

MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

(Terms and Conditions for determination of RE tariff) Regulations 2010

Sl. No.	Description	Summary
1.	Title	Maharashtra Electricity Regulatory Commission (Terms and Conditions for determination of RE tariff) Regulations 2010
2.	Commencement	From the date of their publications in the Official Gazette
3.	Applicability	Shall apply to all new RE projects to be commissioned within Maharashtra, subject to fulfillment of eligibility criteria specified in Regulation 4.
4.	Eligible Entities	Refer the Regulation Order –No. 4
5.	Control Period	Five (5) financial years, from date of notification upto end of 2014-15
6.	Tariff Period	(i) 13 years for RE projects except Small Hydro Project up to and including 5 MW, Mini/Micro Hydro Projects, Solar PV Solar Thermal power projects, solar rooftop PV and other small Solar Power Projects (ii) 35 years for Small hydro projects upto and including 5 MW and Mini/Micro Hydro Projects (iii) 25 years for Solar PV, Solar Thermal Power Projects, Solar rooftop PV and other small Solar Power Projects
7.	Project Specific Tariff	Shall be determined by commission on case to case basis for <ul style="list-style-type: none"> • Municipal Waste based projects • Other RE technology approved by MNRE • A developer opts for project specific tariff for solar PV and Solar Thermal Power Projects • Hybrid Solar Thermal Power Plants • Biomass Project other than that based on Renkine Cycle technology application with Water Cooled Condenser. • R E Projects <ul style="list-style-type: none"> (a) that have been commissioned before the notification of these Regulations (b) for which no PPA has been signed (c) have not opted for pricing under the REC mechanism formulated under MERC Regulations-2010
8	Tariff Structure	For RE technologies having fuel cost component like biomass based Power Projects and non-fossil fuel based co-generation projects where single part tariff with two components viz. fixed cost component and fuel cost component.
9.	Tariff Design	Generic Tariff to be on levelised basis for tariff period, <ul style="list-style-type: none"> • For RE Technologies having single part tariff with two components, tariff shall be determined on levelised basis considering the year of commissioning of the project for fixed Cost Component while the fuel cost component shall be specified on year of operation basis. • Levelisation shall be carried out for 'use full life' of the RE project while tariff shall be specified for the period equivalent to 'Tariff Period'
10.	Despatch Principles for Electricity Generated from RE Energy Sources	All RE power plants except biomass Power Plants and Co-generation Plants shall be treated as 'MUSTRUN' power plants and shall not be subjected to 'merit order despatch' principles. The biomass generating stations and co-generation projects shall be subjected to scheduling and dispatch codes specified under the State Grid Code (SGC)
11.	Financial Principles	
	(i) Capital Cost	As specified in subsequent technology specific chapters
	(ii) Debt Equity Ratio	(a) 70:30 for generic tariff (b) For project specific tariff, <ul style="list-style-type: none"> - if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan, - where equity is less than 30% then actual equity to be taken for Tariff, - equity invested in foreign currency shall be denominated/designed in Indian rupee on the date of each investment..

