

MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

Terms and Conditions for determination of RE Tariff - Regulations - 2015

DRAFT

Sl. No.	Description	Summary
1.	Short Title and Commencement	<ul style="list-style-type: none"> MERC (Terms and Conditions for determination of RE tariff) Regulations 2015 Draft From the date of their publications in the Official Gazette
2.	Definitions and Interpretation	As per Regulations
3.	Useful Life	<p>Useful life for various RES Projects, from COD, as below:</p> <ul style="list-style-type: none"> (a) Wind Energy Power Projects - 25 years (b) Biomass-based Power Project, Non-Fossil Fuel-based Co-generation -20 years (c) Mini/Micro and Small Hydro Power Plants -35 years (d) Solar PV/Solar Thermal Power Plants- 25 years (e) Solar Roof-top PV & small ground mounted PV Systems-25years 25 years (f) Municipal Solid Waste-based Power Plants -20 years (g) Biomass Gasifier-based Power Projects - 20 years (h) Biogas-based Power Projects - 20 years
4.	Scope and Extent of Application	<ul style="list-style-type: none"> Shall apply to all new RE projects to be commissioned within Maharashtra for the generation and sale of electricity to: <ul style="list-style-type: none"> – Distribution Licensees in the State, – Eligible Entities for the purposes of these Regulations, and – Tariff is determined by the Commission Provided that, where a RE Project opts for the Renewable Energy Certificate (REC) mechanism as per MERC (Renewable Purchase Obligation, its Compliance, and Implementation of REC Framework) Regulations, 2010, its pricing shall be governed by the provisions of those Regulations or as may be specified in future. Tariff and other terms and conditions applicable to existing RE Projects to be governed by the provisions of the RE Tariff Orders issued by the Commission from time to time.
5.	General Reporting Requirements	<ul style="list-style-type: none"> Distribution Licensees to furnish the following quarterly information to MEDA, within a month of the close of the preceding quarter, <ul style="list-style-type: none"> (a) details of source-wise RE capacity addition in MW; (b) details of purchase of RE in MUs; and (c) a statement of Energy Purchase Agreements (EPAs) entered into under these Regulations In addition any other information, Commission may stipulate from time to time. Licensees to also upload and update the above information on their websites on a quarterly basis, along with details of capacity addition in previous years. Any other information, Commission may ask
6.	Competitive Bidding for Procurement of Power Generated by Grid-connected RE Projects	Commission to adopt Tariff for a RE Power Project if determined through a transparent process of competitive bidding in accordance with guidelines as may be issued by the Central Government
7.	Review Period	<ul style="list-style-type: none"> Five financial years (FY) up to the end of FY 2019-20 with first year to commence from the date of notification of these Regulations. Regulations for the subsequent Review Period to be notified separately and in case it is not notified by the commencement of such Period, the tariff norms specified in these Regulations shall continue to apply until such Regulations are notified, subject to any adjustments that may be specified therein.

8.	Tariff Period	<ul style="list-style-type: none"> (i) Wind Power, Biomass-based and Non-Fossil Fuel-based Co-generation Projects -13 years (ii) Small Hydro Power Projects of capacity higher than 5 MW and up to & including 25 MW -13 years. (iii) Small Hydro Power Projects of 5 MW capacities or less and for Mini/Micro Hydro Power projects -35 years. (iv) Solar PV, Solar Thermal Power Projects, Solar Rooftop PV and other small Solar Power Projects -25 years (v) Tariff Period to commence from the date of commercial operation of the Generating Station or Unit
9.	Project Specific Tariff	<p>Shall be determined by commission on case to case basis for</p> <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 Thermal Power Projects • Hybrid RE Projects based on RE technologies approved by MNRE, such as Wind-Solar Hybrid, Solar-Biomass Hybrid and Solar-Co-generation Hybrid; • Biomass Project other than that based on Rankine Cycle technology application with Water Cooled Condenser. • Biomass Gasifier and Biogas-based Power Projects.
10.	Petition and Proceedings for Determination of Tariff	<ul style="list-style-type: none"> • Commission to notify the generic tariff at the beginning of each Review Period in regard to the respective RE technologies and for the first year (FY 2015-16) within three months from the date of notification of these Regulations. • Petition for determination of project-specific tariff to be accompanied by fee and other details as per Regulations
11.	Tariff Structure	<p>Single-part tariff consisting of the following fixed cost components:</p> <ul style="list-style-type: none"> (a) Return on equity; (b) Interest on loan capital; (c) Depreciation; (d) Interest on working capital; (e) Operation and maintenance expenses; <p>Provided 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 shall be determined.</p>
12.	Tariff Design	<p>Tariff to be on levelised basis for the tariff period</p> <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. • Levelisation to be carried out for 'use full life' of RE project while tariff shall be specified for the period equivalent to ' Tariff Period'
13.	Despatch Principles for Electricity Generated from RE Energy Sources	<ul style="list-style-type: none"> • Subject to the provisions of the Indian Electricity Grid Code and/or the State Electricity Grid Code. • All RE power plants except Biomass Power Plants and Co-generation Plants shall be treated as 'MUST RUN' 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)
14.	Financial Principles	
	(i) Capital Cost	As specified in subsequent technology specific chapters
	(ii) Debt Equity Ratio	<ul style="list-style-type: none"> (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%, 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..

