

**KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM**

PUBLIC NOTICE

No.1/1/KSERC-2006/XV

July 8, 2010

Sub: Draft Notification - Tariff applicable for roof top/small solar generating systems for purchase of electricity by Distribution utilities in the State.

Pursuant to provisions of the KSERC (Power procurement from Renewable Sources by Distribution Licensee) Regulations, 2006, Commission determines tariff applicable for roof top / small solar generating systems for purchase of electricity by Distribution licensees in the State of Kerala.

Commission invites comments / suggestions from stakeholders on this draft notification latest by 21.7.10 This draft notification is available on the Commissions website www.erckerala.org and can be down loaded. The Commission would take a view and decide on the matter after considering the suggestions of stakeholders.

- (1) The Government of India has approved a new policy on development of solar energy in the country by launching of the Jawaharlal Nehru National Solar Mission. This Mission is one of the eight key National Missions which comprise India's National Action Plan on Climate Change. It has a twin objective – to contribute to India's long term energy security as well as its ecological security. The Solar Mission recommends the implementation in 3 stages leading up to an installed capacity of 20,000 MW by the end of the 13 thFive Year Plan in 2022. It is envisaged that as a result of rapid scale up as well as technological developments, the price of solar power will attain parity with grid power at the end of the Mission, enabling accelerated and large-scale expansion thereafter. The Mission will adopt a 3-phase approach, spanning the remaining period of the 11th

Plan and first year of the 12th Plan (up to 2012-13) as Phase 1, the remaining 4 years of the 12th Plan (2013-17) as Phase 2 and the 13th Plan (2017-22) as Phase 3.

- (2) As per the above Policy, the solar power purchase obligation for States may start with 0.25% in the phase I and to go up to 3% by 2022. This could be complemented with a solar specific Renewable Energy Certificate (REC) mechanism to allow utilities and solar power generation companies to buy and sell certificates to meet their solar power purchase obligations.
- (3) The mission also encourages rooftop solar PV and other small solar power plants, connected to LT/11 KV grid, to replace conventional power and diesel based generators. The distribution utility will pay the tariff determined by the State Electricity Regulatory Commission for the metered electricity generated from such applications (whether consumed by the grid connected owner of the rooftop/ground mounted installation or fed into the grid). Under the Solar Mission, a normative Generation Based Incentive will be payable to the utility and would be derived as the difference between the solar tariff determined by the Central Electricity Regulatory Commission for the concerned solar generation technology less an assumed base price of Rs. 5.50/kWh with 3% annual escalation. Funds will be disbursed through Indian Renewable Energy Development Agency (IREDA), a PSU under MNRE.
- 4) Roof top PV and other small Solar Power Plants scheme is presently applicable to the projects with installed capacity up to 3MW having grid connectivity at HT level (below 33 kV) of the distribution network. Once the Central Electricity Authority (CEA) finalize the standards for interfacing of small solar generators with LT distribution network, this scheme will be extended to solar generators connected at LT level. The local distribution utility in whose area the plant is located, would sign a Power Purchase

Agreement (PPA) with the Project Proponent at a tariff determined by the State Electricity Regulatory Commission (SERC). Generation Based Incentive (GBI) will be payable to the distribution utility for power purchased from solar power project selected under these guidelines. The GBI shall be equal to the difference between the tariff determined by the Central Electricity Regulatory Commission (CERC) and the Base Rate, which will be Rs 5.50 per kWh in the first fiscal year of commissioning to be escalated by 3% every year.

- 5) The MNRE's draft guidelines for Rooftop PV and other small Solar Power Plants connected to distribution network (below 33 kV) under Jawaharlal Nehru National Solar Mission specified that the Solar project schemes from States wherein Tariff tenure for duration of 25 years with tariff structure on levelled basis has been determined by SERCs shall alone be considered to be eligible to participate in this Programme.

