

# SIKKIM STATE ELECTRICITY REGULATORY COMMISSION

## (Terms and Conditions for Determination of Tariff for Generation from Renewable Energy Sources) Regulations, 2012, Dated: 28-06-2012

Sl. No.	Description	Summary		
1.	<b>Control Period</b>	3-Years w.e.f. 28-06-2012		
2.	<b>Tariff period</b>	<b>Sr. No.</b>	<b>RE Technology</b>	<b>Tariff Period (in Years)</b>
		1.	Small Hydro below 5 MW	35
		2.	Solar PV/Solar thermal	25
		3.	Biomass, Biomass Gasifier and Boigas	20
		The Tariff Period for other (Mentioned above) Renewable Energy power projects based power projects shall be for a minimum period of thirteen (13) years.		
3.	<b>Tariff Structure</b>	<p>1. The tariff for renewable energy technologies shall be single-part tariff (in Rs./kWh) and ex-bus consisting of the following fixed cost components;</p> <ul style="list-style-type: none"> <li>(a) Operation and maintenance expenses;</li> <li>(b) Depreciation;</li> <li>(c) Interest on loan capital;</li> <li>(d) Interest on working capital;</li> <li>(e) Return on equity;</li> </ul> <p>2. For RE technologies having fuel cost component, like biomass power projects and non-fossil fuel based co-generation projects, single-part tariff with two components, viz., fixed cost component and fuel cost component, shall be determined.</p>		
4.	<b>Tariff Design</b>	<p>1. The generic tariff shall be determined on levellised basis for the Tariff Period.</p> <p>2. Levellisation shall be carried out for the 'useful life' of the Renewable Energy Project, while tariff shall be specified for the period equivalent to 'Tariff Period'.</p>		
5.	<b>Discount Factor for Levellised Tariff</b>	The discount factor equivalent to normative weighted average cost of capital shall be considered.		
6.	<b>Despatch Principles</b>	<p>1. All renewable energy power plants except for biomass power plants with installed capacity of 10 MW and above, shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles.</p> <p>2. The biomass power generating station with an installed capacity of 10 MW and above shall be subjected to scheduling and despatch as specified under the State Grid Code Regulations.</p> <p>3. Wind Power generation plants where the sum of generation capacity of such plants connected at the connection point to the transmission or distribution system is 10 MW and above and connection point is 33 kV and above shall be subjected to scheduling and despatch.</p>		

		4. Solar generating points with capacity of 5 MW and above and connected at the connection point at 33 kV level and above shall be subjected to scheduling and dispatch as specified under the State Grid Code Regulations.		
7.	<b>Capital Cost</b>	<b>Sr. No.</b>	<b>RE Technology</b>	<b>Capital Cost (in Rs. Lakh/MW)</b>
		1.	Wind Energy Projects	575.00
		2.	Small Hydro Projects	
			Below 5 MW	770.00
			5 MW to 25 MW	700.00
		3.	Biomass Power projects	445.00
		4.	Non-Fossil fuel base Cogeneration Projects	420.00
		5.	Solar PV Power Projects	1000.00
		6.	Solar Thermal Power Projects	1300.00
7.	Biomass Gasifier power projects	550.00		
8.	Biogas based Power projects	1100.00		
8.	<b>Debt Equity Ratio</b>	70:30 If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.		
9.	<b>Loan and Finance Charges</b>	12 – Years For the purpose of computation of tariff, the normative interest rate shall be considered as average State Bank Advance Rate (SBAR) prevalent during the previous year plus 150 basis points.		
10.	<b>Depreciation</b>	1. The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the asset. 2. The depreciation rate for the first 12 years of the Tariff Period shall be 5.83% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 13 <sup>th</sup> year onwards.		
11.	<b>Return on Equity</b>	1. The value base for the equity shall be 30% of the capital cost. 2. The normative Return on Equity shall be: (a) Pre-tax 20% per annum for the first 10 years. (b) Pre-tax 24% per annum 11th year onwards.		
12.	<b>Interest on Working Capital</b>	Interest on Working Capital shall be at interest rate equivalent to average State Bank of India Base Rate prevalent during the first six months of previous year plus 350 basis points.		
13.	<b>Operation and Maintenance Expenses</b>	Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2012-13) under these regulations shall be escalated at the rate of 5.72% per annum to determine the O&M expenses for different years of the Tariff Period.		
		<b>Sr. No.</b>	<b>RE Technology</b>	<b>O &amp; M Expenses (in Rs Lakh / MW)</b>
		1.	Wind Energy Projects	9.00
	2.	Small Hydro Projects		

