



JAMMU AND KASHMIR STATE ELECTRICITY REGULATORY COMMISSION

JAMMU & KASHMIR STATE ELECTRICITY REGULATORY COMMISSION (TERMS AND CONDITIONS FOR TARIFF DETERMINATION FROM RENEWABLE ENERGY SOURCES) (FIRST AMENDMENT) REGULATIONS, 2016.

Notification No.: 49-JKSERC of 2016

Dated: -22.03.2016

In exercise of the powers conferred under section 56 read with Section 71(e) & 138 (2) of the Jammu & Kashmir Electricity Act, 2010 (XIII of 2010) , and all other powers enabling it in this behalf, and after previous publication, the Jammu & Kashmir State Electricity Regulatory Commission, hereby makes the following regulations, to amend the Jammu & Kashmir State Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2013 (hereinafter referred to as the "Principal Regulations") namely: -

- 1. Short title and commencement-** (1) These regulations shall be called the Jammu & Kashmir State Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) (First Amendment) Regulations, 2016;

(2) These regulations shall come into force with immediate effect.

2. **Amendment to Sub-clause (f) of clause (1) of Regulation 2:** The Sub-clause (f) under clause (1) of Regulation 2 of the Principal Regulations shall be substituted as under:-

"(f) 'Capital Cost' means the capital cost as defined in Regulations 12, 24, 28, 33, 33 B, 47, 57, 61, 66 & 76;

3. **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 municipal or notified areas in either solid or semi-solid form, excluding industrial hazardous wastes but including treated bio-medical wastes;"

4. **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, de-stoning, shredding, dehydrating, and compacting combustible components of solid waste that can be used as fuel;"

5. **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;"

6. **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 and Refuse Derived Fuel based power projects, these regulations shall apply subject to the fulfillment of eligibility criteria specified in Regulation 4 of these Regulations."

7. **Amendment to the Regulation 4 of the Principal Regulations:** Clause (c) of the Regulation 4 of the Principal Regulations shall be substituted as under:

"(c) ***Biomass power project based on Rankine cycle technology***
– Biomass power projects using new plant and machinery based on Rankine cycle technology and using biomass fuel sources, provided use of fossil fuel is restricted only up to 15% in terms of calorific value on annual basis, till 31.03.2018.

8. **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 based power project*** – The project shall qualify to be termed as a Municipal Solid Waste based power project, if it is using new plant and machinery based on Rankine cycle technology and using Municipal Solid Waste as fuel sources."

9. **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 based power project – The project shall qualify to be termed as a Refuse Derived Fuel based power project, if it is using new plant and machinery based on Rankine cycle technology and using Refuse Derived Fuel as fuel sources."

10. **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 and Refuse Derived Fuel based power projects shall be thirteen (13) years."

11. **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 and Refuse Derived Fuel based power projects, the Tariff Period shall be twenty (20) years."

12. **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;

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."

13. **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."

14. **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 based projects shall be subjected to scheduling and despatch code as specified under Jammu & Kashmir State Electricity Grid Code, 2006, as amended from time to time."

15. **Amendment to Regulation 12 of Principal Regulations:** The Regulation 12 of the Principal Regulations shall be substituted as under:-

"Capital Cost - 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, setting up of flue gas treatment plant and other pollution control equipment, wherever required, to follow emission norms as prescribed by Ministry of Environment and Forest/Central Pollution Control Board/ State Pollution Control Board, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point:

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

16. **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, Refuse Derived Fuel 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, Refuse Derived Fuel 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."
17. **Amendment of Regulation 34 of the Principal Regulations:** Regulation 34 of the Principal Regulations shall be substituted as under:
- "Capital Cost-** The normative capital cost for the biomass power projects based on Rankine cycle shall be as under:
- a. 540 lakh/MW for project [other than rice straw and juliflora (plantation) based project] with water cooled condenser;
 - b. 580 lakh/MW for Project [other than rice straw and Juliflora (plantation) based project] with air cooled condenser;

- c. 590 lakh/MW for rice straw and juliflora (plantation) based project with water cooled condenser;
- d. 630 lakh/MW for rice straw and juliflora (plantation) based project with air cooled condenser."

18. **Amendment of Regulation 37 of the Principal Regulations:**

Regulation 37 of the Principal Regulations shall be substituted as under:

"Auxiliary Consumption- The auxiliary power consumption shall be as under:

a. For the project using water cooled condenser:

- i. During first year of operation: 11%;
- ii. From 2nd year onwards: 10%.

b. For the project using air cooled condenser:

- i. During first year of operation: 13%;
- ii. From 2nd year onwards: 12%."

