

KARNATAKA
SOLAR POLICY
2014-2021

Amendments as per Notification No
EN 49 VSC 2016 dated 12.01.2017

GOVERNMENT OF KARNATAKA

Notification No.: EN 49 VSC 2016

**Karnataka Government Secretariat
Vikassoudha,
Bengaluru, Dated: 12-01-2017**

NOTIFICATION

Government of Karnataka has issued Solar Policy vide Notification No. EN 21 VSC 2014 dated: 22-05-2014.

In the recent times, the solar energy has witnessed rapid growth in the segment with significant technological advancement and increase in the market competition and reduction in solar tariffs. Govt. of India has **issued** the Tariff Policy dated: 28-01-2016 under the Electricity Act, 2003. As per the Tariff policy and target fixed by MNRE to the State, the solar renewable purchase obligation has been revised to a minimum 8% purchase of solar energy of the total consumption of energy of the State, excluding Hydro energy by March 2022. The policy of the Govt. of India also envisages that 40% of the solar generation should be through roof top. As per the new Tariff Policy and targets fixed by MNRE to the State, the minimum generation required by 2022 is 6000 MWs.

In view of new Tariff policy, targets fixed by MNRE to the State and the experience over the last two years, it is necessary to make amendments in the Solar Policy. The total target has to be increased to a minimum of 6,000 MWs by 2021. Government of Karnataka has issued amendments to Solar Policy 2014-21 vide notification No EN 49 VSC 2016 dated 12.01.2017

1. Preamble.

The Government of India's objective of achieving 100,000 MW of solar power capacity by 2022 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/m²/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.

The solar energy potential in Karnataka is estimated in excess of 24,700 MW. However, the actual potential for solar energy is significantly higher than the estimated capacity, considering the recent technological advances and increasing efficiencies brought in solar energy segments.”

To harness the potential of solar resources in the state, GoK 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 8% contribution from Solar Source out of total energy consumption, excluding Hydro energy, by March 2021 in line with the objectives of Tariff Policy dated 28 January 2016 and targets fixed by MNRE to the State. 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, off-set of day time peak load etc. Going forward, GoK is planning to implement the solar projects under the distributed generation approach in which the electricity generated at or near a point will be consumed at or near the point only; and such projects will be implemented through rooftops and/ or ground mount systems to be connected to the local grid of the respective ESCOMs. This will facilitate to off-set the peak electricity, and stabilize the local grid of the ESCOMs.

2. Title.

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

3. Operative period.

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

However, in order to bring in course corrections based on the load growth study and also evaluate the impact of policy, GoK will undertake an evaluation of this Policy in the year 2019. The evaluation will assess the impact of this Policy on the sector and the achievements against the growth targets and in case of a requirement, issue amendments to the Policy with the suggested changes.

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 Centre
- PPA: Power Purchase Agreement
- REC: Renewable Energy Certificate
- RPO: Renewable Purchase Obligation
- RTU: Remote Terminal Unit
- SLDC: State Load Dispatch Centre

5. Objectives.

- To add solar generation of minimum 6,000 MW by March 2021 in a phased manner by creating a favorable industrial atmosphere.
- To translate Karnataka in to an investor friendly state.
- To encourage public private partnership 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 establish a “Solar energy center of excellence and incubation center” at State level for promoting innovation in technology, skill development, and Research & Development.
- To implement the solar projects with a distributed generation approach, spread across taluks of the State to facilitate in off-setting the peak electricity, and stabilize the local grid of the ESCOMs.
- To introduce inter-state open access based business models viz. captive models and third party models through concessional banking and wheeling facilities.
- Set up a dedicated “Project Monitoring Cell” enabling improved project planning, coordination and monitoring.
- Introduce gross metering under solar rooftop generation for various category of consumers.
- Introduce solar-wind hybrid under rooftop generation for various category of consumers.

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 energy 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 of this policy, orders/ regulations issued by KERC will take precedence.

