

KERALA SOLAR ENERGY POLICY 2013

DRAFT FOR COMMENTS

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1. Preamble

It is felt that a forward looking Government need to have a structured approach to seriously evaluate the possibilities of harnessing renewable energy sources and accord due weightage in a realistic manner for such sources to be integrated into its overall energy generation strategies. There is a popular perception that solar energy could be the key part of the solution to the energy crisis in the State. To promote the systematic tapping of the Solar Energy potential to the maximum an appropriate policy framework is essential. This policy seeks to evaluate in a realistic manner the possibilities of harnessing solar energy to optimal levels and to put in place the necessary framework.

Maturity level and high cost of the technology, compatibility of transmission and distribution infrastructure, limitations on land availability, adequacy of fiscal incentives have been the reasons behind the very low penetration of solar energy in the mainstream life of Kerala.

However at a macro level, Electricity Act 2003 promotes absorption of renewable energy and mandates for specified consumption from renewable sources in the area of every distribution utility. Accordingly Renewable Purchase Obligation (RPO) and more specifically solar purchase obligations have become mandatory recently. This presently is fixed at 3% of the total consumption for RPO and out of which 0.25% shall be from the solar sources alone, with annual escalation at 10% till the quantum from renewable reaches 10% of total purchase.

2. Vision

Vision is to mainstream the use of solar energy in the energy mix of Kerala in an inclusive manner to ensure optimal usage of the available solar potential in its region.

3. Mission

The Mission is to

- i. Increase the installed capacity of the solar sector in the state to 500 MW by 2017 and 1500 MW by 2030.
- ii. Contributing to long term energy security of the State of Kerala as well as ecological security by reduction in carbon emissions
- iii. Define end users who can adapt solar in a big way.
- iv. Deploy package of incentives and disincentives for identified groups.
- v. Adaption of solar to trigger a paradigm shift in the usage of energy at the micro and macro level.

- vi. Generating large direct and indirect employment opportunities in solar and allied industries.
- vii. Creation of skilled and semi-skilled man power resources for installation and maintenance of the solar systems through promotion of technical and other related training facilities.
- viii. Promotion of entrepreneurs / startups industries / institutions in the state who are engaged in the development of innovative solar based systems.
- ix. Creating an R&D hub by establishment of institutional collaborations with educational institutions, research centers, 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 etc.

4. Title and enforcement:

- a. This Policy will be known as Kerala Solar Energy Policy, 2013
- b. The Policy will come into operation with effect from 01.04.2013 and will remain in force until superseded or modified by another Policy.
- c. State Government may undertake review of this Policy as and when the need arises in view of any technological breakthrough or to remove any inconsistency with Electricity Act 2003, Rules & Regulation made thereof or any Government of India Policy/State Electricity Regulatory Commission's order.

5. Strategy of implementation

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

1. Supply side interventions

- 1.1 Off grid roof top systems at demand points / consumer premises like solar inverter installations, solar powered cellular towers, display boards/ hoardings etc.
- 1.2 Promoting conversion of existing inverter installations to solar power by way of providing suitable incentive schemes.
- 1.3 Grid connected systems partly meeting requirements at demand points and feeding to the grid.
- 1.4 Off site generation at locations like canals, reservoirs (floatovoltaic), waste lands, quarries, etc.
- 1.5 Off shore generating plants - primarily solar-thermal systems.

- 1.6 The off-grid solar applications shall be promoted for replacement of diesel based generator sets. Guidelines and incentives issued by MNRE from time to time shall be followed in State for promotion of decentralized and off-grid solar applications.
- 1.7 Empanelment of Suppliers / system integrators as per the guidelines in force for implementation of the solar systems envisaged in the policy
- 1.8 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.
- 1.9 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 shall be promoted as part of the Solar Policy.
- 1.10 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.

