

Karnataka Renewable Energy Tariff Orders*

HIGHLIGHTS

Tariff Period	Technology	Years
	Wind	Not available
	Mini-hydel	Not available
	Bagasse based cogeneration	Not available
	Rankine cycle based biomass (water cooled condenser).	Not available
	Solar rooftop and small PV power plants, grid-connected megawatt-scale solar power plants.	25
Control Period	Technology	Years
	Wind	5 years from October 10, 2013
	Mini-hydel, bagasse based cogeneration, Rankine cycle based biomass (water cooled condenser).	Up to 31.03.2018
	Solar rooftop and small PV power plants, grid-connected megawatt-scale solar power plants.	5 years from April 1, 2013
Useful Life of a Plant	Technology	Years
	Wind, solar rooftop and small PV power plants, grid-connected megawatt-scale solar power plants.	25
	Mini-hydel	35
	Bagasse based cogeneration, Rankine cycle based biomass (water cooled condenser).	20

Technology-wise Gross Tariff	Technology	Gross Tariff (in Rs./kWh)		
		Wind	4.50	
	Mini-hydel	4.16		
	Bagasse based cogeneration	Fixed cost:2.02 Variable cost (FY 2016-17):2.97		
	Rankine cycle based biomass (water cooled condenser).	Fixed cost:2.37 Variable cost (FY 2016-17): 2.98		
	Solar rooftop and small PV power plants	Without Capital Subsidy		
		1 to 10 kW	7.08	
		Above 10 kW and up to 50 kW	6.61	
		Above 50 kW and up to 100 kW	6.14	
		Above 100 kW and up to 500 kW	5.67	
		Above 500 kW and up to 1 MW	5.20	
		With Capital Subsidy of 15%		
		1 to 10 kW	6.03	
		Above 10 kW and up to 50 kW	5.63	
		Above 50 kW and up to 100 kW	5.23	
		Above 100 kW and up to 500 kW	4.83	
		Above 500 kW and up to 1 MW	4.43	
		Grid-connected megawatt-scale solar power plants	Solar PV	6.51
			Solar thermal	10.85

Capital Cost	Technology	Capital Cost (in Rs. lakh/MW)
	Wind	600.00
	Mini-hydel	620.00
	Bagasse based cogeneration.	475.00
	Rankine cycle based biomass	570.00
	Solar rooftop and small PV power plants.	*505.02
	Grid-connected megawatt-scale solar PV plants.	600.00
	Grid-connected megawatt-scale solar thermal plants.	1200.00
	*Excluding land cost	
Operation and Maintenance (O&M) Expenses	Technology	O&M Cost (in Rs. lakh/MW) for the base year
	Wind	9.51
	Mini-hydel	12.40
	Bagasse based cogeneration	14.25
	Rankine cycle based biomass	30.00
	Solar roof top and small PV power plants.	5.05
	Grid-connected megawatt-scale solar PV plants.	13.00
	Grid-connected megawatt-scale solar thermal plants.	17.72
	An annual escalation at the rate of 5.72% shall be considered.	
Interest Rate on Loans	<ul style="list-style-type: none"> • 12% for solar rooftop PV and small solar plants. • 12.5% for other technologies. 	
Depreciation	5.83% for first 12 years and remaining depreciation spread over the residual useful life of the project.	
Return on Equity	16%	

Interest on Working Capital	<ul style="list-style-type: none"> • 13.25% for megawatt-scale solar power plants, mini hydel, bagasse based cogeneration and Rankine cycle based biomass power plants. • 13% for wind power plants. • 12.5% for solar rooftop and small solar PV plants.
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OTHER PROVISIONS

Tariff Structure and Design	Generic, single part, levelled tariff.
Merit Order Despatch Principle	All renewable energy projects are treated as 'Must Run' power plants.
Subsidy or/and incentives by government	Not available
Rebate	Not available
Late payment surcharge	Not available
Links	http://www.karnataka.gov.in/kercc/Pages/Generic%20Tariff%20Orders.aspx
References	http://www.karnataka.gov.in/kerccold/Downloads/COURT-ORDERS-2016/TARIFF_FY-17/Solar_Tariff_2016/Solar_Rooftop_Photovoltaic_Tariff-ORDER-dated-02.05.2016.pdf http://kredlinfo.in/solargrid/Determination_of_tariff_for_Grid_Interactive_Megawatt_scale_Solar_Power_Plants.pdf http://www.karnataka.gov.in/kerccold/Downloads/COURT-ORDERS-2015/ORDER-Revised_Wind_Tariff_Order-%2024.02.2015.pdf http://www.karnataka.gov.in/kerccold/Downloads/COURT-ORDERS-2015/FinalREOrder1.1.2015.pdf