15.	Loan and Finance Charges	
	(i) Loan Tenure	12 years for determination of Tariff
	(ii) Interest Rate	Base Rate of the State Bank of India prevailing during the previous year plus 300 basis points to be considered as the normative interest rate. Repayment of loan shall be considered from the first year of commercial operation and to be equal to the annual depreciation allowed.
16.	Depreciation	<ul style="list-style-type: none"> Salvage value of the asset to be considered as 10%, and depreciation allowed up to maximum of 90% of the capital cost of the asset. Annual depreciation shall be based on 'Differential Depreciation Approach. Depreciation rate for the first 12 years of the Tariff Period to be 5.83% pa, and the remaining depreciation spread over the remaining useful life of the project from the 13th year onwards.
17.	Return on Equity(ROE)	<ul style="list-style-type: none"> ROE to be computed at the base rate of 16%, to be grossed up as per the applicable tax rate. The rate of ROE to be computed by grossing up the base rate with the tax rate equivalent to Minimum Alternate Tax (MAT) for the first 10 years from COD, and the normal tax rate for the remaining years of project life.
18.	Interest on Working Capital	<p>(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</p> <p>(ii) Working Capital requirement in respect of Biomass power projects and non-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.</p> <p>(iii) Interest on Working Capital at interest rate equivalent to Base Rate of State Bank of India prevalent during the previous year, plus 350 basis points.</p>
19.	Operation and Maintenance Expenses	<ul style="list-style-type: none"> O&M expenses to comprise repair and maintenance (R&M), establishment including employees, administrative and general expenses including insurance O&M expenses are determined for the Tariff Period based on normative O&M expenses specified by the Commission in these Regulations for the first year of the Review Period. Normative O&M expenses during first year of review period to be escalated @ 5.72% per annum over the tariff period.
20.	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.
21.	Late Payment Surcharge	For delay in payment beyond 60 days from the date of billing, late payment surcharge at the rate of 1.25% per month shall be levied by Generating Co.
22.	Sharing CDM benefits	All risks, costs and efforts for availing of carbon credits shall be borne by the Project Entity and the entire proceeds of carbon credit from approved CDM Project, if any, to be retained by it
23.	Reactive Energy Charges	Reactive Energy Charges to be governed by general or specific Orders issued by the Commission, or as may be specified by the Commission
24.	Subsidy or Incentive	<ul style="list-style-type: none"> Incentive or subsidy offered by the Central or State Government including accelerated depreciation benefit if availed by the generating Company to be considered while determining tariff. Any Generation Based Incentive provided by the Central or State Government specifically over and above the tariff shall not be a factor while determining tariff.
25.	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, if any subsidy is availed by a Project Entity, it shall be passed on to the Distribution Licensee.

