

“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 30-05-2001.”



पंजीयन क्रमांक  
“छत्तीसगढ़/दुर्ग/09/2013-2015.”

# छत्तीसगढ़ राजपत्र

(असाधारण)

प्राधिकार से प्रकाशित

क्रमांक 261 ]

रायपुर, सोमवार, दिनांक 27 जून 2016— आषाढ 6, शक 1938

छत्तीसगढ़ राज्य विद्युत नियामक आयोग  
सिंचाई कॉलोनी, शान्ति नगर, रायपुर

रायपुर, दिनांक 27 जून 2016

छत्तीसगढ़ राज्य विद्युत नियामक आयोग (अपशिष्ट से ऊर्जा परियोजनाओं हेतु उत्पादन टैरिफ के निर्धारण की दशाएं और शर्तें तथा संबंधित विषयवस्तु) विनियम, 2016

क्र. 71/छ.ग.रा.वि.नि.आ./2016. - भारत सरकार नवीनकरणीय ऊर्जा स्रोतों को पर्यावरण अनुकूल होने की वजह से एक विशेष महत्व देती है। विद्युत अधिनियम 2003 भी भारत सरकार को नीति निर्धारण हेतु सुविधा प्रदान करता है एवं राज्य विद्युत नियामक आयोगों को उनके अधिकार क्षेत्र में नवीनकरणीय ऊर्जा स्रोतों को बढ़ावा देने हेतु आदेशित करता है।

केन्द्रीय विद्युत नियामक आयोग द्वारा केन्द्रीय विद्युत नियामक आयोग (नवीकरणीय ऊर्जा स्रोतों से टैरिफ निर्धारण की शर्तें और दशाएं), (चतुर्थ संशोधन) विनियम, 2015 अधिसूचित किए गए हैं जिनके अधीन नगरपालिक ठोस अपशिष्ट/अपशिष्ट से ऊर्जा परियोजनाओं हेतु टैरिफ निर्धारण पहलुओं की चर्चा की गयी है। तथापि, ये विनियम केन्द्र क्षेत्र और अन्तः राज्य परियोजनाओं हेतु विद्युत अधिनियम 2003 की धारा 61 के अधीन प्रयोज्य हैं, तथापि इन्हें राज्य विद्युत नियामक आयोगों के लिए नवीकरणीय ऊर्जा स्रोतों से ऊर्जा उत्पादन संबंधी प्रकरणों को व्यवहृत करते समय निर्देशात्मक कारक के रूप में विचार में लिया जा सकता है।

भारत सरकार द्वारा भी स्वच्छ भारत मिशन के अंतर्गत नगरों को स्वच्छ बनाने के लिए नगरपालिक ठोस अपशिष्ट के प्रबंधन पर जोर दिया जा रहा है।

उपर्युक्त को दृष्टि में रखते हुए और विद्युत अधिनियम, 2003 (सन् 2003 का 36) विनियम की धारा 61, 86 सहपठित धारा 181 के अधीन तथा इस संबंध में अन्य समस्त समर्थकारी शक्तियों का प्रयोग करते हुये, छत्तीसगढ़ राज्य विद्युत नियामक आयोग (आयोग) एतद् द्वारा राज्य के वितरण अनुज्ञप्तिधारियों को नगरपालिक ठोस अपशिष्ट/अपशिष्ट से ऊर्जा परियोजनाओं पर आधारित विद्युत उत्पादन केन्द्रों से विद्युत के विक्रय के उद्देश्य से निम्नलिखित विनियम बनाता है -

## 1. लघु शीर्षक और प्रारंभ

1.1 ये विनियम “छत्तीसगढ़ राज्य विद्युत नियामक आयोग (अपशिष्ट से ऊर्जा परियोजनाओं हेतु उत्पादन टैरिफ के निर्धारण की दशाएं और शर्तें तथा संबंधित विषयवस्तु) विनियम, 2016” कहलायेंगे।

Raipur, the 27th June 2016

**Chhattisgarh State Electricity Regulatory Commission (Terms and conditions for determination of generation tariff and related matters for waste to energy projects) Regulations, 2016**

No. 71/CSERC/2016. — 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 (GoI) 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), (Fourth Amendment) Regulations, 2015 under which tariff determination aspects for municipal solid waste/waste to energy projects 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.