19. **Amendment of Regulation 38 of the Principal Regulations:**

Regulation 38 of the Principal Regulations shall be substituted as under:

"Station Heat Rate-The Station Heat Rate for biomass power projects using fossil fuel up to 15% of calorific value on annual basis, shall be as under till 31.03.2018:

- a. 4126 kcal/kWh for project using travelling grate boilers;
- b. 4063 kcal/kWh for project using AFBC boilers."

20. **Amendment of Regulation 39 of Principal Regulations:**

Clause (1) of Regulation 39 of the Principal Regulations shall be substituted as under:

“Operation and Maintenance Expenses- (1) Normative O&M expenses for the first year of the Control period (i.e. FY 2013-14 shall be 40 lakh/MW.”

21. **Amendment of Regulation 41 of the Principal Regulations:**

Regulation 41 of the Principal Regulations shall be substituted as under:

“Use of Fossil Fuel- The use of fossil fuels shall be limited to the extent of the 15% in terms of calorific value on annual basis, till 31.03.2018.”

22. **Amendment of Regulation 43 of the Principal Regulations:**

Regulation 43 of the Principal Regulations shall be substituted as under:

“Calorific Value- For Biomass based projects using fossil fuel up to 15% of calorific contribution, the Calorific Value of fuel used for the purpose of determination of tariff shall be 3174 kcal/kg. till 31.03.2018.”

23. **Amendment of Regulation 44 of the Principal Regulations:**

The following shall be added at the end of Regulation 44 of the Principal Regulations, namely:

“Alternatively, biomass fuel price may be, if necessary, decided annually by the Commission through an independent survey which could be carried out by constituting a State Level Committee. The price

so determined shall not exceed the price, if any, determined by the CERC.”

24. **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 /REFUSE DERIVED FUEL 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 and Refuse Derived Fuel and are based on Rankine cycle technology application, combustion or incineration, Bio-methanation, Pyrolysis and High end gasifier technologies

33B. Capital Cost

The normative capital costs for FY 2015-16,for power projects which use Municipal Solid Waste and Refuse Derived Fuel and are based on Rankine cycle technology application shall be as under:

- i. Rs 1500 lakh/MW for the power projects which use Municipal Solid Waste and are based on Rankine cycle technology application.

- ii. Rs 900 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.

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 and Refuse Derived Fuel shall be:

| | PLF | MSW | RDF |
|----|---------------------------------------------------------------------|------------|------------|
| a) | During Stabilisation | 65% | 65% |
| b) | During the remaining period of the first year (after stabilization) | 65% | 65% |
| c) | From 2nd Year onwards | 75% | 80% |

- 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 and Refuse Derived Fuel shall be 15%.

33E Station Heat Rate

The Station Heat Rate for power projects which use Municipal Solid Waste and Refuse Derived Fuel 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 or Refuse Derived Fuel shall be 6% of normative capital cost.

(2) Normative O&M expenses allowed for FY 2015-16 for the power projects which use Municipal Solid Waste and Refuse Derived Fuel respectively under these Regulations shall be escalated @ 5.72% per annum.

33G Calorific Value

The Calorific Value of the Refuse Derived Fuel used for the purpose of determination of tariff shall be at 2500 kcal/kg.

33H Fuel Cost

Refuse Derived Fuel price during FY 2015-16 shall be Rs 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 project developer.

No fuel cost shall be considered for determination of tariff for the power projects using Municipal Solid Waste.

25. **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 and Refuse Derived Fuel or Non-fossil fuel based Cogen) Parameter Assumptions"

26. **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:-

| | | | | |
|---------------------------------|--------------------------|-------------------|-----------------------------------|----------|
| 6. | Fuel related assumptions | Station Heat Rate | During stabilisation post | kCal/Kwh |
| | | Fuel types & mix | During stabilisation | kCal/Kwh |
| | | | 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. | | | |

27. **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 and Refuse Derived Fuel or Non-Fossil fuel based Cogen: Determination of Tariff Components"

28. 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:-

| 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 | | | | | | | | | | | | | | | | | | | | | | | | | |

By order of the Commission

Sd/-
Anil Kumar Gupta (KAS)
Secretary,
J&K State Electricity Regulatory Commission,
Jammu