2. Promotion of Solar Thermal Collectors:

2.1 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 :-

- a) All Industrial buildings where hot water is required for processing.
- b) All Government/Private Hospitals and Nursing homes.
- c) All Hotels, Resorts, Motels, Banquet halls, Catering Units and Industrial Canteens.
- d) Individual Residential buildings with an area of 3000 sq feet and above within the limits of Municipality/Panchayat/Corporations including Housing Complexes set up by Group Housing Societies/Housing Boards.
- e) Hostels in educational institutions/Pvt. Hostels, Testing Labs/Laboratories of Educational Institutes/Hospitals
- f) Barracks of Police, Paramilitary Forces and Jails.
- g) Private/Government Guest Houses, Govt. Tourist Hotels, Inspection Bungalow, Circuit House and retiring rooms of Railways.
- h) Health Centres, Sports Complex.
- i) All weather swimming pools.

2.2 Solar Steam Systems:

The State will promote the use of solar steam systems for wider applications such as

- a) Community cooking in residential institutions/ industrial mess/Hotels /Barracks/ Mid day meal program/Hospitals etc.

- b) Industrial application of steam in process industries such as Textile/Food industry etc.
- c) Laundries

2.3 Industrial Applications:

The State will promote the use of Solar Water Heating System (SWHS), Solar Steam Systems etc for Industrial applications such as:

- a) Process requirements of hot water.
- b) Process requirements of steam.
- c) Pre-heating applications in variety of Industries.
- d) Drying applications.
- e) Steam press and laundry units
- f) Solar steam cooking applications in industrial mess/hotels etc. **3.**

Financing the projects

- 3.1 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 continued to remain functional. The existing capital subsidies shall be restructured appropriately for the same.
- 3.2 For grid connected systems Government itself would initiate a programme by which all public buildings are provided 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 shall 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 implementing agencies and pro-rata costs per kilo watt shall be prepared and each office/department can choose a developer for implementing this scheme.
- 3.3 For grid connected systems in non-Government buildings / premises the incentives shall 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.
- 3.4 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.
- 3.5 Regarding **floatovoltaic** and public place installations a wider community ownership model with direct financial stake by the public shall be encouraged.

3.6 For logistically difficult and technically challenging options like off shore generating plants, projects shall be structured on the basis of competitive bidding in IPP mode.

4. Building Transmission and Distribution Infrastructure.

4.1 Safety / quality protocols for all such installations shall be worked out in detail at international standards. For this the capability of academic institutions both within and outside the country shall be leveraged.

4.2 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.

4.3 Evolving standards for grid connectivity at different voltage levels.

4.4 Notifying User Manual / guidelines on solar application - leveraging you-tube Internet Communication Technologies (ICT), Social media etc for propagation.

4.5 Integrating with no load shedding campaign.

4.6 Creation of mechanisms like Battery banks, centralized banking of energy etc for decentralized distributed generation of infirm energy.

5. Legal and regulatory framework

5.1 Support the formulation of regulatory environment encouraging the common man more towards solar applications

5.2 Legally enforcing use of electricity from solar source in specified sectors of energy use.

5.3 A tariff incentive for consumers opting for solar generation shall be offered with respect to non-solar consumption subject to prefixed levels of usage.

5.4 Incentive for people's representatives / panchayats for promoting solar installations and street light optimization.

5.5 Incentive schemes for conversion of existing inverter installations to solar based ones.

5.6 Solar Procurement Obligation (SPO) will be mandated for Commercial consumers with more than 20 kVA connected load, LT Industrial with more than 50kVA connected load and for all HT & EHT consumers in a phased manner. All HT and EHT consumers shall have to procure 3% of their energy consumed through SPO till March 2014 and 6% from April 2014 onwards. From April 2014 onwards the same shall be applicable for Commercial consumers and LT industrial as per the criteria mentioned above. The same shall 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

- > Purchasing power from KSEB at Solar Tariff
- > Consumers desirous of availing SPO exemption by captive solar generation shall necessarily install separate meters to measure captive generation

5.7 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.

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

5.9 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 shall be made mandatory.

6. '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 shall be applicable. However for consumers with monthly consumption of 30 units and below efforts shall be made involving welfare departments of Government and LSGIs to solar enable them and in such cases a special feed-in-tariff scheme shall 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.

7. Request for connectivity

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

8. Procurement Policy on grid connected solar plant

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 shall be as at a tariff decided by KSERC or at the pooled cost of the power purchase of the utility or net metering.

