-heating applications in variety of Industries, Drying applications, Steam press and laundry units and Solar steam cooking applications in industrial mess/hotels etc.



### Financing the projects:

- For off-grid systems the policy seeks to ensure bank finance at attractive rates and provide generation based incentives rather than capital subsidies to ensure that the systems are installed, maintained and continue to remain functional. The existing capital subsidies will be restructured appropriately for the same.
- For grid- connected systems Government itself by way of setting an example would initiate a programme by which all public buildings are pro-

vided with generation facilities using appropriate technology options. Here also rather than an EPC mode of implementation, a design, build, operate and transfer scheme with annuity payments will be preferred. As the Load cycle of the government offices match with that of the solar plants, they are fitting cases for solar application. Policy urges all the concerned to make use of the roof top and premises to install solar plants to match maximum demand of the concerned office, within a period of 2 years time. A panel of imple-

menting agencies and pro-rata costs per kilo watt will be prepared and each office/department can choose a developer for implementing this scheme.

- For grid - connected systems in non-Government buildings / premises the incentives will be on the basis of net metering, feed-in tariff and Renewable Energy Certificate mechanism, the appropriate tariff system being decided by following due procedure.
- Grid - connected systems will be promoted for domestic consumers in a phased manner after formulating grid

connection standards for LT distribution in line with this policy. In this regard cluster wise installations will be given suitable incentives on a conditional basis for adopting solar installations.

- Regarding floatovoltaic and public place installations a wider community ownership model with direct financial stake by the public will be encouraged.
- For logistically difficult and technically challenging options like off-shore generating plants, projects will be structured on the basis of competitive bidding in IPP mode.

## **Building Transmission and Distribution Infrastructure:**

- Safety / quality protocols for all such installations will be worked out in detail at international standards. For this the capability of academic institutions both within and outside the country will be leveraged.
- This whole initiative would also be structured to improve the quality of the grid in general with specific focus on evolving nano / community grids working on smart grid principles and also to evolve standards for grid connectivity at different voltage levels.
- Notifying user manual / guidelines on solar application by leveraging Internet Communication Technologies (ICT), Social media etc., for propagation and integrating with no load shedding campaign.
- Creation of mechanisms like Battery banks, centralized banking of energy etc for decentralized distributed generation of infirm energy.

**Industry tie-ups:** In the case of grid-tie systems, only components complying with national or international standards as approved by Central Electrical Authority (CEA) can be used. But in the case of non-subsidised off-grid systems, there are currently no such regulations. It is proposed to bring about licensing for all solar photovoltaic systems and manufactures to be installed in Kerala. A certification and testing facility would be set up. Industries based in Kerala, including system integrators will have to obtain licens-

ing from designated authority (Chief Electrical Inspectorate) to be eligible to install systems and components meeting approved specifications or standards. For industries from outside the State, channel-partner status or recognition of MNRE (Govt. of India) would be mandatory.

## **Legal and regulatory framework:**

- A tariff incentive for consumers opting for solar generation will be offered with respect to non-solar consumption subject to prefixed levels of usage.
- Legally enforcing use of electricity from solar source in specified sectors of energy use.
- Incentive for people's representatives / panchayats for promoting solar installations and street light optimization and incentive schemes for conversion of existing inverter installations to solar based ones.
- Solar Procurement Obligation (SPO) will be mandated for Commercial consumers with more than 20kVA connected load, LT Industrial with more than 50kVA connected load and for all HT & EHT consumers in a phased manner. All HT/EHT consumers will have to procure 0.25% of their energy consumed through SPO till March 2015 with 10% increase every year. From April 2015 onwards the same will be applicable for commercial consumers and LT industrial as per the criteria mentioned above. The same will be made applicable for high consuming domestic consumers i.e. more than 500 units per month at a later stage.

The above obligated consumers may fulfill their SPO by:

- Buying equivalent to or more than their SPO from third party developers of Solar Power projects in the State of Kerala.
- Buying RECs generated by Solar Power projects in the State equivalent to or more than their SPO and purchasing power from KSEB at Solar Tariff.
- Consumers desirous of availing SPO exemption by captive solar generation will necessarily install separate meters to measure captive generation.
- All new domestic buildings having a floor area in between 2000 sq.ft to

3000 sq.ft should install at least 100 litres solar water heater and 500W solar PV system. All the buildings above 3000 sq.ft should install 100 litre solar water heater and at least 1000W solar PV system.

In the case of residential flats/ apartments 5% of the energy usage for common amenities should be from Solar

In the potential categories to be notified like star hotels, hospitals, residential complexes, with more than 50 kVA total connected load, the use of solar water heating system will be made mandatory.