12.	Loan and Finance Charges	
	(i) Loan Tenure	10 years for determination of Tariff
	(ii) Interest Rate	Average of State Bank of India Advance Rate (SBAR) prevalent during previous year plus 150 basis points, Repayment of loan shall be considered from the first year of commercial operation and shall be equal to the annual depreciation allowed.
13.	Depreciation	Upto maximum of 90% of Capital Cost, Annual depreciation shall be based on 'Differential Depreciation Approach', 7% p a for first 10 years and remaining depreciation spread over remaining useful life, to be chargeable from first year of commercial operation.
14.	Return on Equity	19% per annum pre-tax for first 10 years and 24% per annum pre-tax from 11 th year onwards
15.	Interest on Working Capital	(i) Working Capital in respect of Wind Energy Projects, small hydro power, solar PV and Solar thermal Power Projects shall comprise of O&M expenses for one month, Receivables equal to two months of energy charges for sale of electricity calculated on normative CUF and maintenance spares @ 15% of O&M expenses (ii) Working Capital requirement in respect of biomass power projects and no-fossil fuel based co-generation projects shall be fuel cost for four months equivalent to normative PLF, O&M expenses for one month, receivables for two months of fixed & variable charges for sale of electricity and maintenance spares @ 15% of O&M expenses. (iii) Interest on Working Capital at interest rate equivalent to average State Bank Advance Rate (SBAR) during the previous year plus 100 basis points.
16.	Operation and Maintenance Expenses	O&M expenses shall comprise repair and maintenance (R&M), establishment including employee expenses, administrative and general expenses including insurance, O&M expenses during first year of control period shall be escalated @ 5.72% per annum over the tariff period.
17.	Rebate	2% for payment through letter of credit and 1.0% for payment other than through LC within a period of one month of presentation of bills.
18.	Late Payment Surcharge	For delay in payment beyond 60 of days from the date of billing, late payment surcharge at the rate of 1.25% per month shall be levied by Generating Co.
19.	Sharing CDM benefits	All CDM benefits to be retained by Generating Co.
20.	Subsidy or Incentive	Incentive or subsidy offered by the Central or State Government including accelerated depreciation benefit if availed by the generating Company shall be considered while determining tariff. Any Generation Based Incentive notified by the Central or state government shall not be a factor while determining tariff.
21.	Taxes and Duties	Taxes and Duties levied by the appropriate Government shall not be considered for tariff determination but these shall be allowed as pass through.
22.	Technology Specific parameters for Wind Energy Projects	
	(i) Capital cost	The capital cost shall include Wind turbine generator including its auxiliaries, land cost, site development charges and other civil works, transportation charges, evacuation cost upto inter-connection point, financing charges and interest during construction (IDC) Capital cost - Rs. 467.13 lacs/MW (2010-11 during first year of Control Period) and shall be revised for projects commissioned during the subsequent years as per the Regulations. Capital cost indexation mechanism shall be as stipulated by CERC/ RE Tariff Regulations.
	(ii) Capacity Utilisation Factor (CUF)	Capacity Utilisation Factor for the control period shall be 20% for 200-250, 23% for 250-300, 27% for 300-400 and 30% for >400 Annual Mean Wind Power Density (W/m ²) at 50 meter hub height.
	(iii) Operation and Maintenance Expenses	Normative O&M expenses for the first year of control period (i.e. FY 2010-11) shall be Rs. 6.87 lakh per MW escalated @ 5.72% per annum over the tariff period to compute the levelised tariff.

23.	Technology Specific Parameters for Small hydro Projects	
	(i) Capital Cost	For the 1 st year Rs. 498.88 lac for more than 1 MW and upto and including 5 MW, Rs. 453.53 lakh for more than 5 MW to 25 MW Project size. Cost for projects commissioned in subsequent year shall be revised as per Regulations laid down.
	(ii) Capital Cost Indexation	As notified by CERC
	(iii) Capacity Utilisation Factor (CUF)	30%
	(iv) Auxiliary Consumption	1%
	(v) Operation and Maintenance Expenses	For the first year of control period shall be 17.97 lakh/MW for Project Size from more than 1 MW upto and including 5 MW and Rs. 12.69 lakh/MW for project size more than 5 MW to 25 MW escalated @ 5.72% per annum over tariff period to compute the levelised tariff
	(vi) Tariff for Mini/ Micro Hydro Projects	Rs. 0.50/kwh higher than the tariff applicable for small hydro projects of 1 MW to 5 MW tariff or as stipulated by the Commission
24.	Technology Specific parameters for Biomass based Power Projects	
	(i) Applicability	Applicable for biomass Power Projects based on Rankine Cycle technology application using water cooled condenser. The Capital Cost and performance norms as specified at Points 24(ii) to 24(v) (Regulation 36 to 40) are applicable to new Biomass projects w.e.f. April 2013. Fuel aspects specified in point 24(vii) to 24(xiii) (Regulations 41 to 47) are applicable to existing and new biomass projects w.e.f. April 1, 2013 provided that norms in respect of Station Heat Rate, Gross Calorific Value and Auxiliary Consumption for existing biomass projects shall be as per respective RE tariff orders.
	(ii) Capital Cost Indexation	For the 4 th and 5 th year of the control period (i.e. FY 2013-14 and FY 2014-15), indexed Capital Cost shall be pursuant to that notified by CERC provided that for indexation normative Capital Cost for the first year of the Control period (i.e. FY-2010-11) shall be considered Rs 402.54 lakh/MW.
	(iii) Plant Load Factor	Threshold PLF for determining fixed charge component of the tariff shall be 60% during stabilization, 70% during remaining period of the first year (after stabilization), and 80% from 2 nd year onwards. The stabilization period shall not be more than 6 months from the date of commissioning of the Project.
	(iv) Auxiliary Consumption	10% for determination of tariff
	(v) Station Heat Rate	3800 kCal/kWh
	(vi) Operation & Maintenance Expenses	Rs. 21.41 lakh per MW for the first year of Control Period (i.e. FY 2010-11) to be escalated @ 5.72% per annum
	(vii) Fuel Mix	The Biomass power plant shall be designed in such a way that it uses different types of non-fossil fuels available within the vicinity of project.
	(vii) Fuel Mix	The Biomass power plant shall be designed in such a way that it uses different types of non-fossil fuels available within the vicinity of project.
	(viii) The Use of Fossil Fuel	The use of Fossil fuel shall be limited to the extent of 15% of the total Fuel consumption on annual basis or as amended by MNRE from time to time.
	(ix) Monitoring Mechanism for the Use of Fossil Fuel	The project developer shall furnish a monthly fuel procurement statement and monthly fuel usage statement duly certified by the chartered accountant of the beneficiary along with the monthly energy bill.
	(x) Compliance Monitoring	The Maharashtra Energy Development Agency (MEDA) shall be responsible for monitoring compliance of biomass projects with these regulations. In addition to the above monitoring mechanism developer shall also submit on an annual basis such necessary financial statements or documents as stipulated by the Commission.

