"बिजनेस पोस्ट के अन्तर्गत डाक शुल्क के नगद भुगतान (बिना डाक टिकट) के प्रेषण हेतु अनुमत. क्रमांक जी. 2-22-छत्तीसगढ़ गजट/38 सि. से. भिलाई, दिनांक 30-5-2001."

पंजीयन क्रमांक
"छत्तीसगढ़/दुर्ग/09/2010-2012."

छत्तीसगढ़ राजपत्र

(असाधारण)

प्राधिकार से प्रकाशित

क्रमांक 195] रायपुर, शुक्रवार, दिनांक 27 जुलाई 2012 — श्रावण 5, शक 1934

Chhattisgarh State Electricity Regulatory Commission
Irrigation Colony, Shanti Nagar,

Raipur, Dated July 27, 2012

Chhattisgarh State Electricity Regulatory Commission (Terms and conditions for determination of generation tariff and related matters for electricity generated by plants based on renewable energy sources) Regulations, 2012

No. 42/CSERC/2012. - Govt. of India is giving thrust to develop renewable source of energy being environment friendly in nature. Also the Electricity Act 2003 provides for policy formulation by the Government of India and mandates State Electricity Regulatory Commissions (SERCs) to take steps to promote renewable sources of energy within their area of jurisdiction.

The Central Electricity Regulatory Commission (CERC) has notified the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources), Regulations, 2012 under which tariff determination aspects for various renewable energy technologies, has been discussed. Although these Regulations are applicable for central sector and inter-State generation projects, under

Section 61 of EA 2003, however these can be considered as guiding factor for SERCs while dealing with matters related to energy generation from RE sources.

Centre of Wind Energy Technology (CWET) has identified few sites in the Chhattisgarh State, wherein wind energy potential can be harnessed for power generation, which needs suitable tariff to attract the investors in this sector.

Keeping the above in view and in exercise of powers vested under section 61, 86 read with Section 181 of the Electricity Act 2003 (36 of 2003) and all other powers enabling it in this behalf, the Chhattisgarh State Electricity Regulatory Commission (the Commission) hereby makes the following Regulations specifying the terms and conditions of tariff for wind based electricity generating stations, small hydro electricity generating stations, biomass based electricity generating stations and solar based electricity generating stations for the purpose of sale of power to distribution licensees.

After notification of these regulations the previous regulations namely Chhattisgarh State Electricity Regulatory Commission (Terms and conditions for determination of generation tariff and related matters for electricity generated by plants based on non-conventional sources of energy) Regulations, 2008 shall stand repealed, however the orders issued under the repealed regulations shall remain valid till the currency of the order specified therein.

1. Short title and commencement

1.1 These Regulations may be called the Chhattisgarh State Electricity Regulatory Commission (Terms and conditions for determination of generation tariff and related matters for electricity generated by plants based renewable energy sources) Regulations, 2012.

1.2 These Regulations shall come into force from April01, 2012 and shall remain in force for a period of 5 years from the date of commencement.

1.3 These Regulations shall extend to the whole of the State of Chhattisgarh and shall be applicable to renewable energy based generating stations established in the State.

2. Definitions and Interpretation

2.1 In these Regulations, unless the context otherwise requires:

a) **"Act"** means the Electricity Act, 2003 (36 of 2003), as amended from time to time;

b) **"Auxiliary Energy Consumption"** or 'AUX' in relation to a period means the quantum of energy consumed by auxiliary equipments of the generating station and transformer losses upto the interface point, and shall be expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units, combined or separately 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 or as specified by Ministry of New and Renewable Energy from time to time;

d) **"Capacity Utilization Factor"** or **"CUF"** for a given period, means the total electricity corresponding to actual generation (gross generation) during the reference period, expressed as a percentage of gross generation electricity corresponding to installed capacity in that reference period and shall be computed in accordance with the following formula;

$$\text{CUF} = \frac{\text{Gross generation over the reference period}}{\text{Installed capacity x total hours during the reference period (including outage hours)}} \times 100\%$$

e) **"Capital Cost"** means as defined in the regulation 12, 24, 28, 35 and 50 for the respective renewable energy source.

f) **"CERC"** means the Central Electricity Regulatory Commission;

g) **"Commission"** means the Chhattisgarh State Electricity Regulatory Commission;

h) **"Commissioning"** means testing and operation of systems and components of generating plant as may be required for successful synchronization of the generating plant. A commissioning process may be

applied not only to new projects but also to existing units and systems subjected to expansion, renovation or revamping.

i) **"Cutoff Date"** means 31st March of the year closing after two years of the year of commercial operation of the project, and in case the project is declared under commercial operation in the last quarter of a year, the cut-off date shall be 31st March of the year closing after three years of the year of commercial operation;

j) **Control Period** or **Review Period** means the period during which the norms for determination of tariff specified in these regulations shall remain valid;

k) **"Date of Commercial Operation"** or **"COD"** means

   (i) in relation to a generating unit means the date declared by the generator after demonstrating the maximum continuous rating (MCR) or installed capacity (IC) at designed condition (after considering deviations in uncontrollable parameters) through a successful trial run, after notice to the beneficiary.

