

# NAGALAND ELECTRICITY REGULATORY COMMISSION

(Terms and Conditions for Determination of Generation Tariff for Renewable Energy)  
Regulations, 2011, dated: 30.08.2011 with amendment dated: 04.10.2016

Sl. No.	Description	Summary												
1.	<b>Eligibility Criteria</b>	For the purposes of these regulations, generation from all types of Renewable Energy Sources and non-fossil fuel based Co-generating Plants, as approved by Ministry of New and Renewable Energy (MNRE), Government of India. shall be considered.												
2.	<b>Open Excess</b>	<ol style="list-style-type: none"> <li>Open access in State Transmission/Distribution System shall be allowed to all RE based Generating stations and Co-generating Stations for captive use, which shall be subject to provisions of these regulations.</li> <li>Open access to State distribution system shall be subject to payment of wheeling charges and adjustment of average distribution losses in kind as determined by the Commission.</li> </ol>												
3.	<b>Control Period/Review Period</b>	3-years (starting from the date of commencement)												
4.	<b>Tariff Period</b>	<table border="1"> <thead> <tr> <th>Sl No.</th> <th>Technology</th> <th>Tariff Period (in Years)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>hydro projects below 5 MW and Mini/Micro Hydro projects</td> <td>35</td> </tr> <tr> <td>2.</td> <td>Solar PV, Solar thermal power projects, Solar rooftop PV and other small Solar power projects</td> <td>25</td> </tr> <tr> <td>3.</td> <td>Biomass, Biogas, MSW</td> <td>13</td> </tr> </tbody> </table>	Sl No.	Technology	Tariff Period (in Years)	1.	hydro projects below 5 MW and Mini/Micro Hydro projects	35	2.	Solar PV, Solar thermal power projects, Solar rooftop PV and other small Solar power projects	25	3.	Biomass, Biogas, MSW	13
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5.	<b>Tariff Structure</b>	<ol style="list-style-type: none"> <li>The tariff for renewable energy technologies shall be single-part tariff consisting of the following fixed cost components: <ol style="list-style-type: none"> <li>Operation and maintenance expenses;</li> <li>Depreciation;</li> <li>Interest on loan capital;</li> <li>Interest on working capital;</li> <li>Return on equity;</li> </ol> </li> <li>Renewable energy 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.</li> </ol>												
6.	<b>Tariff Design</b>	<ol style="list-style-type: none"> <li>The tariff shall be determined on levelised basis for the Tariff Period.</li> <li>Levelisation 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'.</li> </ol>												
7.	<b>Despatch Principals</b>	<ol style="list-style-type: none"> <li>All renewable energy power plants except for biomass power plants with installed capacity of 10 MW and above and non-fossil fuel based co-generation plants shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles.</li> <li>The biomass power generating station with an installed capacity of 10 MW and above and non-fossil fuel based co-generation projects shall be subjected to scheduling.</li> </ol>												
8.	<b>Capital Cost</b>	Capital Cost shall be inclusive of all capital works including plant and machinery, civil works, erection and commissioning, financing costs, preliminary and pre-operative expenses, and interest during construction, and evacuation infrastructure up to inter-connection point.												

