MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
(TERMS AND CONDITIONS FOR DETERMINATION OF RE TARIFF)
REGULATIONS, 2010

INDEX

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In exercise of powers conferred under Section 61, 66, 86 read with Section 181 of the Electricity Act, 2003, and all other powers enabling it in this behalf, and after previous publication, the Maharashtra Electricity Regulatory Commission hereby makes the following Regulations, namely:

1. Short title and commencement

1.1 These Regulations may be called the Maharashtra Electricity Regulatory Commission (Terms and Conditions for determination of RE Tariff) Regulations, 2010.

1.2 These Regulations shall come into force from the date of their publication in the Official Gazette but not before April 1, 2010.

2. Definitions and Interpretation

2.1 In these regulations, unless the context otherwise requires,-

(a) 'Act' means the Electricity Act, 2003 (36 of 2003), including amendments thereto;

(b) 'Auxiliary energy consumption' or 'AUX' in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station, and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station;

(c) 'Biomass' means wastes produced during agricultural and forestry operations (for example straws and stalks) or produced as a by-product of processing operations of agricultural produce (e.g., husks, shells, deoiled cakes, etc); wood produced in dedicated energy plantations or recovered from wild bushes/weeds; and the wood waste produced in some industrial operations;

(d) 'Capital cost' means the capital cost as defined in Regulations 12, 24, 28, 35, 49, 64 and 68;

(e) 'Commission' means the Maharashtra Electricity Regulatory Commission referred to in section 82 of the Act;

(f) 'Conduct of Business Regulations' means the Maharashtra Electricity Regulatory Commission (Conduct of Business) Regulations, 2004 as amended from time to time;

(g) 'Control Period or Review Period' means the period during which the norms for determination of tariff specified in these Regulations shall remain valid;

(h) 'Gross calorific value' or 'GCV' in relation to a fuel used in a generating station means the heat produced in kcal by complete combustion of one kilogram of

solid fuel or one litre of liquid fuel or one standard cubic meter of gaseous fuel, as the case may be;

(i) 'Gross station heat rate' or 'SHR' means the heat energy input in kcal required to generate one kWh of electrical energy at generator terminals of a thermal generating station;

(j) 'Hybrid Solar Thermal Power Plant' means the solar thermal power plant that uses other forms of energy input sources along with solar thermal energy for electricity generation, and wherein not less than 75% of electricity is generated from solar energy component.

(k) 'Installed capacity' or 'IC' means the summation of the name plate capacities of all the Units of the generating station or the capacity of the generating station (reckoned at the generator terminals), approved by the Commission from time to time;

(l) 'Inter-connection Point' shall mean interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be:

1. in relation to wind energy projects and Solar Photovoltaic Projects, inter-connection point shall be the line isolator on outgoing feeder on HV side of the pooling sub-station;

2. in relation to small hydro power, biomass power and non-fossil fuel based co-generation power projects and Solar Thermal Power Projects the, inter-connection point shall be the line isolator on outgoing feeder on HV side of generator transformer;

(m) 'MNRE' means the Ministry of New and Renewable Energy of the Government of India.

(n) 'Mini/Micro Hydro' means Hydro Power projects with a station capacity up to and including 1 MW.

(o) 'Non-firm power' means the power generated from renewable sources, the hourly variation of which is dependent upon nature's phenomenon like sun, cloud, wind, etc., that cannot be accurately predicted.

(p) 'Non fossil fuel based co-generation' means the process in which more than one form of energy (such as steam and electricity) are produced in a sequential manner by use of biomass provided the project may qualify to be a co-generation project if it fulfills the eligibility criteria as specified in clause (4) of Regulation 4.

(q) 'Operation and maintenance expenses' or 'O&M expenses' means the expenditure incurred on operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance and overheads;

(r) 'Project' means a generating station or the evacuation system upto inter-connection point, as the case may be, and in case of a small hydro generating station includes all components of generating facility such as dam, intake water

conductor system, power generating station and generating units of the scheme, as apportioned to power generation;

(s) 'Renewable Energy' means the grid quality electricity generated from renewable energy sources.

(t) 'Renewable Energy Power Plants' means the power plants other than the conventional power plants generating grid quality electricity from renewable energy sources.

(u) 'Renewable Energy Sources' means renewable sources such as small hydro, wind, solar including its integration with combined cycle, biomass, bio fuel co-generation, urban or municipal waste and other such sources as approved by the MNRE;

(v) 'Small Hydro' means Hydro Power projects with a station capacity up to and including 25 MW.

(w) 'Solar PV power' means the Solar Photo Voltaic power projects that uses sunlight for direct conversion into electricity through Photo Voltaic technology.

(x) 'Solar rooftop PV and other small solar power' means the Solar rooftop or other small solar Photo Voltaic power projects that uses Photo Voltaic technology for generation of electricity, which are mounted on rooftop of buildings or ground mounted installations as approved by MNRE, with grid connected at 11 kV or below and provided with appropriate metering facility.

(y) 'Solar Thermal power' means the 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.

(z) 'Tariff period' means the period for which tariff is to be determined by the Commission on the basis of norms specified under these Regulations;

(aa) 'Useful Life' in relation to a unit of a generating station including evacuation system shall mean the following duration from the date of commercial operation (COD) of such generation facility, namely:-

a)	Wind energy power project	25 years
b)	Biomass power project, non-fossil fuel co-generation	20 years
c)	Small Hydro Plant	35 years
d)	Solar PV/Solar thermal power plants	25 years
e)	Solar rooftop PV systems and small ground mounted PV systems	25 years

(bb) 'Year' means a financial year.

2.2 Save as aforesaid and unless repugnant to the context or if the subject matter otherwise requires, words and expressions used in these Regulations and not defined, but defined in the Act, or the Indian Electricity Grid Code or Maharashtra State Grid Code or the Maharashtra Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2005 and amendments thereof shall have the meanings assigned to them respectively in the Act or the Indian Electricity Grid Code or Maharashtra State Grid

Code or the Maharashtra Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2005 and amendments thereto.

3. Scope and extent of application

3.1 These Regulations shall apply for all new RE projects to be commissioned within Maharashtra subsequent to date of notification of these Regulations and where tariff, for a generating station or a unit thereof based on renewable sources of energy, is to be determined by the Commission under Section 62 read with Section 86 of the Act.

Provided that in case of wind, small hydro projects, biomass power, non-fossil fuel based cogeneration projects, solar PV and Solar Thermal power projects, these Regulations shall apply subject to the fulfilment of eligibility criteria specified in Regulation 4;

Provided that in cases where renewable energy (hereinafter referred to as "RE") projects opt to adopt REC mechanism formulated under the MERC (RPO, Its Compliance and Implementation of REC framework) Regulations, 2010, (hererinafter referred to as "MERC RPO and REC Regulations"), the pricing mechanism for such RE projects shall be governed by the pricing mechanism and related terms and conditions as outlined under the said MERC RPO and REC Regulations.

3.2 In case of existing RE projects, applicable tariff and other terms and conditions, shall be governed by respective RE Tariff Orders and amendments thereof as issued from time to time by the Commission and the tariff, tariff structure and other conditions as specified under respective RE Tariff Order shall continue to be applicable for such existing RE projects over the duration of the Tariff Period as stipulated under respective RE Tariff Orders.

Provided that for renewable energy technologies having fuel cost component, like biomass power projects and non-fossil fuel based co-generation, the fuel price indexation mechanism as specified in Regulation 45 or Regulation 54 respectively, shall be applicable for determination of applicable Variable Charge component of tariff, in case the developer wishes to opt for indexing mechanism.

4. Eligibility Criteria

4.1 Wind power project – New Wind power project(s) to be commissioned subsequent to notification of these regulations shall be located at the wind sites having minimum annual mean Wind Power Density (WPD) of 200 Watt/m^2 measured at hub height of 50 metres and using new wind turbine generators.

