

# CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION

**(Terms and conditions for determination of generation tariff and related matters for electricity generated by plants based on renewable energy sources) Regulations, 2019, dated: 29.11.2019**

Sl. No.	Description	Summary														
1.	<b>Control Period</b>	3- Years The tariff norms as per these Regulations shall continue to remain in force until notification of the revised Regulations subject to adjustments as per revised Regulations.														
2.	<b>Applicability</b>	<p><b>New Projects:</b></p> <ul style="list-style-type: none"> <li>These Regulations shall apply to the Renewable Energy projects, achieving COD from April 01, 2019 to March 31, 2022 (herein after referred to as "RE projects"), located in the State and supplying entire power to distribution licensee(s) of the State on long term basis.</li> </ul> <p><b>Existing Projects:</b></p> <ul style="list-style-type: none"> <li>For existing biomass projects, which have achieved COD before April 01, 2012 and have long term PPA with distribution licensee for 20 years or more, the applicable tariff i.e., fixed charges, shall be governed by the Commission's order in Petition No 22 of 2011(T) and energy charges will be determined as per provisions in these regulations.</li> <li>Existing RE projects having long term PPA with distribution licensee of 20 years or more, which have achieved COD between April01, 2012 to March31, 2017, applicable tariff (fixed charges) shall be governed by respective Tariff Orders as issued from time to time by the Commission for the duration of the Tariff Period whereas energy charges will be determined as per provisions in these regulations.</li> </ul>														
3.	<b>Useful Life/Tariff Period</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">RE Project</th> <th style="text-align: center;">Useful Life/Tariff Period</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Wind energy power project</td> <td style="text-align: center;">25 Years</td> </tr> <tr> <td style="text-align: center;">Small Hydro Plant</td> <td style="text-align: center;">35 Years</td> </tr> <tr> <td style="text-align: center;">Biomass power project</td> <td style="text-align: center;">20 Years</td> </tr> <tr> <td style="text-align: center;">Non-fossil fuel cogeneration</td> <td style="text-align: center;">20 Years</td> </tr> <tr> <td style="text-align: center;">Solar PV/Solar thermal power plants</td> <td style="text-align: center;">25 Years</td> </tr> <tr> <td style="text-align: center;">MSW and RDF based power project</td> <td style="text-align: center;">20 Years</td> </tr> </tbody> </table>	RE Project	Useful Life/Tariff Period	Wind energy power project	25 Years	Small Hydro Plant	35 Years	Biomass power project	20 Years	Non-fossil fuel cogeneration	20 Years	Solar PV/Solar thermal power plants	25 Years	MSW and RDF based power project	20 Years
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4.	<b>Generic Tariff</b>	<ul style="list-style-type: none"> <li>The Commission shall determine the generic preferential tariff in case of Small Hydro, Solar PV and Co-generation power projects, at the beginning of each year of the Control period.</li> <li>In case of delay in determination of generic tariff, the CERC tariff for the respective year shall be the provisional tariff. The difference will be adjusted accordingly.</li> </ul>														
5.	<b>Project Specific Tariff</b>	<ul style="list-style-type: none"> <li>Project-specific tariff for Hydro power plants above 25 MW capacity, shall be in accordance with CSERC MYT Regulations.</li> <li>In case of biomass projects/co-generation and other projects having fuel cost component, rate of infirm power shall be equal to energy (variable) charges. For other projects which do not have fuel cost component, rate of infirm power shall be equal to the statutory charges such as water charges, duty and cess actually paid to State Government. Such infirm power shall qualify for renewable purchase obligations requirement of the licensee.</li> </ul>														
6.	<b>Tariff Design</b>	<ul style="list-style-type: none"> <li>For the purpose of levellised tariff computation, the discount factor equivalent to Post Tax weighted average cost of capital shall be considered.</li> <li>Levelling shall be carried out for the 'useful life' of the renewable energy project.</li> <li>For existing RE plants and plants for which project specific tariff has been determined, no levelling of tariff will be carried out and tariff will be specified for five years.</li> <li>In case of solar, wind and small hydro projects which are nature dependent, any excess generation over and above normative CUF/PLF on annualized basis or the energy specified in the PPA, as the case may be, shall be purchased at 75% of the applicable tariff.</li> </ul>														