   (ii) in relation to the generating station means the date of commercial operation of the last unit or block of the generating station in accordance with the clause (i) above;

l) **"Financial Year"** means a period commencing on 1st day of April of a calendar year and ending on 31st March of the subsequent calendar year;

m) "**Firm Power**" In relation to **biomass based generating plant** means supply of electricity after COD which is equal or more than the 70% as decided by the Commission from time to time, however, energy supplied more than 100% of load factor of contracted capacity, on annualized basis, will not be treated as firm power. In relation to **small hydro-generating stations, wind, solar** it means any electricity supplied from and after the COD if the entire generated electricity is supplied to a distribution licensee(s).

n) **"Gross Calorific Value"** or **'GCV'** in relation to a fuel used in generating station means the heat produced in KCal by complete combustion of one kilogram of solid fuel or one lit of liquid fuel or one standard cubic meter of gaseous fuel, as the case may be;

o) **"Gross Station Heat Rate"** or **"GSHR"** means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals;

p) **Hybrid Solar Thermal Power Plants** means the solar thermal power

plant that uses other forms of renewable 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.

q) **"Infirm Power"** means electricity generated prior to declaration of date of commercial operation of generating station/ unit;

r) **"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 / tested at the generator terminals), as approved by the Commission from time to time;

s) **Inter-connection Point** means interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be:

I. in relation to biomass power, non fossil fuel based cogeneration power projects and Solar Thermal Power Projects, the inter-connection point shall be line isolator on HV side of the grid sub-station;

II. in relation to wind energy projects, Solar Photovoltaic Projects, small hydro power, the inter-connection point shall be line isolator on HV side of generator transformer;

t) **"Licensee"** means a distribution licensee operating in the State;

u) **"MNRE"** means the Ministry of New & Renewable Energy of Government of India;

v) **"Maximum Continuous Rating"** or **"MCR"** in relation to a unit of the thermal generating station based on renewable energy source means the maximum continuous output at the generator terminals, guaranteed by the manufacturer at rated parameters;

w) **'Mini/Micro Hydro'** means Hydro Power projects with a station capacity up to 100 kW for micro hydro power plants and from 101 kW & up to 2 MW for mini hydro;

x) **"Non-firm power"** means electricity supplied by biomass-based power generating plants after COD, to a distribution licensee which is less than 70% of the scheduled electricity in a given period. Further electricity supplied by such generating station above 100% plant load factor of contracted capacity, on annualized basis shall also be treated as non-firm power. However, in case of other renewable energy plants, there is no concept of Non firm power.

y) **“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 fulfils the eligibility criteria as specified in Regulation 4.4;

z) **"Project / Plant"** means a generating station including the evacuation system upto inter-connection point, 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 the case may be, as apportioned to power generation;

aa) **“Renewable Energy Power Plants”** means the power plants other than the conventional power plants generating grid quality electricity from renewable energy sources as approved by MNRE;

bb) **“Renewable Energy Sources”** means renewable sources such as small hydro, wind, solar including its integration with combined cycle, biomass, bio fuel cogeneration, urban or municipal waste and other such sources as approved by the MNRE;

cc) **"Scheduled Generation"** at any time or for any period or time block means schedule of generation in MW or MU at inter-connection point as agreed by the generator and licensee;

dd) **"Small Hydro Electricity generating station" or "SHP"** means the hydro electricity generating station, above 2 MW and up to including installed capacity of 25 MW;

ee) **“Solar PV power”** means the Solar Photo Voltaic power project that uses sunlight for direct conversion into electricity through Photo Voltaic technology;

ff) **“Solar Thermal power”** means the Solar Thermal power project that uses sunlight for direct conversion into electricity through Concentrated Solar Power technology based on either line focus or point focus principle;

gg) **"State"** means the State of Chhattisgarh;

hh) **“Tariff period”** means the period for which tariff is to be determined by the Commission on the basis of norms specified under these Regulations;

ii) **‘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 of such generation facility, namely;

I.	Wind energy power project	25 years
II.	Small Hydro Plant	35 years
III.	Biomass power project	20 years
IV.	Non-fossil fuel cogeneration	20 years
V.	Solar PV/Solar thermal power plants	25 years

jj) **'Year'** means a financial year;

2.2 Words and expressions used in these Regulations and not defined shall have the same meaning as they have in the Act and in the other Regulations made by the Commission.

3. Scope and extent of application

3.1 These Regulations shall apply for all Renewable Energy (hereinafter referred to as "RE") projects achieving COD within the State of Chhattisgarh after April 01, 2012 for generation and sale of electricity from such RE projects to distribution licensees under long term PPA for 20 years or more within the Chhattisgarh State 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, Solar Thermal and other small solar power projects, for the purpose of being eligible for claiming generic tariff, these Regulations shall apply subject to the fulfilment of eligibility criteria specified in Regulation 4;

3.2 In case of existing RE projects having long term PPA with distribution licensee of 20 years or more, which have achieved COD before April01, 2012, 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 for the duration of the Tariff Period as stipulated under respective RE Tariff Orders. However on completion of validity of prevailing tariff orders for such projects, the new tariff will be

decided on basis of norms specified in these regulations on generic/project specific basis on the request of generators or licensees. Further in such cases for redetermination of the tariff after currency of the tariff order, the capital cost shall be allowed as specified in the then prevailing Orders.

4. Eligibility Criteria

4.1 **Wind power project –** New wind power project(s) achieving COD after April01, 2012 using new plant and machinery.

