

# Central Electricity Regulatory Commission

## Notification

New Delhi, the \_\_\_ August, 2015

**No. L-1/94/CERC/2011-** In exercise of the powers conferred under section 61 read with Section 178 of the Electricity Act, 2003 (36 of 2003), and all other powers enabling it in this behalf, and after previous publication, the Central Electricity Regulatory Commission, hereby makes the following regulations, to amend the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 (hereinafter referred to as the "Principal Regulations") namely: -

1. **Short title and commencement** - (1) These regulations shall be called the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) (Fourth Amendment) Regulations, 2015;

(2) These regulations shall come into force with effect from the date of their publication in the Official Gazette.

2. **Insertion of a new clause under Regulation 2:** After sub-clause (o) under clause (1) of Regulation 2 of the Principal Regulations, a new clause (oa) shall be added as under:-

“**Municipal solid waste**’ 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”

3. **Insertion of a new clause under Regulation 2:** After sub-clause (s) under clause (1) of Regulation 2 of the Principal Regulations, a new clause (sa) shall be added as under:-

“**Refuse Derived Fuel**’ means segregated combustible fraction of solid waste other than chlorinated plastics in the form of pellets or fluff produced by drying, shredding, dehydrating and compacting combustible components of solid waste that can be used as fuel;”

4. **Insertion of a new clause under Regulation 2:** After sub-clause (g) under clause (1)(aa) of Regulation 2 of the Principal Regulations, a new sub-clause (h) shall be added as under:-

"Municipal solid waste (MSW) and Refuse derived fuel (RDF) based power projects - 20 years”

5. **Amendment of Regulation 3 of Principal Regulations:** Proviso to Regulation 3 of the Principal Regulations shall be substituted as under:-

"Provided that in cases of wind, Small Hydro projects, Biomass power based on Rankine cycle, non-fossil fuel based cogeneration projects, Solar PV, Solar Thermal power projects, Biomass gasifier, Biogas, Municipal solid waste (MSW) and Refuse derived fuel (RDF) based power projects, these regulations shall apply subject to the fulfillment of eligibility criteria specified in Regulation 4 of these Regulations."

6. **Insertion of a new clause under Regulation 4:** After clause (g) of Regulation 4 of the Principal Regulations, a new clause (h) shall be added as under:-  
  
"Municipal solid waste (MSW) based power projects – The project shall qualify to be termed as a Municipal solid waste (MSW) based power project, if it is using new plant and machinery based on Rankine cycle technology and using Municipal solid waste (MSW) as fuel sources"
7. **Insertion of a new clause under Regulation 4:** After clause (h) of Regulation 4 of the Principal Regulations, a new clause (i) shall be added as under:-  
  
"Refuse derived fuel (RDF) based power projects – The project shall qualify to be termed as a Refuse derived fuel (RDF) based power project, if it is using new plant and machinery based on Rankine cycle technology and using Refuse derived fuel (RDF) as fuel sources"
8. **Amendment of Regulation 6 of Principal Regulations:** Clause (a) of Regulation 6 of the Principal Regulations shall be substituted as under:-  
  
"The Tariff Period for Renewable Energy power projects except in case of Small hydro projects below 5 MW, Solar PV, Solar thermal, Biomass Gasifier, Biogas, Municipal solid waste (MSW) and Refuse derived fuel (RDF) based power projects shall be thirteen (13) years."
9. **Insertion of a new clause under Regulation 6:** After clause (d) of Regulation 6 of the Principal Regulations, a new clause (da) shall be added as under:-  
  
"In case of municipal solid waste (MSW) and refuse derived fuel (RDF) based power projects, the Tariff Period shall be twenty (20) years;"
10. **Amendment of Regulation 7 of Principal Regulations:** Sub-clause (i) under clause (a) of Regulation 7 of the Principal Regulations shall be substituted as under:-  
  
