

**GOVERNMENT OF KARNATAKA**

No EN 21 VSC 2014

Karnataka Government Secretariat,  
Vikasa Soudha,  
Bengaluru, dated: 22.05.2014

**NOTIFICATION**

To harness the potential of Solar resources in the State, Government of Karnataka has published Solar Policy vide GO no EN 61 NCE 2011 dated 01-07-2011 for the period 2011-2016. In light of technological advantages unfolding in the sector and achievements made by Solar forefront States, Government formed a Technical Committee vide G.O. No: EN 61 NCE 2011 Dated: 05.09.2013 for suggesting amendments to the existing Solar Policy 2011-16. With change in technology, Solar power, a green source of Energy is being considered as one of the alternative to augment the current sources. To have Energy security and sustainability, more capacity addition in Solar power, it is felt necessary, for a revision in Solar policy. Taking inputs from various stake holders, the Technical Committee has given its recommendation for revision of Solar policy.

Accordingly Government of Karnataka has decided to revise its Solar policy.

Now therefore the Government of Karnataka revises the existing Solar policy and makes the following policy, namely the Karnataka Solar Policy 2014-2021.

**Solar Policy 2014-2021**

**1. Preamble.**

The Government of India's Jawaharlal Nehru National Solar Mission (JNNSM) launched in January 2010, with the objective of achieving 34152 MW of solar power capacity by 2022 which will be around 3% of the total energy consumption and it is a concentrated effort to tap India's naturally available energy sources and contribute to low carbon sustainable growth in the country, while overcoming its ecological and energy security challenges.

Karnataka is rich in solar resources and solar energy will complement the conventional sources of energy in a large way. The State of Karnataka is blessed with about 240 to 300 sunny days with good solar radiation of 5.4 to 6.2 kWh/m<sup>2</sup>/day. Karnataka was the first southern state to notify its solar policy in 2011 and was the first state to commission utility scale solar project in India.

Assessment on Solar Potential in Karnataka estimates the energy potential as 20GW. However, considering different factors like availability of waste lands, evacuation infrastructure etc., the moderated potential may be around 10GW. Karnataka has the potential to evolve as a Solar Generation hub in India due to a host of factors.

To harness the potential of solar resources in the state, Government of Karnataka had issued a Solar Policy for the period 2011 - 16. In light of changes unfolding in the sector and achievements made by Solar forefront States, it is felt necessary to go aggressively for higher targets to achieve 3% contribution from Solar Source out of total energy consumption. The advantages of Solar energy are that the grid parity is realized in near future, lower transmission losses, environmental benefits, energy sustainability, lower gestation period, offset of day time peak load etc. considering the fact the Government of Karnataka has decided to review the policy.

## **2. Title.**

The policy shall be known as “**The Karnataka Solar Policy 2014 - 2021**”.

## **3. Operative period.**

The policy will come into effect from **2014** and shall remain in force until **2021** or till such time any changes are made by the State Government.

## **4. Abbreviations.**

- AD: Accelerated Depreciation
- ALDC: Area Load Dispatch Centre.
- APPC: Average Pooled Purchase Cost
- CDM: Clean Development Mechanism
- CEA: Central Electricity Authority
- COD: Commercial Operation Date
- CERC: Central Electricity Regulatory Commission
- ESCOMs: Electricity Supply Companies
- GEI: Government Electrical Inspectorate



- GOI: Government Of India.
- GOK: Government of Karnataka
- HLPAC: High Level Project Approval Committee
- IE Act: Indian Electricity Act
- IPP: Independent Power Producer
- JNNSM: Jawaharlal Nehru National Solar Mission
- KERC: Karnataka Electricity Regulatory Commission
- KPCL: Karnataka Power Corporation Limited
- KPTCL: Karnataka Power Transmission Corporation Limited
- KREDL: Karnataka Renewable Energy Development Limited
- MNRE: Ministry of New and Renewable Energy
- MW: Mega Watt
- NGO: Non-Governmental Organization
- NLDC: National Load Dispatch Center
- PPA: Power purchase Agreement
- REC: Renewable Energy Certificate
- RPO: Renewable Purchase Obligation
- RTU: Remote Terminal Unit.
- SLDC: State Load Dispatch Center