	(xi) Calorific Value	3611 kCal/Kg
	(xii) Fuel Cost	Rs.2605 /MT during first three years of the Control Period (i.e. FY 2010-11, FY 2011-12 and FY 2012-13) and thereafter shall be linked to indexation mechanism.
	(xiii) Fuel Price Indexation Mechanism	In case of (existing and new) Biomass power projects, indexation mechanism for adjustment of fuel prices for each year of operation from April 1, 2013 will be applicable for determination of applicable variable charge component of tariff as notified by CERC for biomass Power Projects within Maharashtra.
25.	Technology Specific Parameters for Non-fossil fuel based Cogeneration Projects	
	(i) Technology aspect	A project shall qualify as a non-fossil fuel based co—generation project, if it is in accordance with the eligibility criteria as specified under Regulation -4(5)
	(ii) Applicability	The Capital Cost performance norms as specified under points 25(iii) to 25(vii) & 25(xv)(Regulations 50 to 54 & 62) shall be applicable only for new non-fossil fuel based co-generation plants w.e.f. April 1, 2013. The fuel related aspects specified under points 25(viii) to 25(xiv), (Regulations 55 to 61) shall be applicable for existing and new non-fossil fuel based co-generation projects w.e.f. April 1, 2013 provided that norms in respect of specific fuel consumption, Gross Calorific Value and Auxiliary Consumption factor for existing non-fossil fuel based co-generation projects shall be as stipulated under the respective RE tariff order as stipulated under Regulation Order 3.2.
	(iii) Capital Cost Indexation Mechanism	The indexed Capital Cost in case of non-fossil based co-generation projects for fourth and fifth year of Control Period (i.e. FY 2013-14 and 2014-15) shall be notified pursuant to notification by CERC in this regard provided normative Capital Cost for the non-fossil fuel based Co-generation projects shall be considered as Rs. 398.07 lakh/MW for the first year (i.e. FY 2010-11)
	(iv) Plant Load Factor	For determining fixed charges PLF shall be computed on the basis of plant availability for number of operating days considering operations during crushing season and off-season at load factor of 92%. For this purpose, PLF shall be considered as 60% for 180 days (crushing) + 60 days (off season) = 240 operating days.
	(v) Auxiliary Consumption	8.5% for determination of tariff
	(vi) Station Heat Rate	3600 kCal/kWh
	(vii) Calorific Value	2250 kCal/Kg for Bagasse & 3611 kCal/Kg for Biomass
	(viii) Fuel Cost	Price of Bagasse shall be 1832 Rs./MT during first three years of the Control period (i.e. FY 2010-11, FY 2011-12, FY 2012-13) and thereafter shall be linked to indexation formulae. For use of Biomass, price as specified at 24(xii) shall be applicable
	(ix) Fuel Price Indexation Mechanism	In case of (existing and new) non fossil based co-generation projects, indexation mechanism for adjustment of fuel prices for each year of operation from April, 2013 will be applicable for determination of applicable variable charge component as notified by CERC for non-fossil fuel based Co-generation projects within Maharashtra.
	(x) Fuel Mix and Co-generation Plant Capacity	The Co-generation power plant may be designed to use different types of non-fossil fuels available within the vicinity of co-generation power project and other biomass fuels as may be approved by MNRE. The Co-generation projects shall be sized in co-relation to the locally available non – fossil fuel
	(xi) Use of Fossil Fuel	Limited to 15% of total fuel consumption on annual basis or as amended by MNRE from time to time.
	(xii) Monitoring Mechanism for the use of fossil fuel and Co-generation Efficiency	The project developer shall furnish a monthly fuel procurement statement and monthly fuel usage statement duly certified by the Chartered Accountant of the beneficiary along with the monthly bill.