GoI is also giving thrust to management of municipal solid waste for making the cities clean under Swachha Bharat Mission (SBM).

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 municipal solid waste/waste to energy projects based electricity generating stations for the purpose of sale of power to distribution licensees.

**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 waste to energy projects) Regulations, 2016
- 1.2 These Regulations shall come into force from April 01, 2016 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 municipal solid waste/waste to energy projects 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) "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;

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

- (d) "CERC" means the Central Electricity Regulatory Commission;
- (e) "Commission" means the Chhattisgarh State Electricity Regulatory Commission;
- (f) "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.

- (g) **"Cutoff Date"** means 31<sup>st</sup> 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 31<sup>st</sup> March of the year closing after three years of the year of commercial operation;
- (h) **Control Period or Review Period** means the period during which the norms for determination of tariff specified in these regulations shall remain valid;
- (i) **"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;
- (j) **"Financial Year"** means a period commencing on 1<sup>st</sup> day of April of a calendar year and ending on 31<sup>st</sup> March of the subsequent calendar year;
- (k) **"Firm Power"** means any electricity supplied from and after the COD of project;
- (l) **"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;
- (m) **"Gross Station Heat Rate" or "GSHR"** means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals;
- (n) **"Infirm Power"** means electricity generated prior to declaration of date of commercial operation of generating station/ unit;
- (o) **"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;
- (p) **Inter-connection Point** means interface point of municipal solid waste based generating facility with the transmission system or distribution system, i.e. line isolator on HV side of the grid sub-station;
- (q) **"Licensee"** means a distribution licensee operating in the State;
- (r) **"MNRE"** means the Ministry of New & Renewable Energy of Government of India;
- (s) **"Maximum Continuous Rating" or "MCR"** in relation to a unit of the thermal generating station based on waste to energy projects means the maximum continuous output at the generator terminals, guaranteed by the manufacturer at rated parameters;
- (t) **"Municipal solid waste (MSW)"** means and includes commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes;
- (u) **"Project / Plant"** means a generating station including the evacuation system upto inter-connection point,
- (v) **"Refuse Derived Fuel (RDF)"** means segregated combustible fraction of solid waste other than chlorinated plastics in the form of pellets or fluff produced by drying, de-stoning, shredding, dehydrating and compacting combustible components of solid waste that can be used as fuel;"
- (w) **"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;
- (x) **"State"** means the State of Chhattisgarh;
- (y) **'Useful Life'** in relation to a unit of a generating station based on municipal solid waste including evacuation system shall mean the 20 years duration from the date of commercial operation of such generation facility;
- (z) **'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 waste to energy (hereinafter referred to as "WtE") projects achieving COD within the State of Chhattisgarh after April 01, 2016 for generation and sale of electricity from such WtE 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 municipal solid waste (MSW) and refuse derived fuel (RDF), is to be determined by the Commission under Section 62 read with Section 86 of the Act.

**4. Eligibility Criteria**

4.1 **Municipal solid waste based power projects** – The project shall qualify to be termed as a Municipal solid waste based power project, if it is of minimum 1 MW, using new plant and machinery based on Rankine cycle technology and using Municipal solid waste as fuel sources.

4.2 **Refuse derived fuel based power projects** – The project shall qualify to be termed as a Refuse derived fuel based power project, if it is of minimum 1 MW, using new plant and machinery based on Rankine cycle technology and using Refuse derived fuel as fuel sources.



## 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 April 01, 2016 and shall cover upto the end of financial year 2020-21.

Provided also that the tariff determined as per these Regulations for the MSW/RDF projects achieving COD during the Control Period, shall continue to be applicable for the MSW/RDF 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 waste to energy projects.
- 6.2 In case of municipal solid waste and refuse derived fuel based power projects, the Tariff Period shall be twenty (20) years.