## 5. Objectives.

- To add solar generation of minimum 2000 MW by 2021 in a phased manner by creating a favorable industrial atmosphere.
- To translate Karnataka in to an investor friendly state.
- To encourage public private participation in the sector.
- To promote Solar Roof Top Generation and Technologies.
- To encourage decentralized generation & distribution of energy where access to grid is difficult.
- To promote R&D and innovations, skill development in the sector.

## 6. Applicability.

All solar power projects (**solar PV and solar thermal**) established in the state of Karnataka shall be eligible for benefits under the policy.

- **Grid connect, utility scale projects.**

For the development of solar power projects under this policy any Individual / Firm / Society / Institution / Registered Company including Public utilities shall be eligible to apply.

- **Grid connect, rooftop projects.**

All individuals' residential /commercial/Institutional/Govt. building owners, Industrial units are eligible to set up solar power plant within the prescribed capacity limit. In addition interested Firms/Registered Companies including public utilities shall be eligible to set up roof-top projects on third party roofs.

- **Off Grid projects.**

Any individual shall be eligible to set up off Grid projects.

## 7. Regulatory Frame Work.

The Electricity Act 2003 mandates Karnataka Electricity Regulatory Commission to decide tariffs for renewable energy & to issue regulations regarding percentage of renewable purchase obligation to ESCOMs and decide charges with respect to wheeling, banking, cross subsidy charges. Conditions for getting accreditation to avail Renewable Energy Certificates shall be governed by CERC and KERC regulations.

Orders / regulations or any other dispensation issued by the State Commission from time to time shall be applicable to the provisions of this policy including the Acts passed by GOI. In case of any discrepancy between the provisions of this policy, orders/regulations issued by KERC will take precedence.

## 8. Minimum Program Targets

The Government of Karnataka in its endeavor to achieve minimum of 3% solar energy out of total projected consumption, proposes to install 2000 MW solar power by 2021 as below:

Year	2014 - 15	2015 - 16	2016 - 17	2017 - 18	2018 - 19	2019 - 20	2020 - 21
% of solar on total consumption of energy	1.5	1.75	2.0	2.25	2.5	2.75	3.0



It is proposed to meet the solar targets under different segments as below:

**1. Grid connected projects**

It is proposed to achieve minimum **1600 MW** of grid connected utility scale solar power generation projects for sale of power to state ESCOMs, 3<sup>rd</sup> party sale and captive consumption.

**2. Grid connected roof top projects**

It is proposed to achieve minimum **400 MW** of grid connected roof top solar generation projects in the state by 2018.

The minimum targets proposed for the policy period is as below:

Segment	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Utility scale projects.	350	150	150	150	200	200	200
Roof top solar PV project (grid connected and off grid)	100	100	100	100	-	-	-

**• Segment 1: Utility scale grid connected solar photovoltaic (PV) and concentrated solar power (CSP) projects.**

- **Category 1: Projects to promote distributed generation by land owning farmers throughout the state.**

The Government of Karnataka endeavor to promote solar energy projects preferably by land owning farmers with a minimum capacity of 1MWp and maximum capacity of 3MWp per land owning farmer in the state for sale of power to ESCOMs at KERC determined tariff from time to time. GoK shall facilitate purchase of energy generated under this category through ESCOMs.

Project registration and administration of PPA's shall be with respective ESCOMs. The cumulative capacity under this category shall be limited to 300MW on first cum basis within the policy period.