8. Minimum Program Targets

Government of Karnataka in its endeavor to achieve minimum of 8% contribution from Solar Source out of total energy consumption, excluding Hydro energy by March 2021 in line with the objectives of Tariff Policy dated 28 January 2016 and targets fixed by MNRE to the State. It is proposed to install a minimum 6,000 MW solar power projects by March 2021, where in 2,400 MW will be targeted through grid tied roof top generation projects.

Solar generation would be limited to 200 MWs per Taluk from all sources of generation excluding projects implemented on solar roof tops. Such projects shall be allocated based on first come first serve basis for various categories of projects identified under this clause of the Solar Policy, with a priority for projects under the State programme.

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

- **Category 1: 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.

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

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 bidding process	Solar PV	>3	As determined by GoK from time to time.
	Solar Thermal	15	

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

- **Category 2: 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 average pooled purchase cost APPC 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	

o **Category 3: 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		

o **Category 4: 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	

o **Category 5: 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/hydel 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 net-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.

- Restriction on maximum project capacity: The maximum capacity of the project shall be as per Regulations to be issued by KERC in this regard from time to time, to address technical, safety and grid security issues.
- In case of solar rooftop PV systems connected to the grid of a distribution company on a net 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.

Gross metering: Gross metering arrangements are proposed (at multiple voltage levels) to focus on gross metering of energy generated from roof top PV. The concept is on exchange of power with the utility.

- This arrangement shall be applicable to domestic consumers only, based on the guidelines issued by KERC from time to time.
- Restriction on maximum project capacity: The maximum capacity of the project shall be as per the Regulations issued by KERC in this regard from time to time to address technical, safety and grid security issues. In case of solar rooftop PV systems connected to the grid of a distribution company on a gross basis, the total energy injected shall be paid by the ESCOMs at a tariff determined by KERC from time to time.

Solar-Wind hybrid under rooftop generation: This arrangements are proposed (at multiple voltage levels) to focus on net/ gross metering of energy generated from grid roof top PV plants as per regulations issued by KERC from time to time.

- **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	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.

- **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 pumps 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 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.
- The capacity for such solar parks shall be limited to a maximum of 100 MW at a single location, subjected to the overall limit of 200 MW per taluk from all the sources of solar generation, excluding the projects implemented on the solar rooftops.

- **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.

10. Project Approval:

Order shall be issued by the Government of Karnataka on recommendation of KREDL.

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 developers 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 across various categories of the utility scale and rooftops 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	1,00,000 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 3rd party sale	10,000	25,000 per MW	5,00,000	2,00,00,000
For solar parks mentioned under b. Promotion of integrated solar parks as per clause 9 (Other initiatives)	1,00,000	25,000 per MW	NA	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

For Solar Projects of Captive/ Group Captive and IPP for 3rd party sale, transfer fee per MW (INR) 1,50,000 and time extension fee shall be per MW (INR)

First year – 1,00,000

Second year – 2,00,000

Third year – 3,00,000

Fourth year – 5,00,000

Government will issue cancellation order after fourth year.

Note:

- The charges mentioned above may be revised from time to time as notified by the GoK.
- Non-refundable Application fee along with prevailing service tax & Facilitation fee to be paid along with Application.
- IPPs, Captive/ Group Captive, REC applicants should get Govt. approval duly submitting the application and the relevant documents as detailed in KREDL website “kredlinfo.in”, along with the application fee.

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 2, 3 and 4 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: No amendments proposed

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.

- GoK contemplates to facilitate deemed conversion of land for solar projects by amending section 95 of Land Reform 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 clearance 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, KREDL in consultation with Energy Department, GoK and after taking approval from GoK is authorized to issue clarifications as well as interpretations to such provisions, as may appear to be necessary for removing the difficulty wither 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 Elecrticity Act 2003 and the applicable regulations, 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
Government of Karnataka,**