		Sl. No	Renewable Energy Source	Project Size	Capital Cost (Rs. Lakh/MW)
		1.	Wind Energy	-	467/
		2.	Small Hydro Project	Below 5 MW	635
				5 MW to 25 MW	571
		3.	Biomass Rankine Cycle Projects	using water cooled condenser	403
		4.	Non-fossil fuel based Cogeneration Projects	-	398
		5.	Solar PV Power Project	-	787.21
		6.	Solar Thermal Power Project	-	1530
9.	<b>Land Cost for Solar PV</b>	<ul style="list-style-type: none"> <li>Commission considered the land requirement to 5 acres / MW which is in line with the guidelines for selection of solar projects under JNNSM.</li> <li>To avoid cost of transmission system, developer may prefer to acquire land close to grid sub-station. Commission considered the cost of land at Rs. 25 lakhs / MW at an estimated cost of Rs. 5 lakh / acre.</li> <li>Commission considered cost towards civil and general works at Rs. 126 lakh / MW i.e. 40% hike of the NERC's Regulations, 2011 rate considering with the high cost of building materials, equipments &amp; other charges prevailing in the state.</li> </ul>			
10.	<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.			
11.	<b>Interest Rate on Loan Capital</b>	<ol style="list-style-type: none"> <li>Normative interest rate shall be considered as average long term prime lending rate (LTPLR) of the State Bank of India (SBI) prevalent during the previous year plus 300 basis points</li> <li>Normative period of loan repayment shall be considered as 10 years.</li> </ol>			
12.	<b>Depreciation</b>	The depreciation rate for the first 12 year 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 13th year onwards.			
13.	<b>Return on Equity</b>	The normative Return on Equity shall be: <ol style="list-style-type: none"> <li>Pre-tax 20% per annum for the 10 years.</li> <li>Pre-tax 24% per annum from 11<sup>th</sup> year onwards.</li> </ol>			
14.	<b>Operation and Maintenance Expenses</b>	Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2010-11) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period.			
		Sl. No	Renewable Energy Source	Project Size	O&M Expense (Rs. Lakh / MW)
		1.	Wind Energy		6.67
		2.	Small Hydro Project	Below 5 MW	22.20
				5 MW to 25 MW	15.86
		3.	Biomass Power Projects based on Rankine Cycle Technology		21.41
		4.	Non-fossil fuel based Cogeneration Projects		14.11
		5.	Solar PV Power Project		9.00
6.	Solar Thermal Power Project		13.00		

15.	<b>Rebate</b>	<ol style="list-style-type: none"> <li>For payment of bills of the generating company through letter of credit, a rebate of 2% shall be allowed.</li> <li>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.</li> </ol>			
16.	<b>Late Payment Surcharge</b>	In case the payment of any bill for charges payable, delayed beyond a period of 60 (sixty) days from the date of billing, at the rate of 1.25% per month shall be levied by the generating company.			
17.	<b>Subsidy or Incentive</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.			
18.	<b>Interest on Working Capital</b>	Interest on working Capital shall be at interest rate equivalent to average State bank short term PLR (SBAR) during the previous year plus 350 basis point.			
19.	<b>Sharing of CDM Benefits</b>	<ol style="list-style-type: none"> <li>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;</li> <li>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.</li> </ol>			
20.	<b>Taxes and Duties</b>	The taxes and duties levied by the appropriate government shall be allowed as pass through on actual incurred basis.			
21.	<b>Capacity Utilisation Factor/Plant Load Factor</b>	<b>Sl. No</b>	<b>Region Renewable Energy Source</b>	<b>Project Size</b>	<b>CUF/PLF</b>
		1.	Wind Power (Density (W/m <sup>2</sup> ))	200-250	20 %
				250-300	23 %
				300-400	27 %
				Above 400	30 %
		2.	Small Hydro Project		30%
		3.	Biomass Power Projects based on Rankine Cycle Technology	During Stabilisation	60%
				During the remaining period of the first year (after stabilization):	70%
				From 2 Year onwards	80%
		4.	Non-fossil fuel based Cogeneration Projects		53%
5.	Solar PV Power Project		19%-21%		
6.	Solar Thermal Power Project		23%		
22.	<b>Auxiliary Consumption</b>	<b>Sl. No</b>	<b>Renewable Energy Source</b>	<b>Auxiliary Consumption</b>	
		1.	Small Hydro Project	1.0%	
		2.	Biomass Power Projects based on Rankine Cycle Technology	10%	

		3.	Non-fossil fuel based Cogeneration Projects	8.5%
		4.	Solar Thermal Power Project	10%
<b>23. Station Heat Rate</b>				
		<b>RE Technology</b>		<b>Quantity</b>
		Biomass based Power Projects		3800 kcal/kWh
		Non-fossil Fuel based Cogeneration Power Projects		3600 kcal/kWh
<b>24. Calorific Value</b>				
		<b>RE Technology</b>		<b>Quantity</b>
		Biomass based Power Projects		3467 kcal/kg
		Non-fossil Fuel based Cogeneration Power Projects		2250 kcal/kg.
<b>25. Fuel Cost</b>				
		<b>RE Technology</b>		<b>Quantity</b>
		Biomass based Power Projects		1855 Rs/MT
		Non-fossil Fuel based Cogeneration Power Projects (Bagasse)		1221 Rs/MT