The capacity allocation for ESCOMs is as below:

ESCOMs	% of total annual energy consumption	Capacity for the period 2014- 20
BESCOM	48%	144 MW
MESCOM	8%	24 MW
HESCOM	20%	60 MW
GESCOM	13%	39 MW
CESC	11%	33 MW

o **Category 2: Projects selected based on competitive bidding process for capacities more than 3MWp.**

Selection of Solar Power projects under this Category shall be through a competitive bidding process on KERC determined benchmark tariff, on need basis.

GoK shall facilitate purchase of energy generated under this category through ESCOMs. There shall be a set of qualification criteria fixed by the GoK for the prospective Developers of Solar projects under this category.

KREDL as a nodal agency shall invite proposals on specific orders from GoK for selection of Solar Power projects under two separate categories.

- o Projects availing accelerated depreciation benefits and
- o Projects not availing accelerated depreciation benefits.

The minimum project capacity allocation to each solar power producer for the grid connected solar power plants will be as follows:

Mode of allotment	Technology	Minimum (MW)
Through bidding process	Solar PV	3
	Solar Thermal	10

The capacity planned under this category excludes capacity allotted under JNNSM program.

o **Category 3: Projects under Renewable Energy Certificates (REC) Mechanism.**

Solar projects under the REC mechanism shall be eligible for Policy benefits as allowed under CERC REC mechanism as per the Guidelines/Orders/Regulations issued by CERC/KERC from time to time. Under this mechanism the solar energy generators can sell the electricity to



the ESCOMS at APPC (Average pooled power purchase cost), as determined by the KERC.

The projects under this category shall be administered by ESCOMS and KPTCL. The project developers are required to pay facilitation fee to KREDL.

The minimum and maximum project capacity allocation to each solar power producer for the grid connected solar power plants will be as follows:

Mode of allotment	Technology	Minimum (MW)	Maximum (MW)
Through ESCOM	Solar PV	1	Based on transmission evacuation capacity.
	Solar Thermal	10	

***There is no limit for cumulative capacity under this category.***

o **Category 4: Projects under Captive/Group Captive Generation.**

The projects set up under this category shall consume power for captive use and comply with provisions of Section 9 of IE Act 2003, IE Rules with amendments and orders issued by KERC from time to time. The project developer is allowed to avail RECs in compliance with KERC/ CERC regulations.

The projects under this category shall be administered by ESCOMS and KPTCL. The project developers are required to pay facilitation fee to KREDL.

The wheeling and banking charges and cross subsidy are as per KERC guidelines.

The minimum and maximum project capacity allocation to each solar power producer for the grid connected solar power plants will be as follows:

Mode of allotment	Technology	Minimum (MW)	Maximum (MW)
Through ESCOM	Solar PV	No Limit	Based on transmission evacuation capacity.
	Solar Thermal		

***There is no limit for cumulative capacity under this category.***

○ **Category 5: Projects under Independent Power Producer.**

Power plants those put up for sale of power to third party constitute this category. Projects under this category currently are not eligible for availing RECs.

The projects under this category shall be administered by ESCOMs and KPTCL. The project developers are required to pay facilitation fee to KREDL.

The minimum and maximum project capacity allocation to each solar power producer for the grid connected solar power plants will be as follows:

Mode of allotment	Technology	Minimum (MW)	Maximum (MW)
Through ESCOM	Solar PV	1	Based on transmission evacuation capacity.
	Solar Thermal	10	

***There is no limit for cumulative capacity under this category.***

○ **Category 6: Projects under Bundled Power.**

The State encourages Central/ Karnataka State owned PSUs and Power Exchanges initiated by Government or PSUs for setting up solar projects in the State for providing solar power bundled with thermal power from outside the State at the rates to be determined by the Government subject to the approval of CERC / KERC.

The minimum and maximum project capacity allocation to each solar power producer for the grid connected solar power plants will be as follows:

Mode of allotment	Technology	Minimum (MW)	Maximum (MW)
Through ESCOM / HLPAC	Solar PV	Based on bundled tariff as agreed with the power purchaser.	
	Solar Thermal		

• **Segment 2: Grid connected solar rooftop projects and metering.**

The GoK shall promote grid connected solar rooftop projects on public buildings, domestic, commercial and industrial establishments through net metering and gross metering methods based on tariff orders issued by KERC from time to time.