7.	<b>Dispatch Principles for electricity generation from Renewable Energy Sources</b>	<ul style="list-style-type: none"> <li>All renewable energy power plants shall be treated as “MUST RUN” power plants and shall not be subjected to “merit order despatch” principles.</li> <li>Notwithstanding anything contained in any regulation framed under the Electricity Act 2003, all renewable energy power plants except biomass power generating station and non-fossil fuel based co-generation projects shall not be subjected to scheduling and deviation settlement.</li> <li>In case of supply of power to multiple beneficiaries within the State, scheduling and deviation settlement shall be applicable.</li> </ul>																																
8.	<b>Capital Cost</b>	<table border="1" data-bbox="563 344 1465 857"> <thead> <tr> <th data-bbox="563 344 660 383">Sl. No.</th> <th data-bbox="660 344 1098 383">RE Project</th> <th data-bbox="1098 344 1465 383">Capital Cost (in Lakh/MW)</th> </tr> </thead> <tbody> <tr> <td data-bbox="563 383 660 427">1.</td> <td data-bbox="660 383 1098 427">Wind energy power project</td> <td data-bbox="1098 383 1465 427">52.5</td> </tr> <tr> <td data-bbox="563 427 660 546" rowspan="3">2.</td> <td data-bbox="660 427 1098 465">Small Hydro Plant</td> <td data-bbox="1098 427 1465 465"></td> </tr> <tr> <td data-bbox="660 465 1098 504">up to 5 MW</td> <td data-bbox="1098 465 1465 504">880</td> </tr> <tr> <td data-bbox="660 504 1098 546">above 5 MW to 25 MW</td> <td data-bbox="1098 504 1465 546">800</td> </tr> <tr> <td data-bbox="563 546 660 613">3.</td> <td data-bbox="660 546 1098 613">Biomass power project (Water Cooled Condenser)</td> <td data-bbox="1098 546 1465 613">Prevailing market trends</td> </tr> <tr> <td data-bbox="563 613 660 651">4.</td> <td data-bbox="660 613 1098 651">Non-fossil fuel cogeneration</td> <td data-bbox="1098 613 1465 651">492.5</td> </tr> <tr> <td data-bbox="563 651 660 770" rowspan="3">5.</td> <td data-bbox="660 651 1098 689">Solar PV power plants</td> <td data-bbox="1098 651 1465 689"></td> </tr> <tr> <td data-bbox="660 689 1098 728">0.5 MW to 2 MW</td> <td data-bbox="1098 689 1465 728">450</td> </tr> <tr> <td data-bbox="660 728 1098 770">above 2 MW to 5 MW</td> <td data-bbox="1098 728 1465 770">400</td> </tr> <tr> <td data-bbox="563 770 660 808">6.</td> <td data-bbox="660 770 1098 808">Solar thermal power plants</td> <td data-bbox="1098 770 1465 808">Prevailing market trends</td> </tr> <tr> <td data-bbox="563 808 660 857">7.</td> <td data-bbox="660 808 1098 857">MSW and RDF based power project</td> <td data-bbox="1098 808 1465 857">Prevailing market trends</td> </tr> </tbody> </table> <p data-bbox="563 857 1465 952">The Capital Cost, in case of renewable energy projects except for solar PV plants, for each year of the control period shall be escalated at the rate of 5% per annum for the purpose of determination of generic preferential tariff.</p>	Sl. No.	RE Project	Capital Cost (in Lakh/MW)	1.	Wind energy power project	52.5	2.	Small Hydro Plant		up to 5 MW	880	above 5 MW to 25 MW	800	3.	Biomass power project (Water Cooled Condenser)	Prevailing market trends	4.	Non-fossil fuel cogeneration	492.5	5.	Solar PV power plants		0.5 MW to 2 MW	450	above 2 MW to 5 MW	400	6.	Solar thermal power plants	Prevailing market trends	7.	MSW and RDF based power project	Prevailing market trends
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9.	<b>Debt Equity Ratio</b>	<p data-bbox="563 952 660 990">70:30</p> <ul style="list-style-type: none"> <li>For project specific tariff, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.</li> <li>Where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff.</li> <li>The debt/equity invested in foreign currency shall be denominated/ designated in Indian rupees on the date of each investment.</li> </ul>																																
10.	<b>Loan and Finance Charges</b>	<p data-bbox="563 1160 826 1198">Loan Tenure - 13 Years</p> <ul style="list-style-type: none"> <li>For the purpose of computation of tariff, the 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.</li> <li>For existing biomass plants having power purchase agreement (PPA) with State DISCOM for which the Commission have determined preferential tariff opt for the project specific tariff, loan and finance charges will be considered as specified in the relevant orders.</li> </ul>																																
11.	<b>Depreciation</b>	<ul style="list-style-type: none"> <li>The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission. 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.</li> <li>The depreciation rate for the first 13 years of the Tariff Period shall be 5.28% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 14th year onwards on ‘Straight Line Method’.</li> </ul>																																
12.	<b>Return on Equity</b>	<ul style="list-style-type: none"> <li>The value base for the equity shall be 30% of the capital cost or actual equity (in case of project specific tariff determination) as determined under these Regulations.</li> <li>The normative Return on Equity shall be 16%, to be grossed up by prevailing Minimum Alternate Tax (MAT) as on 1<sup>st</sup> April of previous year for the entire useful life of the project.</li> </ul>																																
13.	<b>Interest on Working Capital</b>	<p data-bbox="563 1816 1465 1937">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.</p>																																
14.	<b>Operation &amp; Maintenance Expenses</b>	<p data-bbox="563 1937 1465 2054">Normative O&amp;M expenses allowed during first year of the control Period (i.e. FY 2019-20) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period.</p>																																