			Below 5 MW	25.00
			5 MW to 25 MW	18.00
		3.	Biomass Power Projects	24.00
		4.	Non-Fossil fuel base Cogeneration Projects	16.00
		5.	Solar PV Power Projects	11.00
		6.	Solar Thermal Power Projects	15.00
		7.	Biomass Gasifier power projects	40.00
		8.	Biogas based Power projects	40.00
14.	<b>Rebate</b>	<p>1. For payment of bills of the generating company through letter of credit, a rebate of 2% shall be allowed.</p> <p>2. Where payments are made other than through letter of credit within a period of one month of presentation of bills by the generating company, a rebate of 1% shall be allowed.</p>		
15.	<b>Late Payment Surcharge</b>	In case the payment of any bill for charges payable under these regulations is delayed beyond a period of 60 (sixty) days from the date of billing, a late payment surcharge at the rate of 1.25% per month shall be levied by the generating company.		
16.	<b>Sharing of CDM Benefits</b>	<p>1. 100% of the gross proceeds on account of CDM benefit to be retained by the project developer in the first year after the date of commercial operation of the generating station;</p> <p>2. In the second year, the share of the beneficiaries shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion, by the generating company and the beneficiaries.</p>		
17.	<b>Subsidy or Incentive by the Central/State Government</b>	The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations.		
18.	<b>Taxes and Duties</b>	The taxes and duties levied by the Government on generation and sale of electricity from renewable energy project shall be allowed as pass through on actual incurred basis.		
19.	<b>Capacity Utilisation Factor / Power Load Factor</b>	<b>Sr. No.</b>	<b>RE Technology</b>	<b>CUF / PLF</b>
		1.	Wind Energy Projects (Annual Mean Wind Power Density Watt / M <sup>2</sup> )	
			Upto 200	20 %
			201 – 250	22 %
			251 – 300	25 %
			301 – 400	30 %
			> 400	32 %
		2.	Small Hydro Projects	45%
		3.	Biomass Power Projects	
			During stabilization)	60 %
During the remaining period of the first year (after stabilization)	70 %			
From 2 <sup>nd</sup> Year onwards	80 %			

		4.	Non-Fossil fuel base Cogeneration Projects	
			120 days (crushing)+ 60 days (off-season) = 180 days operating days	45 %
			180 days (crushing)+ 60 days (off-season) = 240 days operating days	60 %
		5.	Solar PV Power Projects	19 %
		6.	Solar Thermal Power Projects	23 %
		7.	Biomass Gasifier power projects	85 %
		8.	Biogas based Power projects	90 %
<b>20.</b>	<b>Auxiliary consumption</b>	<b>Sr. No.</b>	<b>RE Technology</b>	<b>Auxiliary consumption</b>
		1.	Small Hydro projects	1.0 %
		2.	Biomass Power projects	10 %
		3.	Non-Fossil fuel base Cogeneration Projects	8.5 %
		4.	Solar Thermal Power Projects	10 %
		5.	Biomass Gasifier power projects	10 %
		6.	Biogas based Power projects	12 %
<b>21.</b>	<b>Fuel</b>	<b>Sr.</b>	<b>RE Technology</b>	<b>Quantity</b>
		1.	<b>Biomass power projects</b>	
			Station heat rate	4000 kcal/kWh
			Calorific Value	3300 kcal/kg
			Fuel Cost	2476 Rs./MT with 5 % Escalation rate
		2.	<b>Non-Fossil fuel base Cogeneration Projects</b>	
			Station heat rate	3600 kcal/kWh
			Calorific Value	2250 kcal/kg
			Fuel Cost	1583 / MT
		3.	<b>Biomass Gasifier power projects</b>	
			Specific Fuel Consumption	1.25 kg per kWh
			Fuel Cost	2476 Rs./MT with 5 % Escalation rate
		4.	<b>Biogas based Power projects</b>	
			Specific Fuel Consumption	3 kg per kWh
			Fuel Cost	990/MT