26.	Technology Specific parameters for Wind Energy Projects	
	(i) Capital Cost	The capital cost shall include cost of Wind turbine generator including its auxiliaries, land cost, site development charges and other civil works, transportation charges, evacuation cost up to inter-connection point, financing charges and interest during construction (IDC) Capital cost - Rs. 597.79 Lakh/MW (2015-16 - first year of Review Period) and shall be revised for projects commissioned during the subsequent years as per the Regulations.
	(ii) Capital Cost Indexation Mechanism	Capital Cost of the Wind Energy Projects shall be revised for each year of the Review Period considering the indexation mechanism specified under the CERC- RE Tariff Regulations.
	(iii) Capacity Utilisation Factor (CUF)	CUF for the review period shall be 22% for >250, 25% for 250-300, 30% for 300-400 and 32% for >400 Annual Mean Wind Power Density (W/m ²) at 80 meter hub height.
	(iv) Operation and Maintenance Expenses	Normative O&M expenses for the first year of review period shall be 1.47% of the Capital Cost for determination of tariff to be escalated @ 5.72% per annum over the tariff period to compute the levelised tariff.
27.	Technology Specific Parameters for Small Hydro Projects	
	(i) Capital Cost	For the 1 st year of review period- Rs. 602.30 lakh/MW for more than 1 MW and upto and including 5 MW, Rs. 547.99 lakh/MW for more than 5 MW to 25 MW Project size. Cost for projects commissioned in subsequent years 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 review period-3.6% of the capital cost for Project more than 1 MW up to and including 5 MW and 2.8% of the capital cost for project size more than 5 MW to 25 MW escalated @ 5.72% per annum over tariff period to compute the levelised tariff
28.	Tariff for Mini/ Micro Hydro Projects	<ul style="list-style-type: none"> Projects of capacity of 1 MW and less but more than 500 kW, to be higher by Rs 0.50 per kWh than that applicable to SHP with installed capacity of 5 MW or less, but more than 1 MW. Micro Hydro Power Projects of a capacity of 500 kW and below to be higher by Rs. 1.00 per kWh than that tariff applicable to SHP with installed capacity of 5 MW or less but more than 1 MW.
29.	Technology Specific Parameters for Biomass based Power Projects	
	(i) Applicability	<ul style="list-style-type: none"> Applicable for Biomass Power Projects based on Rankine Cycle technology application using water cooled condenser. The Capital Cost and performance norms are applicable to new Biomass projects commissioned after notification of these Regulations. Fuel aspects specified in Regulations 44 to 50 to be applicable to existing and new Biomass projects 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	Rs.491.40 lakh/MW for the first year of Review Period to be revised for Projects commissioned in each subsequent year of the Review Period as specified in Regulation
	(iii) Capital Cost Indexation	Capital Cost to be revised for each year of the Review Period considering the indexation mechanism specified under the CERC RE Tariff Regulations

	(iv) Plant Load Factor	During stabilisation: 60%; During remaining period of the first year(after stabilisation): 70% From 2 nd year onwards: 80%. The stabilization period shall not be more than 6 months from the date of commissioning of the Project.
	(v) Auxiliary Consumption	10% for determination of tariff
	(vi) Station Heat Rate	3800 kCal/kWh
	(vii) Operation & Maintenance Expenses	Normative O&M expenses for the first year of review period shall be 5.32% of the Capital Cost for determination of tariff to be escalated @ 5.72% per annum at the commencement of the Review Period
	(viii) 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 as may be approved by MNRE.
	(ix) 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
	(x) Monitoring Mechanism for the Use of Fossil Fuel	Project developer to furnish monthly fuel procurement statement and monthly fuel usage statement duly certified by the chartered accountant of the beneficiary along with the monthly energy bill to the distribution licensee with whom an EPA has been entered into, with a copy to MEDA.
	(xi) Compliance Monitoring	<ul style="list-style-type: none"> Distribution Licensee procuring power from projects, responsible for monitoring compliance and maintain all data of Projects from whom it is procuring power and make the data available in the public domain by publishing it on its website and updating it on a quarterly basis. Project developers to submit the information to Distribution Licensee procuring power in the templates specified in Annexure-B appended to Regulations.
	(Xii) Calorific Value	3611 kCal/Kg
	(xiii) Fuel Cost	Rs.3987/MT during first year of the Review Period and there after linked to indexation mechanism as per Regulations.
	(xiv) Fuel Price Indexation Mechanism	As detailed in the Regulations
30.	Technology Specific Parameters for non-Fossil Fuel based Co-generation Projects	
	(i) Technology aspect	A project to qualify as a non-Fossil Fuel based Co-generation project, if commissioned after notification of these Regulations, uses new plant and machinery, and satisfies definitions and qualifying requirements as detailed in "Definitions and Interpretation"(Refer Regulations)
	(ii) Applicability	<ul style="list-style-type: none"> Capital Cost and performance norms to be applicable only to non-Fossil Fuel-based Co-generation projects commissioned after notification of these Regulations. The fuel-related aspects to be applicable to both existing and new Non-Fossil Fuel-based Co-generation Projects: Norms for Specific Fuel Consumption and Auxiliary Consumption factor for existing Projects to be as per the respective RE Tariff Orders
	(iii) Capital Cost	<ul style="list-style-type: none"> Rs. 486 lakh/MW for the first year of Review Period to be revised for Projects commissioned in each subsequent year of the Review Period as specified in Regulation
	(iv) Capital Cost Indexation Mechanism	Capital Cost to be revised for each year of the Review Period considering the indexation mechanism specified under the CERC RE Tariff Regulations
	(v) Plant Load Factor	For determining fixed charges, PLF to 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%. PLF - 60% considering number of Operating Days: 180 (crushing)+60 (off season) = 240 days