		Sl. No.	RE Project	O & M (in Lakh/MW)
		1.	Wind energy power project	prevailing market trends
		2.	Small Hydro Plant	
			up to 5 MW	32.41
			Above 5 MW up to 10 MW	28.41
			Above 10 MW up to 25 MW	23.47
		3.	Biomass power project (Water Cooled Condenser)	44.70
		4.	Non-fossil fuel cogeneration	23.61
		5.	Solar PV power plants	7.00
		6.	Solar thermal power plants	Prevailing market trends
		7.	MSW and RDF based power project	Prevailing market trends
15.	<b>Rebate</b>	<ul 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> </ul>		
16.	<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.		
17.	<b>Subsidy or incentive by the Central/State Government</b>	<ul style="list-style-type: none"> <li>The Commission shall take into consideration any capital subsidy/incentive/grant 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 project specific tariff under these Regulations.</li> <li>In case any Central Government or State Government notification specifically provides for any Generation based Incentive over and above tariff, the same shall not be factored in while determining Tariff.</li> </ul>		
18.	<b>Cess, Duties and Water charges/statutory charges</b>	<ul style="list-style-type: none"> <li>Tariff determined under these regulations shall be exclusive of cess and duties on generation, auxiliary consumption and sale of electricity as may be levied by the appropriate Government.</li> <li>In case of hydro projects, water charges as levied by the State Government shall not be included in the tariff. It is to be paid separately and shall be pass through on actual incurred basis.</li> </ul>		
19.	<b>Sharing of CDM Benefits</b>	<p>The projects for which the Commission has determined project specific tariff, the proceeds of carbon credit from approved CDM project shall be shared between generating company and concerned beneficiaries in the following manner, namely:</p> <ul 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> </ul>		
20.	<b>Capacity Utilization Factor/Plant Load Factor</b>	Sl. No.	RE Project	PLF/CUF
		1.	Wind energy power project: Annual Mean Wind Power Density (W/M2)	
			Upto 220	22%
			221-275	24%
			276-330	28%
			331-440	33%
			>440	33%
		2.	Small Hydro Plant	30%
		3.	Biomass power project (Water Cooled Condenser)	
			During Stabilisation	60%
	During the remaining period of the first year (after stabilization)	70%		

			From 2 Year onwards	80%
		4.	Non-fossil fuel cogeneration	38%
		5.	Solar PV power plants	19%
		6.	Solar thermal power plants	23%
		7.	MSW and RDF based power project	
			During Stabilisation	65%
			During the remaining period of the first year (after stabilization)	65%
			From 2 Year onwards	MSW - 75% ; RDF – 80%
<b>21.</b>	<b>Auxiliary Consumption</b>	<b>Sl. No.</b>	<b>RE Project</b>	<b>Auxiliary Consumption</b>
		1.	Small Hydro Plant	1.5%
		2.	Biomass power project (Water Cooled Condenser)	10%
		3.	Non-fossil fuel cogeneration	8.5%
		4.	Solar PV power plants	0.25% of gross generation
		5.	Solar thermal power plants	10%
		6.	MSW and RDF based power project	15%
<b>22.</b>	<b>Tariff</b>	<ul style="list-style-type: none"> <li>Tariff for Mini/Micro Hydro Projects shall be higher by Rs 0.50/kWh or such other higher amount as may be stipulated by Commission from time to time over and above the generic tariff applicable for Hydro Projects as decided by the Commission.</li> <li>However this will not be applicable for the developers/licensee opts for project specific tariff and on canal based projects.</li> </ul>		
<b>23.</b>	<b>Station Heat Rate</b>	<b>Sl. No.</b>	<b>RE Project</b>	<b>SHR (in kcal/kWh)</b>
		1.	Biomass power project (Water Cooled Condenser)	4000
		2.	Non-fossil fuel cogeneration	3600
		3.	MSW and RDF based power project	4200
<b>24.</b>	<b>Fuel Cost (Escalated at 5% of basic price.)</b>	<b>Sl. No.</b>	<b>RE Project</b>	<b>Fuel (in per MT)</b>
		1.	Biomass power project (Water Cooled Condenser)	3388
		2.	Non-fossil fuel cogeneration	2166
		3.	MSW and RDF based power project	1,985
<b>25.</b>	<b>Use of Fossil Fuel – Fuel Mix</b>	For the biomass power projects commissioned on or before 31.03.2019, the use of fossil fuels to the extent of 15% or as prescribed by MNRE in terms of calorific value on annual basis shall be allowed for the tariff period from the date of COD.		
<b>26.</b>	<b>Calorific Value</b>	<b>Sl. No.</b>	<b>RE Project</b>	<b>CV (in kcal/kg)</b>
		1.	Biomass power project (Water Cooled Condenser)	3100
		2.	Non-fossil fuel cogeneration	2250
		3.	MSW and RDF based power project	2500