4.2 **Small hydro project –** New small hydro project(s) achieving COD after April01, 2012 and located at the sites approved by State Nodal Agency/ State Government using new plant and machinery, and installed power plant capacity to be lower than or equal to 25 MW at single location.

4.3 **Biomass power project based on Rankine cycle technology –** New biomass power project(s) achieving COD after April01, 2012 and using new plant and machinery based on Rankine cycle technology and using biomass fuel sources.

Provided, that use of fossil fuel shall be restricted to stipulation under Regulation 41of these Regulations.

4.4 **Non-fossil fuel based co-generation project -** New non-fossil fuel based co-generation project(s) achieving COD after April01, 2012 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:

Provided, that use of fossil fuel shall be restricted to stipulation under Regulation 55 of these Regulations.

4.5 **Solar PV, Solar Thermal Power Projects, Solar rooftop PV systems and small Solar power projects –** Projects based on Technologies approved by MNRE achieving COD after April01, 2012.

Chapter 1: General Principals

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 April01, 2012 and shall cover upto the end of financial year 2016-17.

Provided that the benchmark capital cost for Solar PV and Solar thermal projects may be reviewed annually by the Commission.

Provided further that the biomass price may be reviewed in line with the CERC.

Provided also that the tariff determined as per these Regulations for the RE projects achieving COD 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.

6. Tariff Period

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

6.2 Tariff determined as per these Regulations shall be applicable for Renewable Energy power projects for the duration of the Control Period.

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:

i. Municipal Waste based Projects

ii. Any other new renewable energy technologies approved by MNRE apart from those identified in these Regulations

iii. Hybrid Solar Thermal Power plants

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

v. Any generating unit/ station, commissioned by using old plant and machinery.

vi. Any project, if the licensee/developer desires for the project specific tariff

Provided that the Commission while determining the project specific tariff shall be guided by the provisions of relevant Chapters of these Regulations.

7.2 The financial norms as specified under Chapter-2 of these Regulations, except for capital cost for the respective year of project commissioning, shall be ceiling norms.

7.3 In case biomass projects/co-generation, rate for power supplied to a licensee prior to declaration of date of commercial operation (infirm power) shall be equal to energy (variable) charges and rate for non –firm power shall be equal to energy (variable) charges plus 30 paise per unit (kWh).

For other projects which doesn't have fuel cost component including hydro projects, during the stabilization period i.e. before COD, the generator shall be entitled only for the recovery of statutory charges such as water charges, duty, cess actually paid to State Government and cost incurred towards O&M and interest shall be part of the Capital Cost. Further, for such projects which have been awarded provisional tariff before commencement of this regulation, but COD is subsequent to April01, 2012, if they opt for generic tariff under these regulations, the payment against infirm power minus the statutory charges paid to State Government shall be adjusted by the beneficiary in six equal instalments. If such project opt for project specific tariff then such revenue earned shall be set off against the capital cost incurred on the project.

8. Petitions and proceedings for determination of tariff

8.1 The Commission may determine the generic preferential tariff on the basis of suo-motu petition 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.

8.2 The provisional tariff for the RE projects would be the CERC tariff for the respective year from the April01, 2012 in case the generic tariff determination by the Commission is delayed and the difference will be adjusted accordingly.

8.3 **Application for determination of project specific tariff**

A generating company shall make an application for determination of tariff as per the formats given in the CSERC "Details to be Furnished by Licensee or Generating Company for Determination of Tariff and Manner of Making Application) Regulations, 2004 (Tariff Regulations 2004) and as amended from time to time.

Provided if the beneficiary opts for determination of project specific tariff, he shall have to file a petition before the Commission with sufficient notice to generating company stating clearly the reasons for opting for project specific tariff. The Commission being satisfied after hearing the other side, shall issue a directive not to apply generic tariff w.e.f. a date to be decided by the Commission for that specific generator and shall ask the generating company to furnish all information required for such project specific tariff determination.

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

i. Information in Forms 1.1, 1.2, 2.1 and 2.2 as the case may be, and as appended in these Regulations;

ii. Detailed project report outlining technical and operational details, site specific aspects, premise for capital cost and financing plan, etc;

iii. Certified copy from the practising Charter Accountant / Cost Auditor as proof of capital cost incurred towards Gross fixed Asset (GFA) clearly indicating sources of funds, debt, equity & subsidies /if any;

iv. A Statement of all applicable terms and conditions and expected expenditure for the period for which tariff is to be determined;

v. 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;

vi. Any other information that the Commission requires the Petitioner to submit for disposal of the petition;

vii. Technical data including data regarding CUF.

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

9. Tariff Structure

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

I. Return on equity;
II. Interest on loan capital;
III. Depreciation;
IV. Interest on working capital;
V. 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 for the Tariff Period.

Provided that for renewable energy technologies having single-part tariff with two components, tariff shall be determined considering the year of COD of the project for fixed cost component and for fuel cost component.

11. Dispatch Principles for electricity generation from Renewable Energy Sources

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

11.2 The biomass power generating station and co-generation projects with installed capacity of 10 MW and above shall be subjected to monthly scheduling because of categorisation into firm and non-firm power.

Chapter 2: Financial Principals

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 costs, preliminary and pre-operative expenses, 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 considered as 70:30.

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

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 debt/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 For the purpose of determination of tariff, loan tenure of 12 years shall be considered.

14.2 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 of base rate (lending rate) of State Bank of India prevalent on October 1st of the previous year of the tariff determination year plus 300 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.