4.2 Small hydro project – New Small hydro project(s) to be commissioned subsequent to notification of these regulations shall be located at the sites approved by State Nodal Agency/State Government using new plant and machinery, and installed power plant capacity lower than or equal to 25 MW at single location.

4.3 Biomass power project – New Biomass power project(s) to be commissioned subsequent to notification of these regulations shall be using new plant and machinery based on Rankine cycle technology and using biomass fuel sources, provided use of fossil fuel is restricted to only 15% of total fuel consumption on annual basis.

4.4 Non-fossil fuel based co-generation project: New non-fossil fuel based co-generation project to be commissioned subsequent to notification of these regulations shall qualify to be termed as a non-fossil fuel based co-generation project, if it is using new plant and machinery and is in accordance with the definition and also meets the qualifying requirement outlined below:

Topping cycle mode of co-generation – Any facility that uses non-fossil fuel input for power generation and also utilizes the thermal energy generated for useful heat applications in other industrial activities simultaneously.

Provided that for the co-generation facility to qualify under topping cycle mode, the sum of useful power output and one half the useful thermal output should be greater than 45% of the facility's energy consumption, during season.

Explanation.- For the purposes of this clause,

'Useful power output' is the gross electrical output from the generator. There will be an auxiliary consumption in the co-generation plant itself (eg. the boiler feed pump and the FD/ID fans). In order to compute the net power output, it would be necessary to subtract the auxiliary consumption from the gross output. For simplicity of calculation, the useful power output is defined as the gross electricity (kWh) output from the generator.

'Useful Thermal Output' is the useful heat (steam) that is provided to the process by the co-generation facility.

'Energy Consumption' of the facility is the useful energy input that is supplied by the fuel (normally bagasse or other such biomass fuel).

4.5 Solar PV, Solar rooftop PV systems and Solar Thermal Power Projects – Based on Technologies approved by MNRE.

5. Control Period or Review Period

5.1 The Control Period or Review Period under these Regulations shall be of five (5) financial years. First year of the Control Period shall commence from the date of notification of these Regulations and shall cover upto the end of financial year 2014-15.

Provided further that the tariff determined as per these Regulations for the RE projects commissioned during the Control Period, shall continue to be applicable for the RE projects for the entire duration of the Tariff Period as specified in Regulation 6 below;

Provided also that the revision in Regulations for next Control Period shall be notified separately and in case Regulations for the next Control Period are not notified until commencement of next Control Period, the tariff norms as per these Regulations shall continue to remain applicable until notification of the revised Regulations subject to adjustments as per revised Regulations.

5.2 Notwithstanding anything contained in these Regulaitons, a) the generic tariff determined for Solar PV projects based on the capital cost and other norms applicable for the year 2010-11 shall also apply for such projects during the year 2011-12; and
b) the generic tariff determined for Solar thermal projects based on the capital cost and other norms for the year 2010-11 shall also apply for such projects during the years 2011-12 and 2012-13,

Provided that (i) the Power Purchase Agreements in respect of the Solar PV projects and Solar thermal projects as mentioned in this clause are signed on or before 31st March, 2011; and (ii) the entire capacity covered by the Power Purchase Agreements is commissioned on or before 31st March, 2012 in respect of Solar PV projects and on or before 31st March, 2013 in respect of Solar thermal projects."

6. Tariff Period

6.1 The Tariff Period for Renewable Energy power projects except in case of Small hydro projects below 5 MW, Solar PV, and Solar thermal power projects shall be thirteen (13) years.

6.2 In case of Small hydro projects below 5 MW, the Tariff Period shall be thirty five (35) years.

6.3 In case of Solar PV and Solar thermal power projects, the Tariff Period shall be twenty five years (25) years.

6.4 Tariff Period under these Regulations shall be considered from the date of commercial operation of the renewable energy generating stations.

6.5 Tariff determined as per these Regulations shall be applicable for Renewable Energy power projects, only for the duration of the Tariff Period as stipulated under Regulation 6(1), (2) and (3).

7. Project Specific tariff

7.1 Project specific tariff, on case to case basis, shall be determined by the Commission for the following types of projects:

a) Municipal Solid Waste Projects

b) any other new renewable energy technologies approved by MNRE

c) the renewable energy projects that have been commissioned before the notification of these Regulations but for which no energy purchase agreement has been signed and have not opted for the pricing mechanism under the REC mechanism formulated under the MERC (RPO, Its Compliance and Implementation of REC framework) Regulations, 2010, until the date of notification of these Regulations.

d) Solar PV and Solar Thermal Power projects, if a project developer opts for project specific tariff: Provided that the Commission while determining the project specific tariff for Solar PV and Solar Thermal projects shall be guided by the provisions of Chapter 8 of these Regulations.

e) Hybrid Solar Thermal Power plants

f) Biomass project other than that based on Rankine Cycle technology application with water cooled condenser.

7.2 Determination of project specific tariff for generation of electricity from such renewable energy sources shall be in accordance with such terms and conditions as stipulated under relevant Orders of the Commission.

Provided that the financial norms as specified under Chapter-2 of these Regulations, except for capital cost, shall be ceiling norms while determining the project specific tariff.

8. Petition and proceedings for determination of tariff

8.1 The Commission shall determine the generic tariff on suo-motu basis at least six months in advance at the beginning of each year of the Control Period for renewable energy technologies for which norms have been specified under the Regulations.

Provided that for the first year of Control Period, (i.e. FY 2010-11), the generic tariff on suo-motu basis may be determined within a period not exceeding three months from the date of notification of these Regulations.

8.2 Notwithstanding anything contained in these regulations, the generic tariff determined for solar thermal projects and other norms applicable for the year 2010-11 shall also apply for the projects commissioned during the year 2011-12.

8.3 A petition for determination of project specific tariff shall be accompanied by such fee as may be determined by Regulations and shall be accompanied by

a) information in Forms 1.1, 1.2, 2.1 and 2.2 as the case may be, and as appended to these Regulations;
b) Detailed project report outlining technical and operational details, site specific aspects, premise for capital cost and financing plan, etc.
c) A Statement of all applicable terms and conditions and expected expenditure for the period for which tariff is to be determined.
d) A statement containing full details of calculation of any subsidy and incentive received, due or assumed to be due from the Central Government and/or State Government. This statement shall also include the proposed tariff calculated without consideration of the subsidy and incentive
e) Any other information that the Commission requires the Petitioner to submit.

8.4 The proceedings for determination of tariff shall be in accordance with the Conduct of Business Regulations.

9. Tariff Structure

9.1 The tariff for renewable energy technologies shall be single-part tariff consisting of the following fixed cost components:

a) Return on equity;
b) Interest on loan capital;
c) Depreciation;
d) Interest on working capital;
e) Operation and maintenance expenses;

Provided that for renewable energy technologies having fuel cost component, like biomass power projects and non-fossil fuel based co-generation projects, single-part tariff with two components, viz., fixed cost component and fuel cost component, shall be determined.

10. Tariff Design

10.1 The generic tariff shall be determined on levellised basis for the Tariff Period.

Provided that for renewable energy technologies having single-part tariff with two components, tariff shall be determined on levellised 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.

10.2 For the purpose of levellised tariff computation, the discount factor equivalent to normative weighted average cost of capital shall be considered.

10.3 Levellisation shall be carried out for the 'useful life' of the Renewable Energy project while tariff shall be specified for the period equivalent to 'Tariff Period'.

11. Despatch principles for electricity generated from Renewable Energy Sources:

11.1 All renewable energy power plants except for biomass power plants with installed capacity of 10 MW and above, and non-fossil fuel based co-generation plants shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles.

11.2 The biomass power generating station with an installed capacity of 10 MW and above and non-fossil fuel based co-generation projects shall be subjected to scheduling and despatch code as specified under the State Grid Code (SGC) including amendments thereto.