**Net Metering:** Net metering arrangements are proposed (at multiple voltage levels) to focus on self-consumption of energy generated from roof top PV.



The concept is a combination of captive consumption and exchange of power with the utility.

- In case of solar rooftop PV systems connected to the grid of a distribution company on a nett basis, the surplus energy injected shall be paid by the ESCOMs at a tariff determined by KERC from time to time.
- Metering shall be in compliance with the CEA (installations and operation of meters) Regulations 2006, the Grid code, the metering code and other relevant regulations issued by KERC/CERC from time to time.
- ESCOMs will define specific guidelines on the standards for connectivity to the network. The scheme shall be administered by respective ESCOMs (including registration, approval, metering protocols, safety protocol, and standards).
- Fiscal benefits by the way of state and MNRE subsidies shall be through nodal agency.
- The meter reading taken by the distribution licensee shall form the basis of commercial settlement.

○ **Site Requirement & Interconnection voltage:**

- The project site / installation locations may be decided based on the total energy requirement at the premises and the usable area available for installation of roof top Solar PV system.
- ESCOM approved export / import meters shall be installed for net metering purpose.
- **Interconnection voltages:**

System capacity	Voltage level	Remarks
Up to 5 KWp	240 V/single phase	As per KERC guidelines
5 KWp to 50 KWp	3 phase/415 V	
>50 KWp	11 KV	

○ **Other initiatives.**

- The GoK encourages energy-efficient design standards for energy generation, maximizing natural light entry, options that provide heat insulation including grid tied building integrated PV (BIPV) based building architecture.
- Government of Karnataka contemplates to amend building bye laws in respect of FAR (Floor Area Ratio) in co-ordination with BBMP / local bodies and urban development department to exempt FAR in respect of additional floor area created under solar PV panels with light roofing.



- **Segment 3: Solar Off-Grid and Decentralized Distributed Generation (DDG).**

To provide access to electricity where transmission and distribution systems are difficult to establish, solar powered off-grid solutions are encouraged.

GoK shall encourage options like solar street lights (through local bodies), roof top SPV systems with battery storage (through ESCOMs and NGO's) and others in both rural and urban areas for the purpose of reducing dependency on grid.

- **Focus on Solar Powered IP set.**

Karnataka has considerable deployment of irrigation pump sets consuming about one third of the total energy. Use of solar powered IP sets is encouraged involving other departments viz. Department of Agriculture, Department of Minor Irrigation, Department of Horticulture and Department of Social Welfare. This will help supplement the conventional power requirement apart from providing energy security to the farmers during day time.

## **9. Other initiatives**

- **Solar park:** Development of solar parks helps to utilize uneven waste land for power generation, understand appropriate technology usage to achieve optimum efficiency, mitigate issues like watch & ward facilities by way of common infrastructure etc. The experience will be used to decide further development of solar parks in the State. The Policy encourages:

- a. Promotion of distributed generation through small solar parks.**

The Government of Karnataka contemplates to provide financial assistance of Rupees 1 (one) Crore for development of each solar park with area not less than 100 acres through a viable model (PPP or Private participation or other) in the backward districts identified as per the recommendations of Nanjundappa committee.

- b. Promotion of integrated solar parks.**

Private participation by providing "plug and play" options for developers. The promoters of the park may facilitate with additional support like EPC services, assistance in financial closure and skill development programs etc.

- GoK contemplates to create private land banks owned by individual farmers / group of farmers / associations for development of solar projects on long term lease basis up-to 30 years (subject to renewal after lease period) at lease rates fixed by GoK from time to time, in co-ordination with Revenue Department.