Provided that the existing biomass plants having power purchase agreement (PPA) with State DISCOM for which the Commission have determined preferential tariff opt for the project specific tariff, loan and finance charges will be considered as specified in the relevant orders.

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 The depreciation rate for the first 12 years of the Tariff Period shall be 5.83% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 13th year onwards on 'Straight Line Method'.

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:

I. 20% per annum for the first 10 years.
II. 24% per annum 11th year onwards.

Provided that the existing biomass plants having power purchase agreement (PPA) with State DISCOM for which the Commission have determined preferential tariff opt for the project specific tariff or the beneficiary/licensee opt for project specific tariff, return on equity will be considered as specified in the relevant orders read with provisions specified in Regulation 3 of this Regulations.

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 per following:

I. Operation & Maintenance expenses for one month;

II. Receivables equivalent to 2 (Two) months of energy charges for sale of electricity calculated on the normative CUF;

III. 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 per following:

I. Fuel costs for four months equivalent to normative PLF;

II. Operation & Maintenance expense for one month;

III. Receivables equivalent to 2 (Two) months of fixed and variable charges for sale of electricity calculated on the target PLF;

IV. Maintenance spare @ 15% of operation and maintenance expenses

17.3 Interest on Working Capital shall be at interest rate equivalent to base rate (lending rate) of State Bank of India prevalent on October 1st of the previous year of the tariff determination year plus 350 basis points.

18. Operation & 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 including insurance.

18.2 O&M 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 2012-13) 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. Norms of Operation and Parameters to be Ceiling Norms:

21.1 Norms and parameters specified in these regulations are the ceiling norms and shall not preclude the project developer or the beneficiary from agreeing to the improved norms of operation and in case the improved norms are agreed to, such improved norms/parameters shall be applicable for determination of project specific tariff.

22. Subsidy or incentive by the Central / State Government

22.1 The Commission shall take into consideration any capital subsidy/ incentive/grant offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants while determining the project specific tariff under these Regulations.

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. Cess, Duties and Water charges / statutory charges

23.1 Tariff determined under these regulations shall be exclusive of cess and duties on generation, auxiliary consumption and sale of electricity as may be levied by the appropriate Government.

Provided that the cess and duties levied by the appropriate Government shall be allowed as pass through on actual incurred basis.

In case of SHP, water charges as levied by the State Government shall not be included in the tariff. It is to be paid separately and shall be pass through on actual incurred basis.

Chapter 3: Technology specific parameters for Wind energy Projects

24. Capital Cost

24.1 The capital cost for wind energy project 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 IDC.

24.2 The capital cost for wind energy projects shall be Rs.575 Lakh/MW (FY 2012-13 during first year of Control Period) and shall be revised for the projects to be commissioned in each subsequent year as outlined under Regulation 25.

25. Capital Cost Indexation Mechanism

25.1 The indexed Capital Cost in case of wind energy projects for each year of the tariff period shall be considered pursuant to issuance of such indexed capital cost for wind energy projects by Central Electricity Regulatory Commission in accordance with indexation mechanism stipulated under CERC RE Tariff Regulations.

26. Capacity Utilisation Factor (CUF)

26.1 CUF norms for this control period shall be as follows;

Annual Mean Wind Power Density (W/M^2)	CUF
Upto 200	20%
201-250	22%
251-300	25%
301-400	30%
>400	32%

26.2 The annual mean wind power density specified in Regulation 26.1 above shall be measured at 80 meter hub-height.

26.3 For the purpose of classification of wind energy project into particular wind zone class, as per MNRE guidelines for wind measurement, wind

mast either put-up by C-WET or a private developer and validated by C-WET would be normally extended 10 km from the mast-point to all directions for uniform terrain and limited to appropriate distant in complex terrain with regard to complexity of the site. Based on such validation by C-WET, State Nodal Agency should certify zoning of the proposed wind farm complex.

27. Operation and Maintenance Expenses

27.1 Normative O&M expenses for the first year of the control period (i.e. FY 2012- 13) shall be Rs. 9 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 tariff.

Chapter 4: Technology specific parameters for Small Hydro Projects

28. Capital Cost

28.1 The normative capital cost for small hydro projects during first year of the control period (i.e. year 2012-13) shall be as follows;

Project Size	Capital Cost (Rs. Lakh/MW)
below 5 MW	600
5 MW to 25 MW	550

The capital cost for project specific will be allowed to a maximum of ceiling as mentioned in the above table. This also includes the cost of laying of transmission lines for evacuation of power.

Provided that in case of project specific tariff if the transmission line exceeds 10 Kms then the additional cost of laying the transmission lines may be allowed subject to the prudence check by the Commission.

Provided also that in case of project specific tariff, considering the topography of the State and also the geological surprises/constraints which may not have been foreseen and may come to be known at a time of execution of the projects, in such cases the project cost that can be allowed additionally up to a maximum of Rs. 25 lakh/MW. This would be an exception rather than the rule.

28.2 The capital cost for subsequent years shall be revised for projects to be commissioned in each subsequent year as outlined under Regulation 29.

28.3 Capital cost for Small Hydro Plants, achieved COD before April01, 2012 will be governed through respective approved Orders of the Commission.

29. Capital Cost Indexation Mechanism

29.1 The indexed Capital Cost in case of Small Hydro projects for each year of the tariff period shall be considered pursuant to issuance of such indexed capital cost for Small Hydro projects by Central Electricity Regulatory Commission in accordance with indexation mechanism stipulated under CERC RE Tariff Regulations.