Chapter 2: Financial Principles

12. Capital Cost

12.1 The norms for the Capital Cost as specified in the subsequent technology specific chapters shall be inclusive of all capital work including plant and machinery, civil work, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point.

Provided that for project specific tariff determination, the generating company shall submit the break-up of capital cost items along with its petition in the manner specified under Regulation 8.

13. Debt Equity Ratio

13.1 For suo-motu determination of generic tariff, the debt equity ratio shall be 70 : 30.

13.2 For project specific tariff, the following provisions shall apply:

If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.

Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff;

Provided further that the equity invested in foreign currency shall be denominated/ designated in Indian rupees on the date of each investment.

14. Loan and Finance Charges

14.1 **Loan Tenure**: For the purpose of determination of tariff, loan tenure of 10 years shall be considered.

14.2 Interest Rate

The loans arrived at in the manner indicated above shall be considered as gross normative loan for calculation of interest on loan. The normative loan outstanding as on April 1st of every year shall be worked out by deducting the cumulative repayment up to March 31st of previous year from the gross normative loan.

For the purpose of computation of tariff, the normative interest rate shall be considered as average prime lending rate (PLR) of State Bank of India (SBI) prevalent during the previous year plus 150 basis points.

Notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

15. Depreciation

15.1 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.

15.2 Annual Depreciation shall be based on 'Differential Depreciation Approach' using 'Straight Line Method'.over two distinct periods comprising loan tenure and period beyond loan tenure over useful life. The depreciation rate for the first 10 years of the Tariff Period shall be 7% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 11th year onwards.

15.3 Depreciation shall be chargeable from the first year of commercial operation.

Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on *pro rata* basis.

16. Return on Equity

16.1 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 Regulation 13.

16.2 The normative Return on Equity shall be:

a) Pre-tax 19% per annum for the first 10 years.
b) Pre-tax 24% per annum 11th year onwards.

17. Interest on Working Capital

17.1 The Working Capital requirement in respect of wind energy projects, small hydro power, solar PV and Solar thermal power projects shall be computed as under:

a) Operation & Maintenance expenses for one month;
b) Receivables equivalent to 2 (Two) months of energy charges for sale of electricity calculated on the normative Capacity Utilisation Factor (CUF);
c) Maintenance spare @ 15% of operation and maintenance expenses

17.2 The Working Capital requirement in respect of biomass power projects and non-fossil fuel based co-generation projects shall be computed as under:

a) Fuel costs for four months equivalent to normative Plant Load Factor (PLF);
b) Operation & Maintenance expense for one month;
c) Receivables equivalent to 2 (Two) months of fixed and variable charges for sale of electricity calculated on the target PLF;
d) Maintenance spare @ 15% of operation and maintenance expenses

17.3 Interest on Working Capital shall be at interest rate equivalent to average State Bank of India PLR during the previous year plus 100 basis points.

18. Operation and Maintenance Expenses

18.1 'Operation and Maintenance or O&M expenses' shall comprise repair and maintenance (R&M), establishment including employee expenses, and administrative and general expenses.

18.2 Operation and maintenance expenses shall be determined for the Tariff Period based on normative O&M expenses specified by the Commission subsequently in these Regulations for the first Year of Control Period.

18.3 Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2010-11) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period.

19. Rebate

19.1 For payment of bills of the generating company through letter of credit, a rebate of 2% shall be allowed.

19.2 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.

20. Late payment surcharge

20.1 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.

21. Sharing of CDM Benefits

21.1 The proceeds of carbon credit from approved CDM project shall be shared between generating company and concerned beneficiaries in the following manner, namely:-

a) 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;

b) 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 between the generating company and the beneficiaries.

22. Subsidy or incentive by the Central/State Government

22.1 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.

Provided that the following principles shall be considered for ascertaining income tax benefit on account of accelerated depreciation, if availed, for the purpose of tariff determination:

a) Assessment of benefit shall be based on normative capital cost, accelerated depreciation rate as per relevant provisions under Income Tax Act and corporate income tax rate.
b) Capitalisation of RE projects during second half of the fiscal year.
c) Per unit benefit shall be derived on levellised basis at discount factor equivalent to weighted average cost of capital.

Provided further that 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.

23. Taxes and Duties

23.1 Tariff determined under these Regulations shall be exclusive of taxes and duties on generation and sale of electricity from renewable energy project as may be levied by the appropriate Government:

Provided that the taxes and duties levied by the appropriate Government on generation and sale of electricity from renewable energy project shall be allowed as pass through on actual incurred basis.

Chapter 3: Technology specific parameters for Wind Energy

24. Capital Cost

24.1 The capital cost for wind energy projects shall include 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).

24.2 The capital cost for wind energy projects shall be Rs.467 Lakhs/MW[1] (FY 2010- 11 during first year of Control Period) and shall be linked to indexation formula as outlined under Regulation 25.

25. Capital Cost Indexation Mechanism

25.1 The following indexation mechanism shall be applicable in case of wind energy projects for adjustments in capital cost over the Control Period with the changes in Wholesale Price Index for Steel and Electrical Machinery.

$$CC_{(n)} = P\&M_{(n)} * (1+F_1+F_2+F_3)$$

$$P\&M_{(n)} = P\&M_{(0)} * (1+d_{(n)})$$

$$d_{(n)} = [a*\{(SI_{(n-1)}/SI_{(0)}) - 1\} + b*\{(EI_{(n-1)}/EI_{(0)}) - 1\}]/(a+b)$$

Where,

$CC_{(n)}$ = Capital Cost for n^{th} year

$P\&M_{(n)}$ = Plant and Machinery Cost for n_{th} year

[1] To be updated upon Revised Notification by CERC for FY 2010-11

P&M $_{(0)}$ = Plant and Machinery Cost for the base year

Note. P&M $_{(0)}$ is to be computed by dividing the base capital cost (for the first year of the Control Period) by (1+F_1+F_2+F_3) i.e. Rs. 467 lakh per MW / 1.25 = Rs 374 Lakh per MW[1]

.d $_{(n)}$ = Capital Cost escalation factor for year (n) of Control Period

SI $_{(n-1)}$ = Average WPI Steel Index prevalent for calendar year (n-1) of the Control Period

SI $_{(0)}$ = Average WPI Steel Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2009 to December 2009.

EI $_{(n-1)}$ = Average WPI Electrical Machinery Index prevalent for calendar year (n- 1) of the Control Period

EI$_{(0)}$ = Average WPI Electrical and Machinery Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2009 to December 2009

a = Constant to be determined by Commission from time to time, (default value is 0.6), for weightage to Steel Index

b = Constant to be determined by Commission from time to time, (default value is 0.4), for weightage to Electrical Machinery Index

F_1 = Factor for Land and Civil Works (0.08)

F_2 = Factor for Erection and Commissioning (0.07)

F_3 = Factor for IDC and Financing Cost (0.10)

26. Capacity Utilisation Factor

26.1 Capacity Utlisation Factor (CUF) norms for the Control Period shall be as follows:

Annual Mean Wind Power Density (W/m^2)	CUF
200-250	20%
250-300	23%
300-400	27%

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

Annual Mean Wind Power Density (W/m^2)	CUF
> 400	30%

26.2 The annual mean wind power density specified in Regulation 26.1 above shall be measured at 50 metre hub-height.

26.3 For the purpose of classification of wind energy project into particular wind zone class, the State-wise wind power density map prepared by the Centre for Wind Energy Technology (C-WET) and enclosed as Schedule to these Regulations, shall be considered.

26.4 Provided that the Commission may by notification in official gazette, amend the schedule from time to time, based on the input provided by C-WET/MNRE.