	(vi) Auxiliary Consumption	8.5% for determination of tariff
	(vii) Station Heat Rate	3600 kCal /kWh
	(viii) O&M Expenses	Normative O&M expenses for the first year of review period shall be 3.54% of the Capital Cost for determination of tariff to be escalated @ 5.72% per annum at the commencement of the Review Period
	(ix) Calorific Value	2250 kCal/Kg for Bagasse & 3611 kCal/Kg for Biomass
	(x) Fuel Cost	Price of Bagasse - Rs.2326.84/MT and for use of Biomass other than Bagasse- Rs3987/MT for the first year of review period and thereafter to be linked to indexation formulae.
	(xi) Fuel Price Indexation Mechanism	<ul style="list-style-type: none"> In the case of both existing and new non-Fossil Fuel-based Co-generation Projects, the indexing mechanism(Refer Regulations) for adjustment of fuel prices for each year of operation to be applicable for determination of the variable charge component of tariff Bagasse fuel price to be revised by the Commission taking into consideration the Bagasse fuel price determined by the Central Commission for each year.
	(xii) Fuel Mix and Co-generation Plant Capacity	<ul style="list-style-type: none"> Co-generation power plant to be designed to use different types of non-Fossil Fuels available within the vicinity of project and other Biomass fuels as may be approved by MNRE. Projects to be sized in co-relation to the locally available non – Fossil Fuel
	(xiii) Use of Fossil Fuel	Limited to 15% of total fuel consumption on annual basis or as amended by MNRE from time to time.
	(xiv) Monitoring Mechanism for use of Fossil Fuel and Co-generation Efficiency	Same as detailed above at 29(x) for Biomass projects
	(xv) Measurement and Verification Protocol for Compliance Monitoring	As detailed in the Regulation No.65
	(xvi) Compliance Monitoring	Same as detailed above at 29 (xi) for Biomass projects
	(xvii) Tariff for non-Fossil based non-Qualifying Co-generation Projects	To be equivalent to the Average Power Purchase Cost of the Distribution Licensee (excluding procurement from RE sources) in whose area it is situated, as approved by the Commission for that year and for each year of the Review Period to be applicable for billing during that year.
31.	Technology Specific Parameters for Solar PV Projects	
	(i) Technology Aspects	Norms for Solar Photo Voltaic (PV) Power to be applicable for grid connected PV Systems at HT voltage that uses sunlight for direct conversion into electricity through Photo Voltaic technology as may be approved by MNRE and to be applicable for Gross Metering purposes and not for Net Metering.
	(ii) Capital Cost	Rs. 605.85 lakh/MW for 2015-16 for tariff determination.
	(iii) Capacity Utilisation Factor (CUF)	19% for the purpose for tariff determination.
	(iv) O &M Expenses	Rs.13 lakh/MW for the first year of review period and normative O&M expenses to be escalated @ 5.72% per annum at the commencement of the Review Period
	(v) Tariff for Solar Roof top PV and other small Solar Power	This tariff shall be higher by Rs. 0.50/kWh or such amount as may be stipulated by the Commission from time to time over & above the Tariff applicable for Solar PV Project.

32.	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. 1200 lakh/MW for 2015-16 except for project specific tariff determination.
	(iii) Capacity Utilisation Factor	23% except for project specific tariff determination.
	(iv) Operation and Maintenance Expenses	Rs. 15 lakh/MW for the first year of review period and normative O&M expenses to be escalated @ 5.72% per annum at the commencement of the Review Period
	(v) Auxiliary Consumption	10% except for project specific tariff determination
33.	Miscellaneous	
	(i) Deviation from Norms	Tariff for sale of electricity from a RE Project may be determined in deviation from the norms specified in these Regulations, subject to that the levelised tariff over the useful life of the Project arrived at thereby does not exceed the levelised tariff computed on the basis of the specified norms
	(ii) Power to Relax	Vested with the Commission
	(iii) Issue of Order and Practice Directions	Vested with the Commission
	(iv) Power to Amend	Vested with the Commission
	(v) Power to Remove Difficulties	Vested with the Commission