## **'Feed-in-Tariff', 'Net Metering' and Pooled Cost of Energy' of the utility applicable to Solar energy**

Kerala State Electricity Regulatory Commission (KSERC) will notify the normative Feed-in-Tariff of solar power for procurement by KSEB in case of offsite commercial installations. For all agencies that consume grid power and have installed solar installations with some form of Government subsidy only net metering will be applicable. However for consumers with monthly consumption of 30 units and below efforts will be made involving welfare departments of Government and LSGIs to solar enable them and in such cases a special feed-in-tariff scheme will be notified.

KSERC will also annually notify the Pooled Cost of Power Purchase of the utility as applicable to solar power sector, as required under CERC (Terms and Conditions for Recognition and Issuance of REC for Renewable Energy Generation) Regulations 2010, to facilitate investors tap the Renewable Energy Certificate market.

## **Request for connectivity & Reservation of land for the renewable project**

Plants requiring grid connectivity will make application to the utility as per the standards in place and the utility will provide connectivity if found feasible as per the interconnection standards in practice, after collecting a processing fee.

KSEB will have first right of refusal for the power from the plants established in private lands / premises, except in cases of self/captive use. In such cases the sale of power to KSEB will be as at a tariff decided by KSERC or at the pooled cost of the



power purchase of the utility or net metering. The prime responsibility for identifying the land for renewable energy will be with the developer. Government will endeavour to assess clearly the land suitable for the development of solar installations in the possession of either Government, private or tribal individuals. For tribal lands, in addition to the lease rentals, a revenue (not profit) sharing mechanism for the land owner is envisaged as follows:

- The willingness of the land owner is mandatory and the land ownership rights will continue to fully vest with the original owner. The developer will have only rights to setup and operate the project. The land owner will have the right to use land for agricultural purpose.
- Revenue (not profit) sharing based on the power generated, possibly in the range not below of 5% is envisaged.
- The payment of share of revenue will be made directly to the bank account of the land owner. For this purpose a tripartite agreement has to be entered into among the developer, the land owner and the KSEB. Only lands which do not have an immediate productive use will be thus identified/ permitted.

#### **Settlement of Energy charges & Incentives and facilities under this policy**

KSEB will create necessary evacuation facility beyond the pooling station for the projects with capacity less than or equal to 10MW. For higher capacity plants, KSEB

will construct the evacuation facility on deposit work basis. There will be no open access charges for solar projects for wheeling the power within the state. Wheeling charges and T&D losses will not be applicable for the Captive Solar generators within the state. The energy generated from the plants under this policy will be fully exempted from the Electricity duty. Conditional Banking facility will be available to captive generators after considering system constraints. ANERT being the nodal agency for the non conventional energy in the State will act as a facilitator for the developer for making available the subsidy from MNRE or any other central agency.

#### **Agencies involved and their role under this policy**

- a. State Level Empowered Committee (SLEC):** Administration of this policy will be entrusted with the State Level Empowered Committee (SLEC) constituted for that purpose.
- b. Agency for Non-conventional Energy and Rural Technology (ANERT):** ANERT is the nodal agency for the non conventional energy in the State. In administering this policy ANERT will have the responsibilities to act as the linking agency between all the stake holders in matters related with this policy.
- c. System Provider/Integrator:** Bringing new technology and considering safety requirements due to complexity of the system, the assistance from the system provider is essential throughout the life period of the plant. This is

necessary to instil confidence among potential small scale investors and Rooftop owners in the initial phase of technology adoption, which could be reviewed periodically based on the maturity achieved by the technology and the level of deployment. Thus the system provider will have the following responsibilities:-

To register itself with the ANERT through their due process to enable itself to provide service in the state.

On completion of the project, enter into a tri-partite agreement involving also the facility owner of the roof top solar plant and KSEB, ensuring continued technical support to the plant.

Conduct periodical maintenance to the plant as per the standards and provide report of the same to the investor as well as to KSEB.

In case investors under him opt for REC mechanism, to play the role of facilitator for the purpose.

- d. Kerala State Electricity Board-** Being the integrated utility on transmission and distribution in the state, KSEB will have the responsibility to mainstream solar applications by pioneering installations in canals, reservoirs (floatovoltaic), public spaces, etc; To evolve and update standards of grid-connectivity for the Solar Power Systems at LT and HT level and notify to promote decentralized solar power generation which would also enable the State to gain maximum benefit from the 13 FC allocations and other financial allocations ◀▶