27. Operation and Maintenance Expenses

27.1 Normative O&M expenses for the first year of the Control Period (i.e. FY 2010-11) shall be Rs 6.90 Lakh per MW.

27.2 Normative O&M expenses allowed under these Regulations shall be escalated at the rate of 5.72% per annum over the tariff period to compute the levellised tariff.

Chapter 4: Technology specific parameters for Small Hydro Project

28. Capital Cost

28.1 The normative capital cost for small hydro projects during first year of Control Period (FY 2010-11) shall be as follows:

Project Size	Capital Cost (Rs Lakh/MW)
> 1 MW and upto 5 MW	499[1]
5 MW to 25 MW	454[2]

28.2 The capital cost for subsequent years shall be determined on the basis of indexation formula as outlined under Regulation 30.

29. Capital Cost Indexation Mechanism

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

[2] To be updated upon Revised Notification by CERC for FY 2010-11.

29.1 The following indexation mechanism shall be applicable in case of small hydro power projects for adjustments in capital cost over the Control Period with the changes in Wholesale Price Index for Steel and Electrical Machinery.

$CC_{(n)} = P\&M_{(n)} * (1+F_1+F_2+F_3)$

$P\&M_{(n)} = P\&M_{(0)} * (1+d_{(n)})$

$d_{(n)} = [a*\{(SI_{(n-1)}/SI_{(0)}) - 1\} + b*\{(EI_{(n-1)}/EI_{(0)}) - 1\}]/(a+b)$

Where,

$CC_{(n)}$ = Capital Cost for n_{th} year

$P\&M_{(n)}$ = Plant and Machinery Cost for n_{th} year

$P\&M_{(0)}$ = Plant and Machinery Cost for the base year

Note. $P\&M_{(0)}$ is to be computed by dividing the base capital cost (for the first year of the control period) by $(1+F_1+F_2+F_3)$ as summarised below.

Project Size	Base Capital Cost (Rs Lakh/ MW)	Factor (1+F1+F2+F3)	P&M (0) (Rs Lakh/ MW)
> 1 MW and upto 5 MW	499	1.40	356[1]
5 MW to 25 MW	454	1.40	324[2]

$d_{(n)}$ = Capital Cost escalation factor for year (n) of Control Period

$SI_{(n-1)}$ = Average WPI Steel Index prevalent for calendar year (n-1) of the

Control Period

$SI_{(0)}$ = Average WPI Steel Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2009 to December 2009

$EI_{(n-1)}$ = Average WPI Electrical Machinery Index prevalent for calendar year

(n-1) of the Control Period

$EI_{(0)}$ = Average WPI Electrical and Machinery Index prevalent for calendar year (0) at the beginning of the Control Period, i.e., January 2009 to December 2009

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

[2] To be updated upon Revised Notification by CERC for FY 2010-11.

a = Constant to be determined by Commission from time to time, (default value is 0.6), for weightage to Steel Index

b = Constant to be determined by Commission from time to time, (default value is 0.4), for weightage to Electrical Machinery Index

F_1 = Factor for Land and Civil Work (0.16)

F_2 = Factor for Erection and Commissioning (0.10)

F_3 = Factor for IDC and Financing Cost (0.14)

30. Capacity Utilisation Factor

30.1 Capacity Utilisation factor for small hydro projects shall be 30%.

31. Auxiliary Consumption

31.1 Normative Auxiliary Consumption for the small hydro projects shall be 1.0%.

32. Operation and Maintenance Expenses

32.1 Normative O&M expenses for the first year of the Control period (i.e. FY 2010-11) shall be as follows.

Project Size	O&M Expense (Rs Lakh/ MW)
> 1 MW and upto 5 MW	18.0
5 MW to 25 MW	12.7

32.2 Normative O&M expenses allowed under these Regulations shall be escalated at the rate of 5.72% per annum for the Tariff Period for the purpose of determination of levellised tariff.

33. Tariff for Mini/Micro Hydro Projects

33.1 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 time over and above the tariff applicable for Small Hydro Projects with installed capacity more than 1 MW but below 5 MW.

Chapter 5: Technology specific parameters for Biomass based Power Projects

34. Technology Aspect

34.1 The norms for tariff determination specified hereunder are for biomass power projects based on Rankine cycle technology application using water cooled condenser.

35. Capital Cost

35.1 The normative capital cost for the biomass power projects shall be Rs.403Lakh/MW[1] (FY 2010-11 during first year of Control Period) and shall be linked to indexation formula as outlined under Regulation 35.

36. Capital Cost Indexation Mechanism

36.1 The following indexation mechanism shall be applicable in case of biomass power projects for adjustment in capital cost over the Control Period with the changes in Wholesale Price Index for Steel and Electrical Machinery,

$CC_{(n)} = P\&M_{(n)} * (1+F_1+F_2+F_3)$

$P\&M_{(n)} = P\&M_{(0)} * (1+d_{(n)})$

$d_{(n)} = [a*\{(SI_{(n-1)}/SI_{(0)}) - 1\} + b*\{(EI_{(n-1)}/EI_{(0)}) - 1\}]/(a+b)$

Where,

$CC_{(n)}$ = Capital Cost for n_{th} year

$P\&M_{(n)}$ = Plant and Machinery Cost for n_{th} year

$P\&M_{(0)}$ = Plant and Machinery Cost for the base year

Note. $P\&M_{(0)}$ is to be computed by dividing the base capital cost (for the first year of the Control Period) by $(1+F_1+F_2+F_3)$, i.e., Rs. 403 Lakh per MW / 1.33 = Rs 303 Lakh per MW[2].

$d_{(n)}$ = Capital Cost escalation factor for year (n) of Control Period

$SI_{(n-1)}$ = Average WPI Steel Index prevalent for calendar year (n-1) of the

Control Period

$SI_{(0)}$ = Average WPI Steel Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2009 to December 2009

$EI_{(n-1)}$ = Average WPI Electrical Machinery Index prevalent for calendar year (n-1) of the Control Period

$EI_{(0)}$ = Average WPI Electrical and Machinery Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2009 to December 2009

a = Constant to be determined by Commission from time to time,

(default value is 0.7), for weightages to Steel Index

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

[2] To be updated upon Revised Notification by CERC for FY 2010-11.

b = Constant to be determined by Commission from time to time,

(default value is 0.3), for weightages to Electrical Machinery Index

F_1 = Factor for Land and Civil Works (0.10)

F_2 = Factor for Erection and Commissioning (0.09)

F_3 = Factor for IDC and Financing Cost (0.14)

37. Plant Load Factor

37.1 Threshold Plant Load Factor for determining fixed charge component of Tariff shall be:

a) During Stabilisation: 60%
b) During the remaining period of the first year (after stabilization): 70%
c) From 2nd Year onwards: 80 %

37.2 The stabilisation period shall not be more than 6 months from the date of commissioning of the project.

38. Auxiliary Consumption

38.1 The auxiliary power consumption factor shall be 10% for the determination of tariff.

39. Station Heat Rate

39.1 The Station Heat Rate for biomass power projects shall be 3800 kcal/kWh

40. Operation and Maintenance Expenses

40.1 Normative Operation & Maintenance (O&M) expenses for the first year of the Control Period (i.e., FY 2010-11) shall be Rs. 21.4 Lakh per MW.

40.2 Normative O&M expenses allowed at the commencement of the Control Period (i.e., FY 2010-11) under these Regulations shall be escalated at the rate of 5.72% per annum.

41. Fuel Mix

41.1 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 biomass power project such as crop residues, agro-industrial residues, forest residues, etc., and other biomass fuels as may be approved by MNRE.