### 7. Project Specific Tariff

- 7.1 Project specific tariff, on case to case basis, shall be determined by the Commission for if a project developer or procuring distribution licensee opts for 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.

Provided the capital cost will be allowed by the Commission only after prudence check. Further, break up of capital cost is require to be given and only those assets which have been put in use as on the date of COD and the assets which could be capitalized after the date of COD and up to Cut-off Date has to be specified.

- 7.3 Rate for power supplied to a licensee prior to declaration of date of commercial operation (infirm power) shall be equal to energy (variable) charges.

### 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 the 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 April 01, 2016 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 enclosed, 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 municipal solid waste based 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 RDF technologies having fuel cost component, 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 technologies having tariff with two components, tariff shall be determined on levellised basis considering the year of COD 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 Post Tax 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. Dispatch Principles for electricity generation from Renewable Energy Sources

- 11.1 Plants based on MSW/RDF shall be treated as 'MUST RUN' power plants and shall not be subjected to scheduling and merit order dispatch principles.

## Chapter 2: Financial Principals

### 12. Capital Cost

- 12.1 The norms for the Capital Cost as specified in the Chapter #3 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 1<sup>st</sup> of every year shall be worked out by deducting the cumulative repayment up to March 31<sup>st</sup> 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 1<sup>st</sup> 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.

### 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 13<sup>th</sup> 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 11<sup>th</sup> year onwards.

**17. Interest on Working Capital**

- 17.1 The Working Capital requirement in respect of municipal solid waste/RDF based 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
- 17.2 Interest on Working Capital shall be at interest rate equivalent to base rate (lending rate) of State Bank of India prevalent on October 1<sup>st</sup> 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 2016-17) 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 MSW/RDF 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.



### Chapter 3: Technology specific parameters for MSW and RDF Projects based on Rankine Cycle Technology

#### 24. Technology Aspect

- 24.1 The norms for tariff determination specified hereunder are for power projects which use municipal solid waste and refuse derived fuel and are based on Rankine cycle technology application, combustion or incineration, Bio-methanation, Pyrolysis and High end gasifier technologies.

#### 25. Capital Cost

- 25.1 The normative capital costs for FY 2016-17, for power projects which use municipal solid waste and refuse derived fuel and are based on Rankine cycle technology application shall be as under:
- Rs 1575 lakh/MW for the power projects which use municipal solid waste and are based on Rankine cycle technology application.
  - Rs 945 lakh/MW for the power projects which use refuse derived fuel and are based on Rankine cycle technology application.

Provided that the Capital Cost norms for the remaining years of the control period, for municipal solid waste and refuse derived fuel based power projects shall be reviewed on annual basis.

#### 26. Capacity Utilization Factor

- 26.1 Threshold Plant Load Factor for determining fixed charge component of Tariff shall be 75% for MSW based technologies and 80% for RDF based technologies.

#### 27. Auxiliary Consumption

- 27.1 The auxiliary power consumption for the power projects which use municipal solid waste and refuse derived fuel shall be 15%.

#### 28. Station Heat Rate

- 28.1 The Station Heat Rate for power projects which use municipal solid waste and refuse derived fuel shall be 4000 kcal/kWh.

#### 29. Operation and Maintenance Expenses

- 29.1 Normative O&M expenses for the first year of the control period (i.e. FY 2016-17) shall be Rs. 94.5 Lakh per MW and Rs. 56.5 Lakh per MW for municipal solid waste and refuse derived fuel respectively.
- 29.2 Normative O&M expenses allowed at the commencement of the tariff Period shall be escalated at the rate of 5.72% per annum for the subsequent years of the control period.

#### 30. Calorific Value

- 30.1 The Calorific Value of the refuse derived fuel used for the purpose of determination of tariff shall be at 2500 kcal/kg.

#### 31. Fuel Cost

- 31.1 Refuse derived fuel price during FY 2016-17 shall be Rs 1,890 per MT. For each subsequent year of the Tariff Period, the normative escalation factor of 5% per annum shall be applicable at the option of the refuse derived fuel project developer.
- 31.2 No fuel cost shall be considered for determination of tariff for the power projects using municipal solid waste.