- **Grid tied canal corridor projects.**

The GOK supports deployment of grid connected projects on canal corridor by water resources department on pilot basis subject to purchase of energy by ESCOMs.

- **Grid connected “solar with other renewable hybrid projects”.**

The GoK encourages projects that can benefit from existing project infrastructure. In this regard “solar with other renewable hybrid projects” having minimum 25% of overall generation coming from respective generation sources shall be promoted through this policy. The tariff will be at a mutually agreed rate with due approval of KERC.

## **10. Project Approval**

**High Level Project Approval Committee (HLPAC)** specially constituted by the GoK for the purpose of approval and overseeing project progress, of capacities larger than 50MW.

The Committee shall constitute following members

- Additional Chief Secretary / Principal Secretary – Energy Department, Chairman.
- Principal Secretary – Finance Department, Member
- Principal Secretary – Revenue Department, Member
- Principal Secretary – Irrigation Department, Member
- Principal Secretary – Forest Department, Member
- Managing Director – KPTCL, Member
- Managing Director – KREDL, Member
- Managing Directors - ESCOMs, Member

All projects of capacity more than 1MW under RECM, IPP and captive generation projects shall be approved by the Government.

## **11. Nodal Agency**

KREDL shall be the nodal agency for facilitating implementation of the solar policy as envisaged by the relevant authorities.

- KREDL shall facilitate developers with necessary support namely issue of facilitation letters to Deputy Commissioners, KPTCL and others.
- KREDL shall invite tenders to allot projects for procurement of energy by ESCOMs under preferential tariff.

## **12. Evacuation facilities**

The developer shall be responsible for connecting the generating station to the nearest grid sub-station or inter-connection point with the grid. KPTCL/ESCOMs may at the



request of developer, take up work of construction and maintain the same on cost basis, which will be borne by the developer. KPTCL/ESCOMs shall not collect any network augmentation charges towards system augmentation beyond inter-connection point.

- **Generating Sub-Station:**

The Generating Plant Sub-station shall be developed and maintained by the Solar Power Producer as per the Grid Code applicable from time to time and the entire cost for this will be borne by them. Plant should be integrated by installing RTUs by solar power producers so that the power fed can be monitored at receiving Sub-station by the SLDC / ALDC on real time basis.

The Solar Power Producer shall furnish to SLDC / ALDC the requisite (i) Steady State Load Flow studies and (ii) Short circuit studies etc. for seeking connectivity with the Grid in reference to the provisions of the clause no. 6 "General Connectivity Conditions" of the Central Electricity Authority's "Technical Standards for Connectivity to the Grid Regulation, 2007" and its amendments from time to time.

- **Receiving Sub-Station and metering:**

- Developer in consultation with KPTCL shall finalize the location of receiving Sub-station through which the electricity intended to be evacuated at voltage levels - 400 / 220 / 110/ 66 / 33 / 11 kV sub-station.
- **LT Connected Solar Plant** - ESCOMs shall allow interconnection of solar power plants at 11 kV and below voltage level as per standard / norms fixed by Central Electricity Authority/guidelines of MNRE/ relevant KERC order.
- The metering shall be done by project developer as per the standards specified by KPTCL / ESCOM.

### **13. Wheeling, Banking and Cross Subsidy Charges**

Charges shall be applicable as determined by KERC from time to time.

### **14. Reactive Energy Charges**

In case of drawl of Reactive Power for the project, necessary charges shall be payable at the rates prescribed by KERC.



## 15. Fees & Charges

Fees and charges applicable for the year 2014 – 15 across various categories of utility scale and roof top projects are as given below:

Category	Application Fee (INR. Per project)	Facilitation Fee (INR)	Performance Guarantee / Bid Security / MW (INR)	Net worth/ MW (INR)
Under Competitive Bidding process.	10,000	100,000 per MW	10,00,000	2,00,00,000
REC (Supplying at APPC)	10,000	20,000 per MW	5,00,000	50,00,000
Captive/ Group Captive	10,000	25,000 per MW	3,00,000	NA
IPP for 3 <sup>rd</sup> party sale	10,000	25,000 per MW	5,00,000	2,00,00,000
Bundled Power	10,000	10,000 per MW	NA	NA
Roof top projects (5 - 50KWp)	1,000	2,000 per project	NA	NA
Roof top projects (>50KWp and up to 1MWp)	2,000	5,000 per project	NA	NA

Note: The charges mentioned above may be revised from time to time as notified by the GoK.