30. Capacity Utilisation Factor (CUF)

30.1 Capacity Utilisation factor for small hydro projects shall be min 30% or as per the specific projects, whichever is higher.

31. Auxiliary Consumption

31.1 Normative Auxiliary Consumption for the small hydro projects shall be 1.5%.

32. Operation & Maintenance Expenses

32.1 Normative O&M expenses for the first year of the control period (i.e. FY 2012-13) shall be as follows:

Project Size	O&M Expense (Rs. Lakh/MW)
below 5 MW	20.00
5 MW to 25 MW	14.00

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 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 to time over and above the generic tariff applicable for Small Hydro Projects as decided by the Commission. However this will not be applicable for the developers/licensee opts for project specific tariff and on canal based projects.

Chapter 5: Technology specific parameters for Biomass Power Projects based on Rankine Cycle Technology

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 and Capital Cost Indexation Mechanism

35.1 The normative capital cost for the biomass power projects shall be Rs.445 Lakh/MW (FY 2012-13 during first year of Control Period) and shall be linked to indexation formula as outlined under Regulation 35.2.

35.2 The indexed Capital Cost in case of Biomass power projects for each year of the control period shall be considered pursuant to issuance of such indexed capital cost for Biomass power projects by Central Electricity Regulatory Commission in accordance with indexation mechanism stipulated under CERC RE Tariff Regulations.

Provided that the existing biomass plants having power purchase agreement (PPA) with State DISCOM for which the Commission have determined preferential tariff, opts for the project specific tariff, capital cost will be considered as specified in the relevant orders and capital subsidy or any other subsidy will be adjusted in the capital cost.

36. Capacity Utilization Factor

36.1 Threshold Plant Load Factor for determining fixed charge component of Tariff shall be 80%.

37. Auxiliary Consumption

37.1 The auxiliary power consumption shall be considered as 10% for the determination of tariff.

38. Station Heat Rate

38.1 The station heat rate for the biomass power projects shall be 4000 kcal/kWh.

39. Operation and Maintenance Expenses

39.1 Normative O&M expenses for the first year of the control period (i.e. FY 2012-13) shall be Rs. 24 Lakh per MW.

39.2 Normative O&M expenses allowed at the commencement of the tariff Period under Regulation 39.1 shall be escalated at the rate of 5.72% per annum for the subsequent years of the control period.

40. Fuel

40.1 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.

40.2 The Biomass Power Generating Companies shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

41. Use of Fossil Fuel – Fuel Mix

41.1 The use of fossil fuels shall be on Kcal basis of total fuel consumption on annual basis as per relevant MNRE guideline, which is presently 15%.

42. Monitoring Mechanism for the use of fossil fuel

42.1 The project developer shall furnish a monthly fuel procurement statement and monthly fuel usage statement duly certified by Chartered Accountant to the beneficiary, with complete details as may be required to the satisfaction of the beneficiary, with whom the power purchase agreement has been made (with a copy to appropriate agency i.e. CREDA 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 –

i. Opening fuel stock quantity (in tonnes), for each type of fuel,

ii. Receipt of fuel quantity (in tonnes) at the power plant site for each type of fuel during the month,

iii. Quantity of fuel (in tonnes) for each fuel type (biomass fuels and fossil fuels) consumed during the month for power generation purposes,

iv. Closing fuel stock quantity (in tonnes) for each fuel type (biomass fuels and fossil fuels) available at the power plant site at the end of the month,

v. Cumulative quantity (in tonnes) of each fuel type (biomass and fossil fuel) procured till the end of that month during the financial year,

vi. Cumulative quantity (in tonnes) for each fuel type (biomass and fossil fuel) consumed till end of that month during the financial year),

vii. Actual (gross and net) energy generation (denominated in lakh of units) during the month,

viii. Cumulative actual (gross and net) energy generation (denominated in lakh of units) until the end of that month during the financial year,

42.2 In case designated agency is satisfied, that the generator has reached to a stage whereby compliance of the fuel mix criterion on annualised basis (financial year) is not possible, it will intimate to the concern beneficiaries and generators with details of such conclusions. Thereafter beneficiary shall issue notice to the generator with reasons and instead of paying the preferential tariff, shall deal with the issue in accordance to express provisions given in Regulations 42.3. Appropriate mechanism shall be incorporated in the power purchase agreement between the parties with due approval of the Commission for the compliance of fuel mix ration as prescribed by MNRE.

42.3 Non-compliance with the condition of fossil fuel usage by the project developer (achieved CoD before and after April01, 2012), during any financial year, shall render such biomass power project to be ineligible to avail preferential tariff determined as per these Regulations in the year of default during such financial year when such default occurs. However, such defaulting Biomass Power Project shall continue to sell power to concern distribution licensee even during the period of default. The rate of supply to distribution licensee will be weighted average pooled price at which the distribution licensee has purchased the electricity including cost of self generation, if any, (in the defaulting year of biomass plant) from all the long-term and short-term energy suppliers, but excluding those based on renewable energy sources, as the case may be, for the entire year of

default and additional payment arrived to such power project will be adjusted in future bills in six equal monthly instalments.

43. Power to require statistics & returns by Monitoring agency

43.1 The Chhattisgarh Renewable Energy Development Agency (CREDA) shall be responsible for monitoring compliance of fuel mix ratio of biomass projects.