Provisions for Gross Metering/Net Metering

Installed Capacity	<ul style="list-style-type: none"> • Not less than 1 kw and not more than 1 MW shall be allowed subject to further limit based on the sanctioned load of the consumer's installation. - Cumulative capacity of SRTPV plants should not exceed total capacity of the state
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Implementation and Reporting Procedure	<ul style="list-style-type: none"> • Upon receiving approval from distribution licensee the eligible consumer shall enter into a PPA with the distribution licensee within 15 days from receipt of the approval subject to further approval from the commission. • If eligible consumer fails to commission SRTPV plant within 6 months of the approval of PPA the applicable tariff for the SRTPV shall be agreed tariff or any revised tariff or APPC prevailing on date of commissioning, whichever is lower. 								
Interconnection Clauses	<ul style="list-style-type: none"> • Connectivity level for SRTPV plants for connecting to the distribution network shall be as follows – <table border="1" data-bbox="360 421 1697 596"> <thead> <tr> <th data-bbox="360 421 1025 464">Installed Capacity</th> <th data-bbox="1032 421 1697 464">Voltage Level</th> </tr> </thead> <tbody> <tr> <td data-bbox="360 469 1025 512">Upto 5 Kw</td> <td data-bbox="1032 469 1697 512">230V - single phase</td> </tr> <tr> <td data-bbox="360 517 1025 560">Above 5 Kw and up to 50 Kw</td> <td data-bbox="1032 517 1697 560">400V - three phase</td> </tr> <tr> <td data-bbox="360 564 1025 596">Above 50 Kw and up to 1000 Kw</td> <td data-bbox="1032 564 1697 596">11 Kv HT</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Connectivity norms are applicable for all type of consumers. • EHT/HT consumers may install system at LT/HT voltage. • In case of gross metering exclusive line shall be laid from SRTPV to distribution system. • The cost of distribution network up to the interconnection point shall be borne by the consumer. 	Installed Capacity	Voltage Level	Upto 5 Kw	230V - single phase	Above 5 Kw and up to 50 Kw	400V - three phase	Above 50 Kw and up to 1000 Kw	11 Kv HT
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Upto 5 Kw	230V - single phase								
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Capacity Limit for Distribution Transformer	<ul style="list-style-type: none"> • Total capacity of the existing and proposed SRTPV plants below 50 Kw capacity connected to the existing distribution transformer through which electricity is supplied to the consumer shall not exceed 65% of rated capacity. • Total line current of the existing and proposed SRTPV plants above 50 Kw connected to the existing 11 Kv distribution system shall not exceed 65% of the rated carrying current capacity of that line. 								
Safety Aspect	<ul style="list-style-type: none"> • Eligible consumer will be responsible for safe operation, maintenance and rectification of defects of SRTPV system up to interconnection point • Distribution licensee will be responsible for safe operation, maintenance and rectification of defects in the distribution system beyond distribution line 								
Metering System	<ul style="list-style-type: none"> • As per standards set by CEA (Installation and Operation of meters) Regulations, 2006 • For gross metering, bi-directional meter shall be installed at the interconnection point with the distribution network. • For net metering, the existing consumer meter shall be replaced with the bi-directional meter having the facility of downloading meter reading using meter reading instruments (MRI) and the cost of new or additional meter shall be borne by the consumer and installed by the distribution licensee. 								

Energy Accounting and Settlement	<ul style="list-style-type: none"> • Meter reading shall be taken monthly basis or as per billing cycle specified in the electricity supply code. • The licensee shall show electricity exported by the consumer during a period for gross metering. • In case of gross metering, if any import of energy is measured, the same shall be billed at the rate which is higher of the (i) tariff agreed to in the PPA (ii) prevailing retail supply tariff applicable to the category of the installation of the eligible consumer. • In case of net metering the licensee shall show in the bill separately the quantum of electricity injected by the eligible consumer, quantum of electricity supplied by the licensee to the consumer and the net electricity billed for payment by the consumer during the given billing period provided that <ul style="list-style-type: none"> - excess electricity injected to the distribution network shall be paid by the distribution licensee as per tariff agreed in the PPA. - excess electricity supplied to the consumer's system by the distribution licensee shall be billed by the distribution licensee as net electricity consumption by the consumer at the tariff applicable to such consumer.
PPA	<ul style="list-style-type: none"> • PPAs for plants with below 500 Kw installed capacity shall be deemed to be approved by the commission on the date of its execution by the parties • Approval for PPAs signed for plants with capacity 500 Kw and above shall be sought from the commission by the distribution licensee within seven days from the date of signing the PPA.
Reference	http://www.karnataka.gov.in/kerc/Regulations/Draft%20Regulations/Implementation_of_SRPTV.pdf

- Karnataka does not have technology wise regulations. Data from different orders has been compiled in this summary