9. Reservation of land for the renewable project

Government shall endeavor to assess clearly the land suitable for the development of solar installations in the possession of either Government or private individuals. Such identified lands shall be offered to the developers for grid connected solar installations. Lease rentals fixed by revenue department shall be payable to the land owner. Only lands which do not have an immediate productive use shall be thus identified.

10. Settlement of Energy charges

All settlement associated with the energy charges for the grid connected plant between the developer and the utility shall be settled on a monthly basis.

11. Incentives and facilities under this policy

a. Evacuation facility

KSEB shall create necessary evacuation facility beyond the pooling station for the projects with capacity less than or equal to 10 MW. For higher capacity plants, KSEB shall construct the evacuation facility on deposit work basis.

b. Open access Charges

There shall be no open access charges for solar projects for wheeling the power within the state.

c. Wheeling charges and T&D losses

Wheeling charges and T&D losses will not be applicable for the Captive Solar generators within the state.

d. Exemption of electricity Duty

The energy generated from the plants under this policy shall be fully exempted from the Electricity duty.

e. Banking facility

Conditional Banking facility shall be available to captive generators after considering system constraints.

f. Facilitating for subsidies from MNRE

ANERT being the nodal agency for the non conventional energy in the State, shall act as a facilitator for the developer for making available the subsidy from MNRE or any other central agency.

12. Agencies involved and their role under this policy

a. State Level Empowered Committee (SLEC)

Administration of this policy shall be entrusted with the State Level Empowered Committee (SLEC) constituted for that purpose. The committee shall have the following constitution.

- (i) Principal Secretary (Power), GoK - Chairman
- (ii) Chairman, KSEB
- (iii) Member (Generation Projects), KSEB
- (iv) Member (Transmission & Generation Operations), KSEB
- (v) Member (Distribution), KSEB
- (vi) Director, EMC
- (vii) Director, ANERT - Convener
- (viii) Exe. Vice President of the Kerala S&T Council (KSCSTE)
- (ix) Director of Industries
- (x) Land Revenue Commissioner

The committee shall also have the following responsibilities.

- a) To suggest necessary amendments to the policy to remove difficulties in implementing the policy.
- b) Give approval for the developer requiring land allocation from the government.
- c) Approval for utilization of land designated by ANERT for development of renewable energy
- d) Specifying the time schedule of eligible projects for which land had been allocated
- e) Any other function which may found necessary

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 following responsibilities.

- (i) To act as the linking agency between all the stake holders in matters related with this policy

- (ii) To empanel the system providers in solar technology after due process
- (iii) To assess the solar energy potential in the state and prepare area map of renewable energy potential of the state
- (iv) To act as the nodal agency for the Off-grid solar applications in the state.
- (v) To facilitate in providing incentives and subsidies to the investor in the off grid application.
- (vi) To be part of the joint mechanism with KSEB in the administration of Roof-Top solar installations with grid connectivity.
- (vii) To short list and maintain the data base on the system provider in the case of solar plants with LT connectivity and prescribe maximum permissible installations under each system provider in proportion to their financial strength and infrastructure capability.

c. System Provider/Integrator

Being 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 instill confidence among potential small scale investors and roof top 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.

- (i) To register itself with the ANERT through their due process to enable itself to provide service in the state.
- (ii) 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.
- (iii) Conduct periodical maintenance to the plant as per the standards and provide report of the same to the investor as well as to KSEB.
- (iv) 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 shall have the following responsibility under this policy.

- (i) To mainstream solar applications by pioneering installations in canals, reservoirs (floatovoltaic), public spaces etc
- (ii) 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.
- (iii) To assess the feasibility and provide connectivity to grid connected solar projects in a timely manner.
- (ii) Resort to tariff based bidding for solar energy in meeting RPO, if required.
- (iii) To develop necessary transmission infrastructure based on a renewable master plan.
- (iv) To provide banking facility for solar energy, incentives in the form of exclusion from open access charges, wheeling charges, T&D loss for solar power
- (v) To act as single window service provider to all grid connected solar plants in association with other state agencies

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