41.2 The biomass power generating Companies shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

42. Use of Fossil Fuel

42.1 The use of fossil fuels shall be limited to the extent of 15% of total fuel consumption on annual basis.

43. Monitoring Mechanism for the use of fossil fuel

43.1 The project developer shall furnish a monthly fuel usage statement and monthly fuel procurement statement duly certified by Chartered Accountant to the beneficiary (with a copy to appropriate agency appointed by the Commission for the purpose of monitoring the fossil and non-fossil fuel consumption) for each month, along with the monthly energy bill. The statement shall cover details such as –

a) Quantity of fuel (in tonnes) for each fuel type (biomass fuels and fossil fuels) consumed and procured during the month for power generation purposes,
b) Cumulative quantity (in tonnes) of each fuel type consumed and procured till the end of that month during the year,
c) Actual (gross and net) energy generation (denominated in kWh) during the month,
d) Cumulative actual (gross and net) energy generation (denominated in kWh) until the end of that month during the year,
e) Opening fuel stock quantity (in tonnes),
f) Receipt of fuel quantity (in tonnes) at the power plant site and
g) Closing fuel stock quantity (in tonnes) for each fuel type (biomass fuels and fossil fuels) available at the power plant site.

43.2 Non-compliance with the condition of fossil fuel usage by the project developer, during any financial year, shall render such biomass power project to be ineligible to avail preferential tariff determined as per these Regulations from the date of default .

44. Compliance Monitoring

44.1 The Maharashtra Energy Development Agency (MEDA) shall be responsible for monitoring compliance of biomass projects with these Regulations.

44.2 MEDA shall maintain such data, including technical and commercial details of biomass projects in the State and shall make the data available in the public domain by publishing the same on its website with quarterly updation.

44.3 The project developer shall submit the information to MEDA as required under Regulation 42 in the format as specified in schedule templates-1.1, 1.2, 2.1 and 2.2.

44.4 The Commission shall reimburse to MEDA the reasonable expenses incurred in connection with the compliance monitoring activities in respect of biomass power projects.

45. Calorific Value

45.1 The Calorific Value of the biomass fuel used for the purpose of determination of tariff shall be 3611 kCal/kg.

46. Fuel Cost

46.1 Biomass fuel price during first year of the Control Period (i.e., FY 2010-11) shall be 1859 Rs/MT[1] and shall be linked to index formulae as specified under Regulation 47. Alternatively, for each subsequent year of the Tariff Period, a normative escalation factor of 5% per annum shall be applicable at the option of the biomass project developer to be exercised while executing the Energy Purchase Agreement (EPA) for entire duration of EPA.

47. Fuel Price Indexation Mechanism

47.1 In case of (existing and new) biomass power projects, the following indexing mechanism for adjustment of fuel prices for each year of operation will be applicable for determination of applicable variable charge component of tariff, in case developer wishes to opt for indexing mechanism:

$$P_{(n)} = P_{(n-1)} * \{a * (WPI_{(n-1)}/WPI_{(n-2)}) + b * (1+IRC)_{(n-1)} + c * (Pd_{(n-1)}/Pd_{(n-2)})\}$$

Where

$P_{(n)}$ = Price per ton of biomass for the n_{th} year to be considered for tariff determination

$P_{(n-1)}$ = Price per ton of biomass for the $(n-1)_{th}$ year to be considered for tariff determination. P_1 shall be Biomass price for FY 2010-11 as specified under Regulation 46

a = Factor representing fuel handling cost

b = Factor representing fuel cost

c = Factor representing transportation cost

$IRC_{(n-1)}$ = Average Annual Inflation Rate for indexed energy charge component in case of captive coal mine source (in %) to be applicable for $(n-1)_{th}$ year, as may be specified by CERC for 'Payment purpose' as per Competitive Bidding Guidelines

Pd_{n-1} = Weighted average price index of HSD for (n-1)th year.

Pd_{n-2} = Weighted average price index of HSD for $(n-2)_{th}$ year.

WPI_{n-1} = Whole sale price index for $(n-1)_{th}$ year

WPI_{n-2} = Wholesale price index for $(n-2)_{th}$ year.

Where a, b & c will be specified by the Commission from time to time. In default, these factors shall be 0.2, 0.6 & 0.2 respectively.

47.2 Variable Charge for the nth year shall be determined as under: i.e. $VC_n = VC_1 x (P_n / P_1)$ or $VC_n = VC_1 x (1.05)_{(n-1)}$ (optional)

[1] To be updated upon Revised Notification by CERC for FY 2010-11

47.3 where,

VC_1 represents the Variable Charge based on Biomass Price P_1 for FY 2010-11 as specified under Regulation 44 and shall be determined as under:

$$VC_1 = \frac{\text{Station Heat Rate (SHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{1}{(1 - \text{Aux Consum. Factor})} \times \frac{P1}{1000}$$

Chapter 6: Technology specific parameters for Non-fossil fuel based Cogeneration Projects

48. Technology Aspect

48.1 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(4).

49. Capital Cost

49.1 The normative capital cost for the non-fossil fuel based co-generation projects shall be Rs.398Lakh/MW[1] for the first year of the Control Period (i.e., FY 2010-11), and shall be linked to indexation formula as outlined under Regulation 50.

50. Capital Cost Indexation Mechanism

50.1 The following indexation mechanism shall be applicable in case of non-fossil fuel based co-generation projects for adjustments in capital cost with the changes in Wholesale Price Index for Steel and Electrical Machinery,

$$CC_{(n)} = P\&M_{(n)} * (1+F_1+F_2+F_3)$$

$$P\&M_{(n)} = P\&M_{(0)} * (1+d_{(n)})$$

$$d_{(n)} = [a*\{(SI_{(n-1)}/SI_{(0)}) - 1\} + b*\{(EI_{(n-1)}/EI_{(0)}) - 1\}]/(a+b)$$

Where,

$CC_{(n)}$ = Capital Cost for n_{th} year

$P\&M_{(n)}$ = Plant and Machinery Cost for n_{th} year

$P\&M_{(0)}$ = Plant and Machinery Cost for the base year

Note. $P\&M_{(0)}$ is to be computed by dividing the base capital cost (for the first year of the control period) by $(1+F_1+F_2+F_3)$ i.e. Rs. 398 Lakh per MW / 1.33 = Rs 300 Lakh per MW[1].

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

$d_{(n)}$ = Capital Cost escalation factor for year (n) of Control Period

$SI_{(n-1)}$ = Average WPI Steel Index prevalent for fiscal year (n-1) of the Control Period

$SI_{(0)}$ = Average WPI Steel Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2009 to December 2009

$EI_{(n-1)}$ = Average WPI Electrical Machinery Index prevalent for calendar year (n-1) of the Control Period

$EI_{(0)}$ = Average WPI Electrical and Machinery Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2009 to December 2009

a = Constant to be determined by Commission from time to time, (default value is 0.7), for weightages to Steel Index

b = Constant to be determined by Commission from time to time, (default value is 0.3), for weightages to Electrical Machinery Index

F_1 = Factor for Land and Civil Work (0.10)

F_2 = Factor for Erection and Commissioning (0.09)

F_3 = Factor for IDC and Financing Cost (0.14)

51. Plant Load Factor

51.1 For the purpose of determining fixed charge, the plant load factor for non-fossil fuel based co-generation projects shall be computed on the basis of plant availability for number of operating days considering operations during crushing season and off-season as specified under clause (2) below and load factor of 92%.

51.2 The number of operating days shall be as follows:

Operating Days	Plant Load Factor (%)
180 days (crushing)+ 60 days (off-season) = 240 days operating days	60%

52. Auxiliary Consumption

52.1 The auxiliary power consumption factor shall be 8.5% for computation of tariff.

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

53. Station Heat Rate

53.1 The Station Heat Rate of 3600 kcal/kWh for power generation component alone shall be considered for computation of tariff for non-fossil fuel based co-generation projects.

54. Calorific Value

54.1 The Gross Calorific Value for bagasse shall be considered as 2250 kcal/kg. For the use of biomass fuels other than bagasse, calorific value as specified under Regulation 45 shall be applicable.

