

# ARUNACHAL PRADESH STATE ELECTRICITY REGULATORY COMMISSION

## (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2018, Dated: 21-05-2018

Sl. No.	Description	Summary															
1.	<b>Control Period or Review Period</b>	3- Yrs of which the first year shall be the financial year 2018-19.															
2.	<b>Tariff Period/Useful Life</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Sl. No.</th> <th style="text-align: center;">RE Technology</th> <th style="text-align: center;">Useful Life (in Years)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>Small Hydro Plant</td> <td style="text-align: center;">35</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Solar PV Power Project</td> <td style="text-align: center;">25</td> </tr> <tr> <td style="text-align: center;">3.</td> <td>Wind Power Project</td> <td style="text-align: center;">25</td> </tr> <tr> <td style="text-align: center;">4.</td> <td>Fuel (RDF) based Power Projects</td> <td style="text-align: center;">20</td> </tr> </tbody> </table>	Sl. No.	RE Technology	Useful Life (in Years)	1.	Small Hydro Plant	35	2.	Solar PV Power Project	25	3.	Wind Power Project	25	4.	Fuel (RDF) based Power Projects	20
Sl. No.	RE Technology	Useful Life (in Years)															
1.	Small Hydro Plant	35															
2.	Solar PV Power Project	25															
3.	Wind Power Project	25															
4.	Fuel (RDF) based Power Projects	20															
3.	<b>Project Specific tariff</b>	<ol style="list-style-type: none"> <li>1. Small Hydro Project (1 MW and above upto 25 MW) ;</li> <li>2. The renewable energy projects which have been commissioned before the 31st March, 2017 but for which no power purchase agreement has been signed till the 31st March 2017, for such Project Tariff shall be determined on annual basis.</li> <li>3. Solar PV</li> <li>4. Wind Energy</li> <li>5. Municipal Solid Waste and Refuse Derived Fuel based projects with Rankine cycle technology;</li> <li>6. Other hybrid projects include renewable–renewable or renewable– conventional sources, for which renewable technology is approved by MNRE</li> <li>7. Any other new renewable energy technologies approved by MNRE.</li> </ol>															
4.	<b>Tariff Structure</b>	<p>The tariff for renewable energy technologies shall be single part tariff consisting of the following fixed cost components:</p> <ol style="list-style-type: none"> <li>a) Return on equity;</li> <li>b) Interest on loan capital</li> <li>c) Depreciation;</li> <li>d) Interest on working capital;</li> <li>e) Operation and maintenance expenses ;</li> </ol> <p>RE technologies having fuel cost component, like Municipal solid waste (MSW) and Refuse Derived Fuel (RDF) based power projects single part tariff with two components, fixed cost component and fuel cost component, shall be determined.</p>															
5.	<b>Tariff Design</b>	<ol style="list-style-type: none"> <li>1. The generic tariff shall be determined considering the year of commissioning of the project, on levellised basis for the Tariff Period.</li> <li>2. Levellisation shall be carried out for the 'useful life' of the Renewable Energy project.</li> </ol>															
6.	<b>Discount Factor for Levellised Tariff</b>	Discount factor equivalent to Post Tax weighted average cost of capital shall be considered.															
7.	<b>Capital Cost</b>	Capital cost shall be inclusive of all capital work including plant and machinery, civil work, hydro mechanical work, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point.															

		Sl. No.	RE Technology	Project Size	Capital Cost (in Lakh/MW)
		1.	Small Hydro Project	Below 500 MW	1400
				5 MW-25MW	1200
		2.	Wind Energy		based on prevailing market trends
		3.	Solar PV Power Project		based on prevailing market trends
		4.	Municipal Solid Waste/Refuse Derived Fuel and Based On Rankine Cycle Technology		based on prevailing market trends
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>	Loan Tenure-13Years For the purpose of computation of tariff, normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months shall be considered.			
10.	<b>Depreciation</b>	Depreciation rate of 5.28% per annum for first 13 years and remaining depreciation to be spread during remaining useful life of the RE projects considering the salvage value of the project as 10% of project cost shall be considered.			
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 14%, to be grossed up by prevailing Minimum Alternate Tax (MAT) as on 1stApril of previous year for the entire useful life of the project.			
12.	<b>Interest on Working Capital</b>	Interest on Working Capital shall be at interest rate equivalent to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months for the determination of tariff.			
13.	<b>Operation and Maintenance Expenses</b>	Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2018-19) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period.			
		Sl. No.	RE Technology	Project Size	O&M Expenses (in Lakh/MW)
		1.	Small Hydro Projects	Below 500 MW	38.06
				5 MW-25MW	28.54
		2.	Wind Energy		based on the prevailing market information.
		3.	Solar PV Power Project		based on prevailing market trends
		4.	Municipal Solid Waste/Refuse Derived Fuel and Based On Rankine Cycle Technology		based on prevailing market trends
14.	<b>Rebate</b>	For payment of bills of the generating company through letter of credit, a rebate of 2% shall be allowed. 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.			

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 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>	<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>				
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>Auxiliary Consumption</b>	Sl. No.	RE Technology		Auxiliary Consumption	
		1.	Small Hydro Projects		1.0%	
		2.	Solar PV Power project		0.25%	
		3.	Municipal Solid Waste/Refuse Derived Fuel and Based On Rankine Cycle Technology		15%	
19.	<b>Capacity Utilisation Factor/Plant Load Factor</b>	Sl. No.	RE Technology		CUF/PLF	
		1.	Small Hydro Projects		45%	
		2.	Wind Energy			
			Annual Mean Wind Power Density (W/m <sup>2</sup> )			
			Up to 220		22%	
			221-275		24%	
			276-330		28%	
			331-440		33%	
		> 440		35%		
		3.	Solar PV Power Projects		19%	
		4.	Municipal Solid Waste/Refuse Derived Fuel and Based On Rankine Cycle Technology			
					MSW	RDF
			During Stabilisation		65%	65%
			During the remaining Period of the 1 <sup>st</sup> year (after stabilisation)		65%	65%
From 2 <sup>nd</sup> year onwards		75%	80%			
20.	<b>Fuel</b>	Municipal Solid Waste/Refuse Derived Fuel and Based On Rankine Cycle Technology				
		Station Heat Rate		4200 kcal/kWh		
		Calorific Value		2500 kcal/kg.		
		Fuel Cost		1,800/MT		