

JHARKHAND STATE ELECTRICITY REGULATORY COMMISSION

**(Determination of Tariff for Procurement of Power from Wind, Biogas, Municipal Solid waste and Refuse Derived fuel based Power Projects) Regulations, 2016,
Dated: 28-09-2016 (Notification 59)**

Sl. No.	Description	Summary			
1.	Control Period/Review period	4-Years (1 st April 2016 to 31 st March 2020).			
2.	Tariff Period	Sl. No.	RE Technology		Tariff Period (upto 31 st March 2020)
		1.	Wind Energy		25 Years
		2.	Biogas Power Projects		20 Years
		3.	Municipal Solid Waste and Refused Derived Fuel based Projects		20 years
3.	Tariff Structure	<p>1. Components for tariff determination</p> <p>(a) Capital cost;</p> <p>(b) Plant Load Factor/ Capacity Utilisation Factor;</p> <p>(c) Auxiliary consumption;</p> <p>(d) Debt-equity ratio ;</p> <p>(e) Term of loan and Interest on long term debt;</p> <p>(f) Depreciation;</p> <p>(g) Operation and Maintenance expenditure;</p> <p>(h) Working capital and interest on working capital</p> <p>(i) Return on equity.</p> <p>2. Renewable energy technologies like Biogas, Municipal solid waste and Refuse derived fuel based power projects have a significant fuel cost component. In view of that single part tariff with two components, fixed cost component and fuel cost component, shall be determined on levellised basis.\</p> <p>3. For municipal solid waste based power projects, the fuel cost component is not considered.</p>			
4.	Discount Factor for Levellised Tariff	Discount factor shall be equivalent to Post tax weighted average cost of capital.			
5.	Capital Cost	Sl. No.	Year	RE Technology	Capital Cost (in LAKh/MW)
		1.	2016-17	Wind Energy	620
		2.	2016-17	Biogas Power Projects	1190
		3.	2016-17	Municipal Solid Waste	1500
		4.	2016-17	Refused Derived Fuel based Projects	900
6.	Capacity Utilisation Factor/Plant Load Factor	Sl. No.	RE Technology		CUF/PLF
		1.	Wind Energy		
			Annual Mean Wind Power Density (W/m ²)		

			Upto 200	20%
			201 – 250	22%
			251 – 300	25%
			301 – 400	30%
			Above 400	32%
		2.	Biogas Power Projects	90%
		3.	Municipal Solid Waste	
			During 1 st year	65%
			From 2 nd year Onwards	75%
		4.	Refused Derived Fuel based Projects	
			During 1 st year	65%
			From 2 nd year Onwards	80%
7.	Auxiliary Consumption	Sl. No.	RE Technology	Auxiliary consumption Factor
		1.	Biogas Power Projects	12%
		2.	Municipal Solid Waste	15%
		3.	Refused Derived Fuel based Projects	15%
8.	Debt Equity Ratio	70:30 If the equity actually employed is more than 30%, the amount of equity in excess of 30% shall be treated as normative loan.		
9.	Loan and Interest Rate	Loan Tenure-12 years The normative interest rate on long term loan shall be considered as average State Bank of India (SBI) Base rate prevalent during the first six months of the previous year plus 300 basis points.		
10.	Depreciation	<p>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.</p> <p>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 13th year onwards.</p> <p>3. Depreciation shall be chargeable from the first year of commercial operation.</p>		
11.	Operation and Maintenance expenses	Sl. No.	RE Technology	O&M Cost (in RS Lakh/MW)
		1.	Wind energy power project:	12.00
		2.	Biogas based power project:	50.00
		3.	Municipal solid waste or Refuse derived fuel	6 % of Capital Cost
		Normative O&M expenses allowed at the commencement of the Control Period under the Regulations i.e. FY 2016-17 shall be escalated at the rate of 5.72% per annum.		
12.	Interest on working capital	Interest on Working Capital shall be at interest rate equivalent to the average State Bank of India Base Rate prevalent during the first six months of the previous year plus 350 basis points.		
13.	Return on equity	<p>1. The value base for the equity shall be 30% of the capital cost.</p> <p>2. The return on equity (pre-tax) shall be as under :</p> <p>(a) 20% per annum for the first 10 years.</p> <p>(b) 24% per annum 11th years onwards</p>		

14.	Fuel Cost	Sl. No.	RE Technology	Cost (In Rs./Tonne)	
		1.	Biogas based power project:	1200	
		2.	Refuse derived based power project	1800	
15.	Fuel	RE Technology		Station Heat Rate	Calorific Value
		Municipal solid		4200 kCal/kWh	-
		Refuse derived based power project		4200 kCal/kWh	2500 kCal/kg.
16.	Wheeling Charges	<p>1. For use of transmission network, transmission charges and losses as determined by the Commission in respect of open access transactions would be applicable.</p> <p>2. For use of distribution licensee's network, the wheeling charges and losses as determined by the Commission in respect of open access transactions at respective voltage levels at which electricity is supplied, would be applicable.</p> <p>3. For use of both EHV and distribution network, both transmission and wheeling charges as well as losses, as applicable shall be payable.</p>			
17.	Drawing of power during shut down	The drawal by the solar PV and solar thermal power generator shall not normally exceed 11.5 % of the MW capacity it delivers to the Distribution Licensee.			
18.	Banking	Banking of 100% energy shall be permitted for all Captive and Open Access/Scheduled Consumers during all 12 months of the year for the period April to March. Banking charges shall be adjusted in kind @ 2% of the energy delivered at the point of drawal and energy settlement shall be done on a monthly basis.			
19.	Evacuation Infrastructure	The State Transmission Utility (STU)/ Distribution Utility shall bear 100% of the cost of evacuation infrastructure.			
20.	Subsidy	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.			
21.	Taxes and Duties	The taxes and duties levied by the government shall be allowed to pass through on actual incurred basis.			