55. Fuel Cost

55.1 The price of bagasse during first year of the Control Period (i.e., FY 2010-11) shall be 1159 Rs/MT[1] and shall be linked to index formulae as outlined under Regulation 56. Alternatively, for each subsequent year of the Control Period, normative escalation factor of 5% per annum shall be applicable at the option of the project developer to be exercised at the time of execution of Energy Purchase Agreement (EPA) for entire duration of EPA.

55.2 For use of biomass other than bagasse in co-generation projects, the biomass prices as specified under Regulation 44 shall be applicable.

56. Fuel Price Indexation Mechanism

56.1 In case of (existing and new) non-fossil fuel based cogeneration projects, the following indexing mechanism for adjustment of fuel prices for each year of operation will be applicable for determination of applicable variable charge component of tariff, in case developer wishes to opt for indexing mechanism:

$$P_{(n)} = P_{(n-1)} * \{a * (WPI_{(n-1)}/WPI_{(n-2)}) + b * (1+IRC)_{(n-1)} + c * (Pd_{(n-1)}/Pd_{(n-2)})\}$$

Where

$P_{(n)}$ = Price per ton of Bagasse for the n_{th} year to be considered for tariff determination

$P_{(n-1)}$ = Price per ton of Bagasse for the $(n-1)_{th}$ year to be considered for tariff determination. P_1 shall be Biomass price for FY 2010-11 as specified under Regulation 55.

a = Factor representing fuel handling cost

b = Factor representing fuel cost

c = Factor representing transportation cost

[1] To be updated upon Revised Notification by CERC for FY 2010-11

$IRC_{(n-1)}$ = Average Annual Inflation Rate for indexed energy charge component in case of captive coal mine source (in %) to be applicable for (n- 1)th year, as may be specified by CERC for 'Payment purpose' as per Competitive Bidding Guidelines

Pd_{n-1} = Weighted average price index for HSD for (n-1) th year.

Pd_{n-2} = Weighted average price index for HSD for (n-2)th year.

WPI_{n-1} = Whole sale price index for (n-1) th year

WPI_{n-2} = Wholesale price index for (n-2)th year.

Where a, b & c will be specified by the Commission from time to time. In default, these factors shall be 0.2, 0.6 & 0.2 respectively.

56.2 Variable Charge for the nth year shall be determined as under:

i.e. $VC_n = VC_1 x (P_n / P_1)$ or $VC_n = VC_1 x (1.05)^{(n-1)}$ (optional)

where,

VC_1 represents the Variable Charge based on bagasse Price P_1 for FY 2010-11 as specified under Regulation 55 and shall be determined as under:

$$VC_1 = \frac{\text{Station Heat Rate (SHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{1}{(1 - \text{Aux Consum. Factor})} \times \frac{P1}{1000}$$

57. Fuel Mix and Co-generation Plant Capacity

57.1 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 such as bagasse crop residues, bio-gas, agro-industrial residues, forest residues, etc., and other biomass fuels as may be approved by MNRE.

57.2 The co-generation projects shall be sized in co-relation to the locally available non-fossil fuel.

57.3 The co-generation plant developer shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

58. Use of Fossil Fuel

58.1 The use of fossil fuels shall be limited to the extent of 15% of total fuel consumption on annual basis.

59. Monitoring Mechanism for the use of fossil fuel and Cogeneration Efficiency

59.1 The project developer shall furnish a monthly fuel usage statement and monthly fuel procurement statement duly certified by Chartered Accountant to the beneficiary (with a copy to appropriate agency appointed by the Commission for the purpose of monitoring the fossil and non-fossil fuel consumption) for each month, along with the monthly energy bill. The statement shall cover details such as –

h) Quantity of fuel (in tonnes) for each fuel type (bagasse/biomass fuels and fossil fuels) consumed and procured during the month for power generation purposes,
i) Cumulative quantity (in tonnes) of each fuel type consumed and procured till the end of that month during the year,
j) Actual (gross and net) energy generation (denominated in kWh) during the month,
k) Cumulative actual (gross and net) energy generation (denominated in kWh) until the end of that month during the year,
l) Opening fuel stock quantity (in tonnes),
m) Receipt of fuel quantity (in tonnes) at the power plant site, and
n) Closing fuel stock quantity (in tonnes) for each fuel type (biomass fuels and fossil fuels) available at the power plant site.

59.2 Non-compliance with the condition of fossil fuel usage by the project developer, during any financial year, shall render such non-fossil fuel based co-generation projects to be ineligble for preferential tariff determined as per these Regulations from the date of default.

60. Measurement and Verification Protocol for Compliance Monitoring

60.1 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 dates of the audit should be intimated to the purchasing Licensees, who have the option to depute their representatives to participate in the Audit. The Licensee shall ensure scrutiny of such Audit reports to ensure compliance by the co-generation project.

60.2 The Audit shall be carried out during a period of steady load on the facility during the season.

60.3 In addition to any other, the following readings/stipulations shall be mandatory for such Audit:

a) Duration of Test – The duration shall be at least one hour of continuous operation.
b) Input fuel (e.g. Bagasse) flow – The total quantity of fuel supplied to a boiler for the duration of the test is to be measured (in case the continuous measurement of fuel inflow is not possible, an average figure of fuel intake/hour can be taken as the basis. To arrive at this average, the fuel weighment over a period of constant plant load operation – either on 8-hour shift or 24 hours, as the case may be – shall be considered). Mass flow rate of non-fossil fuel – bagasse i.e. (m b is to be then calculated in kg/hr).
c) A sample of input fuel (e.g. bagasse) is to be tested (certified laboratory test report to be included) for its Gross Calorific Value using a bomb calorimeter.
d) Temperatures and pressures are to be measured at the different steam consumption points say, 1,2,...n (T1, P1, T2, P2,....Tn, Pn etc.)
e) The steam flow rates at 1,2, ...n (m_1, m_2,....m_n) are to be measured with on line steam flow meters. The flow meters are to be calibrated before the Audit.
f) Electrical output – at generator terminals is to be recorded in kWh for the test period.

g) A schematic of the configuration showing the instrument locations shall be provided.

60.4 The Audit shall include computation of the boiler efficiency (based on direct or indirect method), the turbine isentropic efficiency and the auxiliary electricity consumption of the co-generation facility.

60.5 Before entering into EPA the distribution licensee shall ensure that, the manufacturer test certificates for boiler efficiency and the turbine characteristic curves (steam flow rate vs power output) are made available along with the DPR.

60.6 The co-generation project entity shall appoint, at its cost, an independent Auditor for the purpose of conducting Energy Audit as above, from among a panel of such Auditors prepared by State Nodal Agency (MEDA).

60.7 The Audit results shall be reported to the Commission (in addition to the reporting requirements already stipulated in the Order) by the concerned licensee

61. Compliance Monitoring

61.1 MEDA shall be responsible for monitoring compliance of non-fossil fuel based co-generation projects with these Regulations.

61.2 MEDA shall maintain such data, including technical and commercial details of non-fossil fuel based co-generation projects in the State and shall make the data available in the public domain by publishing the same on its website with quarterly updation.

61.3 The project developer shall submit the information to MEDA as required under Regulation 42 in the format as specified in schedule templates-1.1, 1.2, 2.1 and 2.2.

61.4 The Commission shall reimburse to MEDA the reasonable expenses incurred in connection with the compliance monitoring activities in respect of non-fossil fuel based co-generation projects.

62. Operation and Maintenance Expenses

62.1 Normative O&M expenses during first year of the Control Period (i.e., FY 2010-11) shall be Rs. 14.1 Lakh per MW.

62.2 Normative O&M expenses allowed at the commencement of the Control Period (i.e. FY 2010-11) under these Regulations shall be escalated at the rate of 5.72% per annum.

