GOVERNMENT OF KERALA

Date.....

ABSTRACT

Power Department - Kerala Solar Energy Policy 2013 - Approved - Orders issued.

POWER (PS) DEPARTMENT

G.O(P) No. 49/2013/PD Dated, Thiruvananthapuram, 25/11/2013

Read: 1) Minutes of the meeting held on 29.06.2012, under the Chairmanship of Hon'ble Minister (Power and Transport).
2) GO(Rt)160/2012/PD dated 04.08.2012.

ORD E R

The State has substantial sources of renewable energy, viz, Solar, Wind, Small Hydro Power, etc. The potential of Solar Power in the State is yet to be exploited. In order to tap the vast potential of Solar Power in the State, Government as per the minutes read as first paper above have decided to formulate a Solar Policy for the development of Solar Power in the State. Based on the decision at the above meeting, a Committee was constituted vide order read as 2nd paper above for formulating the draft Solar Policy in the State.

2. Accordingly the Draft Solar Policy submitted by the Committee was put on the website of ANERT calling for comments and suggestions. Based on the comments from the Public, the members of the Committee and other expert in the field, certain modifications were made in the draft policy.

3. Government have examined the draft Solar Policy so prepared in detail and are pleased to approve the 'Kerala Solar Energy Policy 2013' as appended to this Order.

(By Order of Governor)
NIVEDITA P HARAN
Additional Chief Secretary

To,

All Heads of Department's / PSU's
The Chairman, KSEB, Thiruvananthapuram'
The Director, ANERT, Thiruvananthapuram
The Director, EMC, Thiruvananthapuram
The Secretary, KSERC, Thiruvananthapuram
The Secretary, Kerala Legislature, Thiruvananthapuram
The Principal Accountant General (Audit), Thiruvananthapuram
The Accountant General (A&E), Thiruvananthapuram
The General Administration (SC) Department
The I and PR (Web and New Media) Department (For vide publicity)
The Stock file / Office copy.

Forwarded / By Order

Section Officer

KERALA SOLAR ENERGY POLICY 2013

Preamble

A forward looking Government needs 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 a 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.

To align with this forward-looking energy strategy, the integration of smart technologies such as RFID (Radio Frequency Identification) becomes pivotal in optimizing solar energy deployment and management. RFID systems, particularly when coupled with mobile devices like iPhones, offer a transformative approach to energy asset tracking, maintenance, and user interaction. For instance, in large-scale solar farms, RFID tags embedded in panels or inverters can streamline inventory management and fault detection, ensuring optimal performance.

A practical manifestation of this synergy lies in the question: How to Copy RFID Card to iPhone. Modern iPhones, equipped with NFC (Near Field Communication) capabilities, enable users to read, write, or emulate RFID/NFC tags directly via third-party apps. This functionality is not merely a convenience but a strategic tool for energy administrators.Waterproof NFC Tag for Outdoor Conditions. Consider a scenario where solar technicians use iPhones to clone RFID-based access cards for restricted solar facility zones—replacing physical cards with digital credentials stored securely on mobile devices. Such digital replication enhances security through encryption and audit trails, while reducing reliance on physical card distribution.

Moreover, this integration supports community solar initiatives.Best RFID Blocking Cards. Homeowners subscribing to shared solar projects could digitally replicate their RFID-enabled smart meters onto iPhones, allowing real-time monitoring of energy generation, consumption, and carbon savings via dedicated apps. NFC tags singapore.Governments, recognizing this potential, could incentivize such innovations through policy frameworks that mandate RFID-NFC compatibility in solar installations, fostering a seamless bridge between renewable infrastructure and digital citizen engagement.

Thus, by embedding RFID-NFC solutions—including secure methods to copy RFID credentials to iPhones—into solar energy policies, governments can not only enhance operational efficiency but also democratize access to renewable energy data, ensuring a participatory and resilient energy future.

Low maturity level and high cost of the technology, non-compatibility of transmission and distribution infrastructure, limitations on land availability, inadequacy of fiscal incentives and entry of unscrupulous elements into the field have been the reasons behind the very low penetration of solar energy in the mainstream life of Kerala. The lack of easy off- the- shelf availability of solar powered equipments with standardised quality and pricing is another reason for its very low presence.