#### 32. Monitoring Mechanism for the use of MSW/RDF

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

monitoring MSW/RDF consumption) for each month. 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 consumed during the month for power generation purposes,
  - iv. Closing fuel stock quantity (in tonnes) for each fuel type available at the power plant site at the end of the month,
  - v. Cumulative quantity (in tonnes) of each fuel type procured till the end of that month during the financial year,
  - vi. Cumulative quantity (in tonnes) for each fuel type 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,
- 32.2 Non compliance of the above provisions to be brought to the notice of the Commission. Appropriate mechanism shall be incorporated in the power purchase agreement between the parties with due approval of the Commission for the compliance of uses of MSW/RDF fuel.
- 32.3 Non-compliance with the condition of MSW/RDF usage by the project developer, during any financial year, shall render such waste to energy 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 waste to energy 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 waste to energy project 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.
- 33. Power to require statistics & returns by Monitoring agency**
- 33.1 The Chhattisgarh Renewable Energy Development Agency (CREDA) shall be responsible for monitoring compliance of fuel mix ratio of biomass projects.
- 33.2 CREDA shall also maintain such data, including technical and commercial details (including year of CoD, uses of fuel, source of fuel etc.) of waste to energy projects in the State and shall make the data available in the public domain by publishing the same on its website with quarterly updation.
- 33.3 The project developer shall submit the information to CREDA as required under Regulation 32 in the format as designed by CREDA.
- 33.4 CREDA shall submit an annual report on an affidavit duly notarised, for the entire financial year to the Commission for each waste to energy plant on the use of MSW/RDF fuel during the preceding year, by the end of April every year. CREDA shall also submit the same annual report for the entire financial year to the beneficiary distribution licensee.

**Chapter 4: Miscellaneous**

**34. Renewable Purchase Obligation Compliance**

34.1 Entire energy purchased in any financial year by the distribution licensee from the waste to energy projects under these regulations shall qualify for fulfilment renewable purchase obligation for that distribution licensee for that particular financial year.

**35. Deviation from norms**

35.1 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.

**36. Power to Relax**

36.1 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.

**37. Power to remove difficulties**

37.1 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.

By Order of the Commission,

Sd/-  
**(P. N. Singh)**  
Secretary.

## Form 2.1: Template for MSW / RDF based power plants: 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 (inclcl 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.	

Form 2.2: Template for MSW/RDF: Determination of Tariff Components

Units Generation	Unit	Year-1	Year-2	Year-3	Year-4	Year-5
Installed capacity	MW					
Net Generation	MU					
<b>Tariff Components (Fixed charge)</b>	<b>Unit</b>	<b>Year-1</b>	<b>Year-2</b>	<b>Year-3</b>	<b>Year-4</b>	<b>Year-5</b>
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					
<b>Total Fixed cost</b>	<b>Rs. Lakh</b>					
<b>Tariff Components (Variable charge)</b>	<b>Unit</b>	<b>Year-1</b>	<b>Year-2</b>	<b>Year-3</b>	<b>Year-4</b>	<b>Year-5</b>
Biomass fuel type-1	Rs. Lakh					
Biomass fuel type-2	Rs. Lakh					
Fossil fuel (coal)	Rs. Lakh					
<b>Sub total (Fuel costs)</b>	<b>Rs. Lakh</b>					
Fuel cost allocable to power	%					
<b>Total Fuel costs</b>	<b>Rs. Lakh</b>					
<b>Per Unit Tariff Components (Fixed)</b>	<b>Unit</b>	<b>Year-1</b>	<b>Year-2</b>	<b>Year-3</b>	<b>Year-4</b>	<b>Year-5</b>
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					
<b>PU Tariff Components (Fixed)</b>	<b>Rs./kWh</b>					
<b>PU Tariff Components (Variable)</b>	<b>Rs./kWh</b>					
<b>PU Tariff Components (Total)</b>	<b>Rs./kWh</b>					