Commission proposes the following tariffs considering norms proposed by CERC as per Annexure -I and Annexure -II for levelised tariff for 25 years for Solar PV Power Projects and Solar Thermal Power Projects.

Based on these norms the levelised tariff for 25 years is suggested as

Sl No	Type of Plant	Levelised Tariff (Rs/kWh)
1)	Solar PV Power Projects	17.91
2)	Solar Thermal Power Plant	16.31

Sd/-
Member (F)

Sd/-
Member (E)

Sd/-
CHAIRMAN

Approved for issue

Secretary

Form Template for (Solar PV Power Projects) Parameters Assumptions

Sl. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumption
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity Capacity Utilization Factor Deration Factor Useful Life	MW % % Years	1 19.0% 0.0% 25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	1690
3	Financial Assumptions	<u>Debt: Equity</u>	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs. Lacs	1183
			Total Equity Amount	Rs. Lacs	507
		<u>Debt Component</u>	Loan Amount	Rs Lacs	1183.00
			Moratorium Period	years	0
			Repayment Period (include Moratorium)	years	10
			Interest Rate	%	13.39%
		<u>Equity Component</u>	Equity Amount	Rs Lacs	507.00
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10
			Return on Equity 11 th year onwards	% p.a.	24.00%
			Weighted average of ROE		22.00%
			Discount Rate		15.97%
4	Financial Assumptions	<u>Economic Assumptions</u>	Coal Price Escalation HSD Price Escalation Discount Rate	% p.a. % p.a. % p.a.	0% 0% 16%
		<u>Fiscal Assumptions</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.99% 16.995% Yes
		<u>Depreciation</u>	Depreciation Rate for first 10 years Depreciation Rate 11 th year onwards Years for 7% rate	% % %	7.00% 1.33% 10
5	Working Capital	<u>For Fixed charges</u> O&M Charges Maintenance Sapre Receivable for Debtors <u>For Variable Charges</u> Interest on Working Capital	(% of O&M expenses)	Months Months %	1 2 12.89%
7	Operation & Maintenance	Power Plan (FY 10-11) <u>Total O&M Expenses</u> <u>Escalation</u>			9.5148% 5.72%

Form Template for (Solar Thermal Power Projects) Parameters Assumptions

Sl. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumption
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity Capacity Utilization Factor Auxiliary Consumption Factor Useful Life	MW % % Years	1 23.0% 10.0% 25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	1530
3	Financial Assumptions	<u>Debt: Equity</u>	Tariff Period Debt Equity Total Debt Amount Total Equity Amount	Years % % Rs. Lacs Rs. Lacs	25 70% 30% 1071 459
		<u>Debt Component</u>	Loan Amount Moratorium Period Repayment Period (include Moratorium) Interest Rate	Rs Lacs years years %	1071 0 10 13.39%
		<u>Equity Component</u>	Equity Amount Return on Equity for first 10 years RoE Period Return on Equity 11 th year onwards Weighted average of ROE	Rs Lacs % p.a Year % p.a.	459.00 19.00% 10 24.00% 22.00%
			Discount Rate		15.97%
4	Financial Assumptions	<u>Economic Assumptions</u>	Coal Price Escalation HSD Price Escalation Discount Rate	% p.a. % p.a. % p.a.	0% 0% 16%
		<u>Fiscal Assumptions</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.99% 16.995% Yes
		<u>Depreciation</u>	Depreciation Rate for first 10 years Depreciation Rate 11 th year onwards Years for 7% rate	% % %	7.00% 1.33% 10
5	Working Capital	<u>For Fixed charges</u> O&M Charges Maintenance Sapre Receivable for Debtors <u>For Variable Charges</u> Interest on Working Capital	(% of O&M expenses)	Months Months %	1 15% 2 12.89%
7	Operation & Maintenance	Power Plan (FY 10-11) <u>Total O&M Expenses</u> <u>Escalation</u>			13.74% 5.72%