43.2 CREDA shall also maintain such data, including technical and commercial details (including year of CoD, prescribed fuel mix ratio, source of fuel etc.) 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.

43.3 The project developer shall submit the information to CREDA as required under Regulation 42 in the format as specified in schedule format 3.1 and 3.2.

43.4 CREDA shall submit an annual report on an affidavit duly notarised, for the entire financial year to the Commission for each biomass power plant (achieved CoD before and after April01, 2012) on the use of fossil fuel and biomass fuel by the biomass based plant during the preceding year, by the end of April every year.

43.5 CREDA shall also submit the same annual report (as mentioned in Regulation 43.4) for the entire financial year to the beneficiary for each biomass power plant (achieved CoD before and after April01, 2012) on the use of fossil fuel and biomass fuel by the biomass based plant during the preceding year, by the end of April every year. Non-compliance of the stipulation with regard to use of fossil fuel by any generating plant and use of such fuel in excess of the specified percentage during any financial year shall render the plant to be treated as any other thermal generator and all benefits given to such plants including tariff, as renewable energy source shall stand withdrawn. Beneficiary shall issue notice to such generators for non compliance with regard to usage of fossil fuel and instead of paying the preferential tariff, shall deal with the issue in accordance to express provisions given in Regulations 42.3.

44. Calorific Value

44.1 The average Calorific Value of the biomass fuel(s) used for the purpose of determination of tariff for biomass power projects shall be 3300 kcal/kg.

45. Fuel Cost

45.1 Biomass fuel price shall be 2476 Rs/MT during first year of the control period (i.e., FY 2012-13) and thereafter shall be linked to indexation mechanism as specified under Regulation 45.2 and 45.3.

45.2 In case of (existing and new) biomass power projects, the indexing mechanism specified in this Regulation for adjustment of fuel prices for each year of operation, will be applicable for determination of applicable variable charge component of tariff:

45.3 The indexed Biomass Fuel Price in case of Biomass Power projects for each year of the control period shall be considered pursuant to notification of such indexed Biomass Fuel Price norm as applicable for Biomass Power projects within the State by Central Electricity Regulatory Commission in accordance with indexation mechanism stipulated under CERC RE Tariff Regulations.

45.4 The biomass base price may be revised in line with the relevant orders of the CERC.

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

46. Technology Aspect

46.1 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.

47. Capital Cost and Capital Cost Indexation Mechanism

47.1 The normative capital cost for the non-fossil fuel based co-generation projects shall be considered as Rs.420 Lakh/MW for the first year of the Control Period (i.e. FY 2012-13).

47.2 The indexed Capital Cost in case of Non-fossil fuel based Co-generation projects for second and third year of the Control Period (i.e. FY 2012-13 and FY 2013-14) shall be considered pursuant to notification of such indexed capital cost for Non-fossil fuel based Co-generation projects by Central Electricity Regulatory Commission in accordance with indexation mechanism stipulated under CERC RE Tariff Regulations.

47.3 Tariff for non-fossil fuel based co-generation projects, achieved COD before April01, 2012 will be governed through respective approved Orders of the Commission till the currency of the Orders.

48. Capacity Utilization Factor

48.1 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 Regulation 48.2 below and load factor of 92%.

48.2 The number of operating days shall be as follows:

Operating Days	Plant Load Factor (%)
90 days (crushing)+ 60 days (off-season) = 150 days operating days	38%

49. Auxiliary Consumption

49.1 The auxiliary power consumption shall be 10% for determination of tariff.

50. Station Heat Rate

50.1 The station heat rate of 3600 kcal/kWh for the power generation component alone shall be considered for computation of tariff for non-fossil fuel based co-generation projects.

51. Calorific Value

51.1 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 44 shall be applicable.

52. Fuel Cost

52.1 The price of bagasse shall be 1583 Rs/MT during first year of the tariff Control Period (i.e. FY 2012-13) and thereafter shall be linked to indexation formulae as outlined under Regulation 52.3.

52.2 For use of biomass other than bagasse in co-generation projects, the biomass prices as specified under Regulation 45 shall be applicable.

53. The indexed bagasse price in case of Co-generation Power projects for each year of the control period shall be considered pursuant to notification of such indexed bagasse price norm as applicable for Co-generation Power projects within the State by Central Electricity Regulatory Commission in accordance with indexation mechanism stipulated under CERC RE Tariff Regulations or the normative escalation factor of 5% per annum shall be applicable at the option of the project developer.

54. Fuel Mix and Co-generation Plant Capacity

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

54.2 The co-generation projects shall be sized in co-relation to the locally available non-fossil fuel. The co-generation plant developer shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

55. Use of Fossil Fuel

55.1 The use of fossil fuels shall be limited to the extent in Kcal basis of total fuel consumption on annual basis as per relevant MNRE guideline, which is presently 15%.

56. Monitoring Mechanism for the use of fossil fuel

56.1 Monitoring mechanism for the use of fossil fuel will be governed as per the provisions specified in Regulations 42.

57. Power to require statistics & returns by Monitoring agency

57.1 Power to require statistics & returns by monitoring agency will be as per the provisions in Regulations 42.

58. Operation and Maintenance Expenses

58.1 Normative O&M expenses for the first year of the tariff period (i.e. FY 2012-13) shall be Rs.16 Lakh per MW.

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

Chapter 7: Technology specific parameters for Solar PV Power Projects

59. Technology Aspects

59.1 Norms for Solar Photovoltaic (PV) power under these Regulations shall be applicable for grid connected PV systems with installed capacity of more than 1 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.