Chapter 7: Technology specific parameters for Solar PV Power Project

63. Technology Aspects

63.1 Norms for Solar Photovoltaic (PV) power under these Regulations shall be applicable for grid connected PV systems with installed capacity more than 3 MW that directly convert solar energy into electricity and are based on the technologies such as crystalline silicon or thin film, etc., as may be approved by MNRE.

64. Capital Cost

64.1 The normative capital cost for setting up Solar Photovoltaic Power Project shall be Rs. 1520Lakh/MW[1] for FY 2010-11. Provided that the Commission may deviate from above norm in case of project specific tariff determination in pursuance of Regulation 7 and Regulation 8.

65. Capacity Utilisation Factor

65.1 The Capacity utilisation factor for Solar PV project shall be 19%.

Provided that the Commission may deviate from above norm in case of project specific tariff determination in pursuance of Regulation 7 and Regulation 8.

66. Operation and Maintenance Expenses

66.1 The O&M Expenses shall be Rs.9.5 Lakhs/MW for the 1st year of operation.

66.2 Normative O&M expenses allowed at the commencement of the Control Period under these Regulations shall be escalated at the rate of 5.72% per annum.

67. Tariff for Solar rooftop PV and Other Small Solar Power

67.1 Tariff for Solar rooftop PV and other small solar power Projects with installed capacity lower than or equal to 3 MW and connected to distribution network at 11 kV and below shall be higher by Rs 0.50/kWh or such other higher amount as may be stipulated by Commission from time time, over and above the tariff applicable for Solar PV power projects with installed capacity more than 3 MW as per norms outlined under Regulation 64, 65 and 66.

Chapter 8: Technology specific parameters for Solar Thermal Power Project

68. Technology Aspects

68.1 Norms for Solar thermal power under these Regulations shall be applicable for Concentrated Solar Power (CSP) technologies, viz., line focusing or point focusing, as may be approved by MNRE, and uses direct sunlight, concentrating it several times to reach higher energy densities and thus, higher temperatures whereby the heat generated is used to operate a conventional power cycle to generate electricity.

69. Capital Cost

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

69.1 The normative capital cost for setting up Solar Thermal Power Project shall be Rs.1420 Lakh/MW[1] for FY 2010-11.

Provided that the Commission may deviate from the above norm in case of project specific tariff determination in pursuance of Regulation 7 and Regulation 8.

70. Capacity Utilisation Factor

70.1 The Capacity utilisation factor shall be 23%.

Provided that the Commission may deviate from the above norm in case of project specific tariff determination in pursuance of Regulation 7 and Regulation 8.

71. Operation and Maintenance Expenses

71.1 The O&M Expenses shall be Rs 13.70 Lakhs/MW for 1st year operation.

71.2 Normative O&M expenses allowed at the commencement of the Control Period under these Regulations shall be escalated at the rate of 5.72% per annum.

72. Auxiliary Consumption

72.1 The auxiliary consumption factor shall be 10%.

Provided that the Commission may deviate from the above norm in case of projectspecific tariff determination in pursuance of Regulation 7 and Regulation 8.

Chapter 9: Miscellaneous

73. Deviation from norms

73.1 Tariff for sale of electricity by the generating company may also be determined in deviation from the norms specified in these Regulations subject to the conditions that the levellised tariff over the useful life of the project on the basis of the norms in deviation does not exceed the levellised tariff calculated on the basis of the norms specified in these Regulations.

Provided that the reasons for deviation from the norms specified under these Regulations shall be recorded in writing.

74. Power to Relax

74.1 The Commission may by general or special order, for reasons to be recorded in writing, and after giving an opportunity of hearing to the parties likely to be affected may relax any of the provisions of these Regulations on its own motion or on an application made before it by an interested person.

[1] To be updated upon Revised Notification by CERC for FY 2010-11.