"Municipal Solid Waste and Refuse Derived Fuel based power projects, if a project developer opts for project specific tariff:  
  
Provided that the Commission while determining the project specific tariff for Municipal Solid Waste and Refuse Derived Fuel based power projects shall be guided by the provisions of Chapter 5A of these Regulations."
11. **Insertion of a new clause under Regulation 11:** After clause (1) of Regulation 11 of the Principal Regulations, a new clause (1a) shall be added as under:-  
  
" The Municipal Solid Waste and Refuse Derived Fuel based power projects shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles."
12. **Amendment of Regulation 11 of Principal Regulations:** Clause (2) of Regulation 11 of the Principal Regulations shall be substituted as under:-

"The biomass power generating station with an installed capacity of 10 MW and above, non-fossil fuel based co-generation projects, municipal solid waste and refuse derived fuel shall be subjected to scheduling and despatch code as specified under Indian Electricity Grid Code (IEGC) and Central Electricity Regulatory Commission (Unscheduled Interchange and related matters) Regulations, 2009 including amendments thereto."

**13. Amendment of Regulation 17 of Principal Regulations:** Clause (2) of Regulation 17 of the Principal Regulations shall be substituted as under:-

"The Working Capital requirement in respect of biomass power projects, Municipal solid waste (MSW), Refuse derived fuel (RDF) based power projects and non-fossil fuel based co-generation projects shall be computed in accordance with the following clause :

**Biomass, Biogas Power, Municipal solid waste (MSW), Refuse derived fuel (RDF) based power projects and Non-fossil fuel Co-generation**

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

**14. Insertion of a new chapter after chapter 5:** After chapter 5 of the Principal Regulations, a new chapter (5A) shall be added as under:-

**“CHAPTER 5A**

**TECHNOLOGY SPECIFIC PARAMETERS FOR POWER PROJECTS USING MUNICIPAL SOLID WASTE (MSW)/REFUSE DERIVED FUEL (RDF) AND BASED ON RANKINE CYCLE TECHNOLOGY**

**33A. Technology Aspect**

The norms for tariff determination specified hereunder are for power projects which use municipal solid waste (MSW) and refuse derived fuel (RDF) and are based on Rankine cycle technology application.

**33B. Capital Cost**

The normative capital costs for FY 2015-16, for power projects which use municipal solid waste (MSW) and refuse derived fuel (RDF) and are based on Rankine cycle technology application shall be as under:

- i. ₹1500 lakh/MW for the power projects which use municipal solid waste (MSW) and are based on Rankine cycle technology application.

- ii. ₹900 lakh/MW the power projects which use refuse derived fuel (RDF) 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 (MSW) and refuse derived fuel (RDF) based power projects shall be reviewed on annual basis.

### **33C Plant Load Factor**

(1) Threshold Plant Load Factor for determining fixed charge component of tariff for the power projects which use municipal solid waste (MSW) and refuse derived fuel (RDF) shall be:

a) During Stabilisation	:	65%
b) During the remaining period of the first year (after stabilization)	:	65%
c) From 2nd Year onwards	:	70 %

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

### **33D Auxiliary Consumption**

The auxiliary power consumption for the power projects which use municipal solid waste (MSW) and refuse derived fuel (RDF) shall be 12.5%.

### **33E Station Heat Rate**

The Station Heat Rate for power projects which use municipal solid waste (MSW) and refuse derived fuel (RDF) shall be 4200 kcal/kWh.

### **33F Operation and Maintenance Expenses**

(1) Normative O&M expenses for FY 2015-16 for the power projects which use municipal solid waste (MSW) or refuse derived fuel (RDF) shall be 5% of normative capital cost.

(2) Normative O&M expenses allowed for FY 2015-16 for the power projects which use municipal solid waste (MSW) and refuse derived fuel (RDF) respectively under these Regulations shall be escalated @ 5.72% per annum.