60. Capital Cost

60.1 The normative capital cost for setting up Solar Photovoltaic Power Project shall be Rs. 1000 Lakh/MW for FY 2012-13. The capital cost shall be reviewed every year as per the market aligned rates.

60.2 Capital cost for Solar PV power projects, achieved COD before April01, 2012 will be governed through respective approved Orders of the Commission till the currency of the Order.

61. Capacity Utilisation Factor

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

62. Operation and Maintenance Expenses

62.1 The O&M Expenses shall be Rs.11 Lakh/MW for the 1st year of operation.

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

Chapter 8: Technology specific parameters for Solar Thermal Power Projects

63. Technology Aspects

63.1 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.

64. Capital Cost

64.1 The normative capital cost for setting up Solar Thermal Power Project shall be Rs. 1300 Lakh/MW for FY 2012-13. The capital cost shall be reviewed every year as per the market aligned rates.

65. Capacity Utilisation Factor

65.1 The Capacity utilisation factor for Solar Thermal project shall be 23%.

66. Operation and Maintenance Expenses

66.1 The O&M Expenses shall be Rs.15 Lakhs/MW for the 1st year of operation.

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

67. Auxiliary Consumption

67.1 The auxiliary consumption factor shall be 10%.

68. Hybrid Solar Thermal Power Plants

68.1 The capital cost, auxiliary consumption factor, capacity utilization factor, O&M expenses and other relevant parameters for hybrid solar thermal power plants shall be decided by the Commission on case to case basis.

Chapter 9: Miscellaneous

69. Deviation from norms

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

70. Power to Relax

70.1 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.

71. Power to remove difficulties

71.1 If any difficulty arises in giving effect to these Regulations, the Commission may, of its own motion or otherwise, by an order and after giving a reasonable opportunity to those likely to be affected by such order, make such provisions, not inconsistent with these regulations, as may appear to be necessary for removing the difficulty.

72. Repeal

72.1 After issuance of these regulations the previous regulations namely Chhattisgarh State Electricity Regulatory Commission (Terms and conditions for determination of generation tariff and related matters for electricity generated by plants based on non-conventional sources of energy) Regulations, 2008 shall stand repealed.

By Order of the Commission

(P. N. Singh)
Secretary

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

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter Values
1	**Power Generation**				
		Capacity			
			Installed Power Generation Capacity	MW	
			Capacity Utilization Factor	%	
			Commercial Operation Date	mm/yyyy	
			Useful Life	Years	
2	**Project Cost**				
		Capital Cost / MW			
			Normative Capital Cost	Rs. lakh /MW	
			Capital Cost	Rs. Lakh	
			Capital Subsidy, if any	Rs. Lakh	
			Net Capital cost	Rs. Lakh	
3	**Financial Assumptions**				
			Tariff period	years	
		Debt:Equity			
			Debt	%	
			Equity	%	
			Total Debt Amount	Rs. Lakh	
			Total Equity Amount	Rs. Lakh	
		Debt component			
			Loan amount	Rs. Lakh	
			Moratorium Period	years	
			Repayment period (incld Moratorium)	Years	
			Interest Rate	%	
		Equity component			
			Equity amount	Rs. Lakh	
			Return on Equity for first 10 years	% p.a.	
			Return on Equity 11th year onwards	% p.a.	
		Depreciation			
			Depreciation rate for first 12 years	%	
			Depreciation rate 13th year onwards	%	
4	**Operation & Maintenance**				
		Normative O&M expense		Rs. Lakh / MW	
		O&M expenses per annum		Rs. Lakh	
		Escalation factor for O&M expenses		%	
5	**Working Capital**				
		O&M expense		Months	
		Maintenance Spare	(% of O&M expenses)	%	
		Receivables		Months	
		Interest on working capital		% p.a.	

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

Units Generation	**Unit**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**
Installed capacity	MW					
Net Generation	MU					
Tariff Components (Fixed charge)	**Unit**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**
O&M Expenses	Rs. Lakh					
Depreciation	Rs. Lakh					
Interest on term loan	Rs. Lakh					
Interest on working capital	Rs. Lakh					
Return on Equity	Rs. Lakh					
Total Fixed cost	**Rs. Lakh**					
Per Unit Tariff Components	**Unit**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**
PU O&M Expenses	Rs./kWh					
PU Depreciation	Rs./kWh					
PU Interest on term loan	Rs./kWh					
PU Interest on working capital	Rs./kWh					
PU Return on Equity	Rs./kWh					
PU Tariff Components	**Rs./kWh**					

Form 2.1: Template for Biomass power / non-fossil fuel based Cogen: Parameter Assumptions