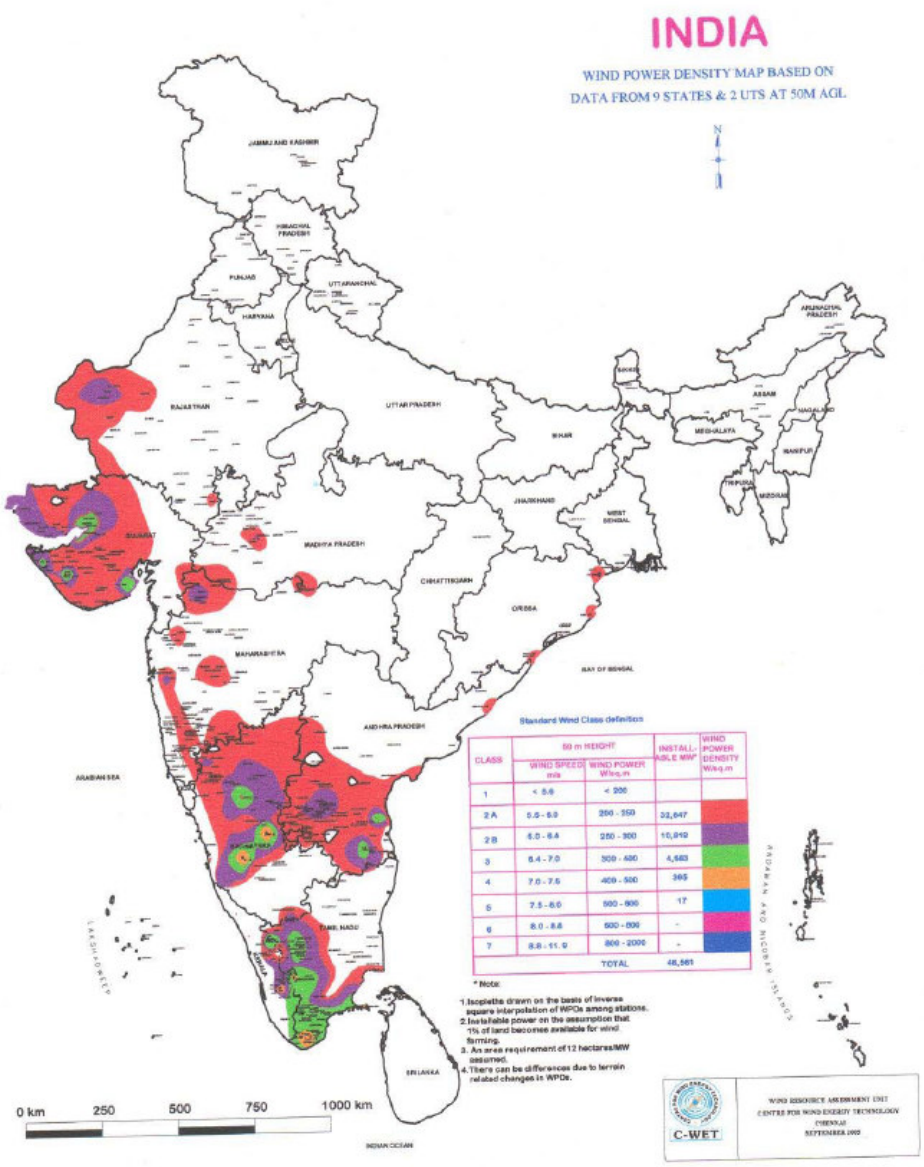
Mumbai

Dated: March __, 2010

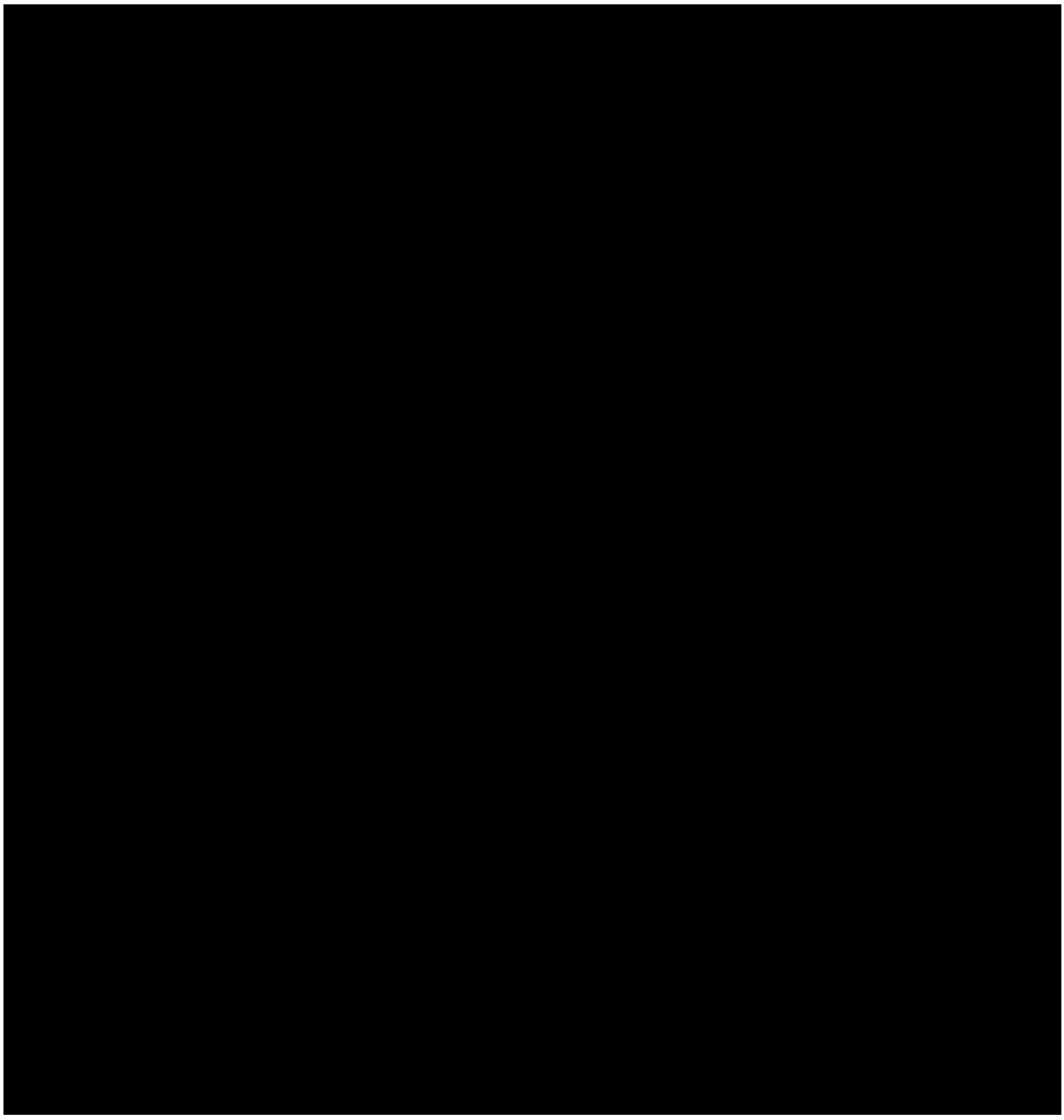
(_____)

Secretary,
Maharashtra Electricity Regulatory Commission

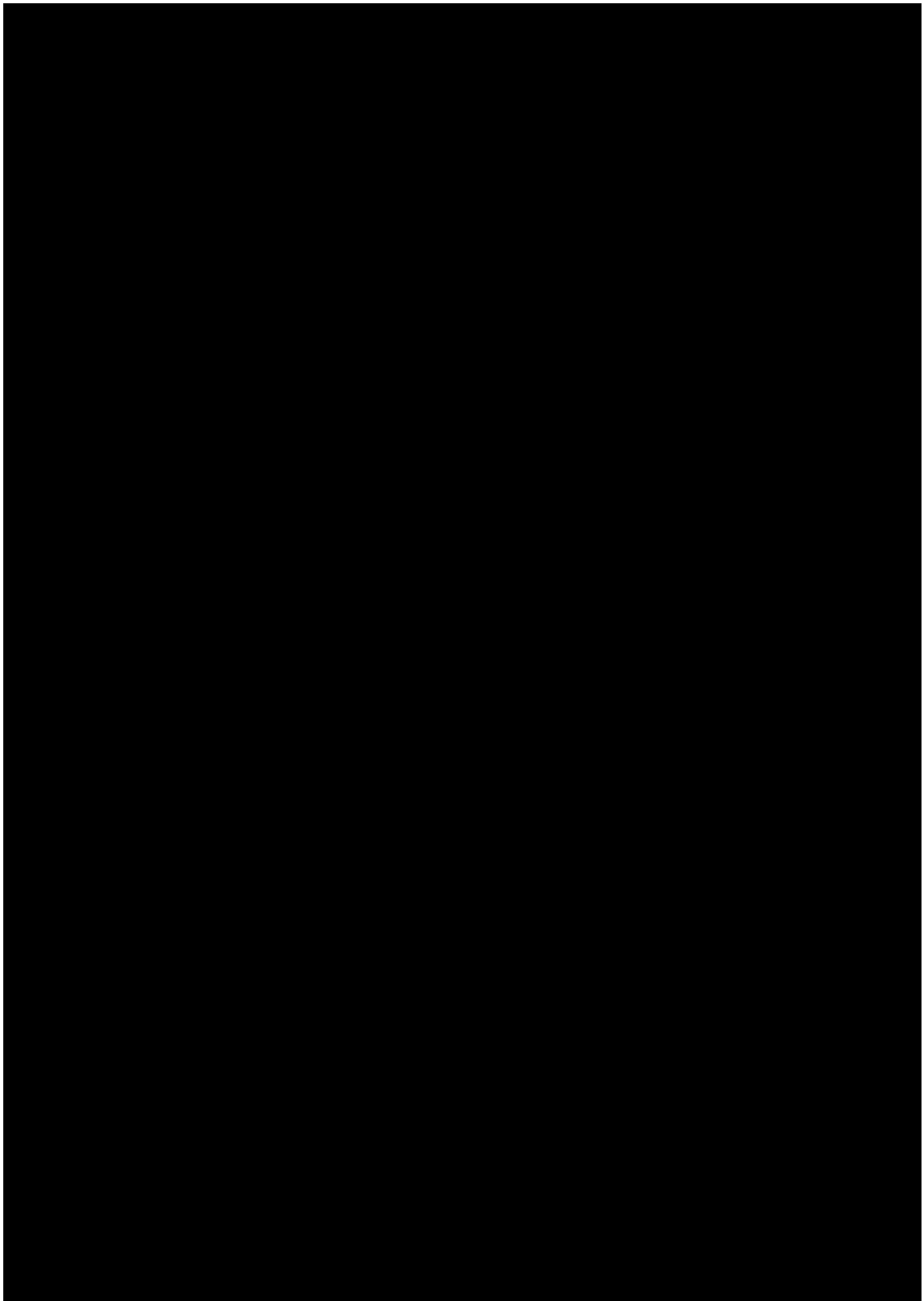
Schedule : State-wise Wind Power Density Map



Form-1.1: Form Template for (Wind Power or Small Hydro Project or Solar PV/Solar thermal)



Form-2.1: Form Template for (Biomass Power or Non-fossil fuel based Cogen): Parameter Assumptions



Form-1.2: Form Template for (Wind Power or Small Hydro Project or Solar PV/Solar thermal): Determination of Tariff Components

Form-2.2: Form Template for (Biomass Power or Non-fossil fuel based Cogen): Determination of Tariff Components

Schedule – Format of Monthly Statements to be submitted by Biomass and Cogeneration project developers to MEDA