## 16. Fiscal Incentives from GoK to promote solar power.

- Tax concessions in respect of entry tax, stamp duty and registration charges shall be as per Karnataka Industrial Policy
- The Industrial Consumers opting to buy power from Solar Power Project under category 3, 4 and 5 shall be allowed corresponding pro-rata reduction in Contract Demand on a permanent basis but subject to the decision of KERC in this regard.

## 17. Government of India incentives: Various concessions allowed by Ministry of New & Renewable Energy viz central excise duty & customs duty exemptions shall be allowed to project developer.



## **18. Policy initiatives under consideration of GoK to promote solar power projects.**

- Through this policy GoK intends to bring various HT categories of consumers with connected load of more than 50kVA under **Solar Purchase Obligation (SPO) with the consent of KERC.**
- GoK contemplates to facilitate deemed conversion of land for solar projects by amending section 95 of Land Reforms ACT.
- **Purchase of Land.** GoK contemplates time bound permissions and for vesting Deputy Commissioners with full powers to approve purchase of agriculture lands U/s 109 of Land Reforms Act for development of solar projects.
- **Conversion of agricultural land for setting up of solar projects:** Developers will be allowed to start project execution without waiting for formal approval on filing application for conversion of agricultural land for setting up of solar power projects on payment of specified fees.
- A separate dedicated cell with staff drawn from revenue dept shall be created in KREDL, to ensure creation of Govt /Private land banks for development of solar projects on lease basis including formulation of modalities, fees, etc
- Solar PV projects shall be exempted from obtaining clearances of pollution control board.
- Time bound clearance for evacuation approval from KPTCL. Reduction of supervision charges by KPTCL /ESCOMs to 5%.
- **Research & Development initiatives.** The State encourages R&D efforts on solar PV and CSP technologies, plant components and others that benefit the project ecosystem. The State is keen to support collaborative R&D efforts between premier institutes and technology companies.
- **Manufacturing support.** The state has some of the best technology manufacturers in the country. The GoK will actively support the growth of local manufacturing sector for indigenous development of technologies and other ancillary components in the ecosystem.
- **Skill development.** The GoK supports programs that train and develop local cadres with technical and development skills, that will help create direct and indirect job in the state.

## **19. Implementation of MNRE Schemes.**

The state will continue to support implementation of JNNSM projects and all other schemes of the MNRE.



**20. Power to amend & interpret the policy.**

Government of Karnataka will have power to amend/ Review/ Relax/ interpret any of the provisions under this policy as and when required.

**21. Power to remove difficulties.**

If any difficulty arises in giving effect to this policy, the HLPAC as under clause-10, above, 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.

Not with standing anything contained in these resolutions, the provisions of the Electricity Act 2003 and the applicable regulations issued by CERC/KERC from time to time shall prevail for the purpose of implementations of this policy.

BY ORDER AND IN THE NAME OF  
GOVERNOR OF KARNATAKA,

(K.L RAMACHANDRA)

DEPUTY SECRETARY TO GOVERNMENT,  
ENERGY DEPARTMENT

☎ 22034679.

To,

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3. The Managing Director, KPCL, Shakthi Bhavan Bengaluru.
4. The Managing Director BESCOM/MESCOM/GESCOM/HESCOM/CESC/ PCKL.
5. The Managing Director, Karnataka Renewable Energy Development Limited, Bengaluru.
6. The Secretary, Karnataka Electricity Regulatory Commission, Bengaluru.
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