### **33G Calorific Value**

The Calorific Value of the refuse derived fuel (RDF) fuel used for the purpose of determination of tariff shall be at 2500 kcal/kg

### **33H Fuel Cost**

Refuse derived fuel (RDF) price during FY 2015-16 shall be ₹ 1,800 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 (RDF) project developer.

No fuel cost shall be considered for determination of tariff for the power projects using municipal solid waste (MSW).”

**15. Amendment of Form 2.1 appended to the Principal Regulations:** Title of Form 2.1 appended to the Principal Regulations shall be substituted as under:-

"Form-2.1: Form Template for (Biomass Power, municipal solid waste (MSW) and refuse derived fuel (RDF) or Non-fossil fuel based Cogen) : Parameter Assumptions"

**16. Amendment of Form 2.1 appended to the Principal Regulations:** Row 6 of Form 2.1 appended to the Principal Regulations shall be substituted as under:-

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6.	Fuel related assumptions	Station Heat Rate	During stabilisation	kCal/Kwh
		Fuel types & mix	post stabilisation	kCal/Kwh
			Biomass fuel type-1	%
			Biomass fuel type-2	%
			Municipal Solid Waste fuel	%
			Refuse Derived Fuel	%
			fossil fuel (coal)	%
			GCV of Biomass fuel type-1	kCal/Kwh
			GCV of Biomass fuel type-2	kCal/Kwh
			GCV of Municipal Solid Waste fuel	kCal/Kwh
			GCV of Refuse Derived Fuel	kCal/Kwh
			GCV of fossil fuel (coal)	kCal/Kwh
			Biomass Price (fuel type-1)/yr-1	Rs/MT
			Biomass Price (fuel type-2)/yr-1	Rs/MT
			Municipal Solid Waste Price /yr-1	Rs/MT
			Refuse Derived Fuel Price / yr-1	Rs/MT
fossil fuel price (coal) : yr-1	Rs/MT			
fuel price escalation factor	% p.a.			

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**17. Amendment of Form 2.2 appended to the Principal Regulations:** Title of Form 2.2 appended to the Principal Regulations shall be substituted as under:-

"Form-2.2:Form Template for (Biomass Power, municipal solid waste (MSW) and refuse derived fuel (RDF) or Non-fossil fuel based Cogen) : Determination of Tariff Components"

**18. Amendment of Form 2.2 appended to the Principal Regulations:** Table for “Tariff Components (Variable Charge)” of Form 2.2 appended to the Principal Regulations shall be substituted as under:-

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Tariff Components (Variable charge)	Unit	Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	Yr-6	Yr-7	Yr-8	Yr-9	Yr-10	Yr-11	Yr-12	Yr-13	Yr-14	Yr-15	Yr-16	Yr-17	Yr-18	Yr-19	Yr-20	Yr-21	Yr-22	Yr-23	Yr-24	Yr-25
Biomass fuel type-1	Rs. Lakh																									
Biomass fuel type-2	Rs. Lakh																									
Municipal Solid Waste	Rs. Lakh																									
Refuse Derived Fuel	Rs. Lakh																									
Fossil fuel (coal)	Rs. Lakh																									
Sub-Total (Fuel Cost)	Rs. Lakh																									
Fuel Cost allocable to Power																										
Total Fuel Cost	Rs. Lakh																									

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**(Shubha Sarma)**  
**Secretary**

Note: The Principal Regulations were published in the Gazette of India (Extraordinary) No. 20, Part III, Section 4 on 7 February, 2012, the First Amendment to the Principal Regulations was published in the Gazette of India (Extraordinary) No. 92, Part III, Section 4 on 21 March, 2014, the Second Amendment to the Principal Regulations was published in the Gazette of India (Extraordinary) No. 6, Part III, Section 4 on 5 January, 2015 and the Third Amendment to the Principal Regulations was published in the Gazette of India (Extraordinary), Part III, Section 4 on 10 July, 2015.