Solar energy is one of the major sources of renewable energy. As improved technology becomes available and at a reasonable cost, the use of Solar energy will gain acceptance. The negative impact that the actions of the imposters and fly-by-night operators out to make illegal gains, has to be strongly counter-acted by the governmental agencies working in the field ofrenewable energy.

However at a macro level, Electricity Act 2003 promotes absorption ofrenewable 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 at present is fixed at 3% ofthe 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% oftotal purchase.

2. Vision

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

3. Mission

The Mission is to:

i. Increase the installed capacity ofthe solar sector in the State to 500MW by 2017 and 2500 MW by 2030;

ii. Contribute to long term energy security ofthe State ofKerala as well as ecological security by reduction in carbon emission;

iii. Define end users who can adapt solar in a big way and target them;

iv. Adopt a multi-pronged approach in targeting different groups of consumers;

v Deploy package of incentives and disincentives for identified groups;

vi Adapt solar to trigger a paradigm shift in the usage of energy at the micro and macro levels;

vii Generate large direct and indirect employment opportunities in solar and allied industries;

viii Create skilled and semi-skilled man power resources for installation and maintenance of the solar systems through promotion of technical and other related training facilities;

ix Promote entrepreneurs / startups industries / institutions in the State that are engaged in the development of innovative solar based systems;

x 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.

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 the date of publication 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 rooftop 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 the 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 ofthe 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 ofthe 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 ofPolice, Paramilitary Forces and Jails.
g) Private/Government Guest Houses, Govt. Tourist Hotels, Inspection Bungalow, Circuit House and retiring rooms ofRailways.
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 ofhot water.

b) Process requirements of steam.

c) Pre-heating applications in variety ofIndustries.

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 continue to remain functional. The existing capital subsidies shall be restructured appropriately for the same.

3.2 For grid- connected systems Government itselfby way of setting an example 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 ofnet 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 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 ofinfirm energy.

5. Industry tie-ups

In the case of grid-tie systems, only components complying with national or international standards as approved by 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 licensing 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 ofMNRE (Govt. ofIndia) would be mandatory.

6. Legal and regulatory framework

6.1 Support the formulation ofregulatory environment encouraging the common man more towards solar applications

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

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

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

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

6.6 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 shall have to procure 0.25% oftheir energy consumed through SPO till March 2015 with 10% increase every year. From April 2015 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 ofKerala.
- 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.

6.7 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.

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

6.9 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.

7. '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 off-site 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.

8. 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.

9. 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.

10. Reservation of land for the renewable project

The prime responsibility for identifying the land for renewable energy shall be with the developer. Government shall endeavor 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.
- The land ownership rights shall continue to fully vest with the original owner. The developer shall 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 shall 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 shall be thus identified/ permitted.

11. 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.

12. 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 10MW. 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 subsides 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.

13. 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) Additional Chief Secretary/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 - Convenor
(viii) Exe, Vice President ofthe Kerala S&Y Council (KSCSTE)
(ix) Director of Industries
(x) Land Revenue Commissioner
(xi) A representative from Law Department
(xii) An expert from Government SPB (nominated)

The Committee shall 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) Empowered Committee shall do an yearly review and publish a document;

f) 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 directly set up solar energy installation manufacturing units as paradigm centres;

(vii) To be part of the joint mechanism with KSEB in the administration of Roof-Top solar installations with grid connectivity;

(viii) To short list and maintain the database 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 ofthe project, enter into a tri-partite agreement involving also the facility owner ofthe rooftop 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 ofthe 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 which would also enable the State to gain maximum benefit from the 13 FC allocation and other Financial allocation.

(iii) To assess the feasibility and provide connectivity to grid connected solar projects in a timely manner;

(iv) Resort to tariff based bidding for solar energy in meeting RPO, if required;

(v) To develop necessary transmission infrastructure based on a renewable master plan;

(vi) To provide banking facility for solar energy, incentives in the form of exclusion from open access charges, wheeling charges and T&D loss for solar power;

(vii) To act as single window service provider to all grid connected solar plants in association with other state agencies.