	(xiii) Measurement and Verification Protocol for Compliance Monitoring	An energy audit of the co-generation facility shall be conducted through Energy Auditor empanelled with State Nodal Agency (MEDA) during every crushing season (once a year). The licensee shall ensure scrutiny of such Audit Reports to ensure compliance by the Co-generation project.
	(xiv) Compliance Monitoring	MDA shall be responsible for monitoring compliance of non-fossil fuel based generation projects with these Regulations.
	(xv) Operation and Maintenance Expenses	Rs. 14.11 lakh per MW during 2010-11 escalated @ 5.72% per annum.
	(xvi) Tariff for Non-fossil based Non-Qualifying Co-generation projects	This tariff shall be linked to average power purchase cost of host utility (excluding procurement from RE Sources) where such co-generation plant is situated, as approved by the Commission, shall be applicable for the purpose of billing during the year.
26.	Technology Specific Parameters for Solar PV Projects	
	(i) Technology Aspects	Norms for Solar Photo Voltaic (PV) Power under these regulations shall be applicable for grid connected PV Systems with installed capacity more than 3 MW that uses sunlight for direct conversion into electricity through Photo Voltaic technology as may be approved by MNRE.
	(ii) Capital Cost	Rs. 1690 lakh/MW for 2010-11 except for project specific tariff determination.
	(iii) Capacity Utilisation Factor	19% except for project specific tariff determination.
	(iv) Operation and Maintenance Expenses	Rs. 9.51 lakh/MW for first year of operation with escalation of 5.72% per annum.
	(v) Tariff for Solar Roof top PV and other small Solar Power	This tariff shall be higher by Rs. 0.50/kWh or such higher tariff as may be stipulated by the Commission from time to time over & above the Tariff applicable for Solar PV Project. This tariff shall also be applicable for solar generation including such solar generation used for captive consumption subject to terms & conditions specified by MNRE from time to time.
27.	Technology Specific Parameters for Solar Thermal Power Projects	
	(i) Technology Aspects	Norms applicable for Solar Thermal Power Projects that uses sunlight for direct conversion into electricity through Concentrated Solar Power technology based on either line focus or point focus principle.
	(ii) Capital Cost	Rs. 1530 lakh/MW for 2010-11 except for project specific tariff determination.
	(iii) Capacity Utilisation Factor	23% except for project specific tariff determination.
	(iv) Operation and Maintenance Expenses	Rs. 13.74 lakh/MW for first year of operation with escalation of 5.72% per annum.
	(v) Auxiliary Consumption	10% except for project specific tariff determination
28.	Miscellaneous	
	(i) Deviation from Norms	Vested with the Commission
	(ii) Power to Relax	Vested with the Commission
	(iii) Power to Amend	Vested with the Commission
	(iv) Power to remove Difficulties	Vested with the Commission