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter Values
1	**Power Generation**				
		Capacity			
			Installed Power Generation Capacity	MW	
			Auxiliary Consumption factor	%	
			PLF during first six months of COD	%	
			PLF in next six months upto one year of COD	%	
			PLF from 2nd Year of COD onwards	%	
			Commercial Operation Date	mm/yyyy	
			Useful Life	Years	
2	**Project Cost**				
		Capital Cost / MW			
			Normative Capital Cost	Rs. Lakh /MW	
			Capital Cost	Rs. Lakh	
			Capital Subsidy, if any	Rs. Lakh	
			Net Capital cost	Rs. Lakh	
3	**Financial Assumptions**				
			Tariff period	years	
		Debt Equity			
			Debt	%	
			Equity	%	
			Total Debt Amount	Rs. Lakh	
			Total Equity Amount	Rs. Lakh	
		Debt component			
			Loan amount	Rs. Lakh	
			Moratorium Period	years	
			Repayment period (incld Moratorium)	Years	
			Interest Rate	%	
		Equity component			
			Equity amount	Rs. Lakh	
			Return on Equity for first 10 years	% p.a.	
			Return on Equity 11th year onwards	% p.a.	
		Depreciation			
			Depreciation rate for first 12 years	%	
			Depreciation rate 13th year onwards	%	
4	**Operation & Maintenance**				
		Normative O&M expense		Rs. Lakh / MW	
		O&M expenses per annum		Rs. Lakh	
		Escalation factor for O&M expenses		%	
5	**Working Capital**				
		O&M expense		Months	
		Maintenance Spare	(% of O&M expenses)	%	
		Receivables		Months	
		Biomass stock		Months	
		Interest on working capital		% p.a.	
6	**Fuel related assumptions**				
		Station Heat Rate	During stabilisation	kcal/kWh	
			Post stabilisation	kcal/kWh	
		Fuel types & mix	Biomass fuel type-1	%	
			Biomass fuel type-2	%	
			Fossil Fuel (coal)	%	
			GCV of Biomass fuel type-1	kCal/kg	
			GCV of Biomass fuel type-2	kCal/kg	
			GCV of fossil fuel (coal)	kCal/kg	
			Biomass Price (fuel type-1): Yr-1	Rs./MT	
			Biomass Price (fuel type-2):Yr-1	Rs./MT	
			Fossil Fuel price (coal): Yr-1	Rs./MT	
			Fuel price escalation factor	% p.a.	

Form2.2: Template for (Biomass Power or Non-fossil fuel based Cogen): Determination of Tariff Components

Units Generation	**Unit**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**
Installed capacity	MW					
Net Generation	MU					
Tariff Components (Fixed charge)	**Unit**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**
O&M Expenses	Rs. Lakh					
Depreciation	Rs. Lakh					
Interest on term loan	Rs. Lakh					
Interest on working capital	Rs. Lakh					
Return on Equity	Rs. Lakh					
Total Fixed cost	**Rs. Lakh**					
Tariff Components (Variable charge)	**Unit**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**
Biomass fuel type-1	Rs. Lakh					
Biomass fuel type-2	Rs. Lakh					
Fossil fuel (coal)	Rs. Lakh					
Sub total (Fuel costs)	**Rs. Lakh**					
Fuel cost allocable to power	%					
Total Fuel costs	**Rs. Lakh**					
Per Unit Tariff Components (Fixed)	**Unit**	**Year-1**	**Year-2**	**Year-3**	**Year-4**	**Year-5**
PU O&M Expenses	Rs./kWh					
PU Depreciation	Rs./kWh					
PU Interest on term loan	Rs./kWh					
PU Interest on working capital	Rs./kWh					
PU Return on Equity	Rs./kWh					
PU Tariff Components (Fixed)	**Rs./kWh**					
PU Tariff Components (Variable)	**Rs./kWh**					
PU Tariff Components (Total)	**Rs./kWh**					

Form 3.1: Template for Biomass power / non-fossil fuel based Cogen: Fuel usage Statement

Sl. No.	Month	Biomass Fuel-1 Consumptions (in tonnes)			Biomass Fuel-2 Consumptions (in tonnes)			Biomass Fuel-1 Consumptions (in tonnes)			Fossil Fuel (Coal) consumption (in tonnes)			% Fossil Fuel consumption of Total Fuel Consumption (%)		Energy Generation (kWH) during month		Cummulative Energy Generation (kWh) during FY till end of month	
		Type of Fuel	During current month	Calorific Value, Kcal/kg	Type of Fuel	During current month	Calorific Value, Kcal/kg	Type of Fuel	During current month	Calorific Value, Kcal/kg	Grade of coal used	During current month	Calorific Value, Kcal/kg	During current month	Cummulative last 12 months	Gross	Net	Gross	Net
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	April																		
2	May																		
3	June																		
4	July																		
5	August																		
6	September																		
7	October																		
8	November																		
9	December																		
10	January																		
11	February																		
12	March																		

Form 3.2 : Monthly Fuel Usage Statement (2/2)

Monthly Update

Name of the Project — FY:

(Location, District) — Statement Date

CREDA / Utility Ref. No. — Project Code

Installed Capacity (MW)

Date of Commissioning

Sl. No.	Month	Biomass Fuel-1 Consumptions (in tonnes)			Biomass Fuel-2 Consumptions (in tonnes)			Biomass Fuel-3 Consumptions (in tonnes)			Fossil Fuel) consumption (in tonnes)		
		Openin g Stock	Received at power plant site	Closing Stock	Opening Stock	Received at power plant site	Closing Stock	Openin g Stock	Received at power plant site	Closing Stock	Openin g Stock	Received at power plant site	Closing Stock
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	April												
2	May												
3	June												
4	July												
5	August												
6	September												
7	October												
8	November												
9	December												
10	January												
11	February												
12	March												