



JFE Engineering India Private Limited

Registered office:

ICC-Devi Gaurav Tech Park, Unit 01-A, S. No. - 191 to 195,
North Block, Ground Floor, Old Mumbai-Pune Road, Pimpri,
Pune - 411018, Maharashtra, India

TEL: +91-20-6817 9700 FAX: +91-20-6817-9777

Email: pune@jfe-eng.co.in CIN: U74210PN2011FTC164621

Ref.: RESP/CERC/TAR/JFEEI/01

To,

Date: 14th. March, '24

Central Electricity Regulatory Commission,
3rd & 4th Floor, Chanderlok Building,
36, Janpath Road,
New Delhi-110001

Sub.: Response to Draft Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2024

Kind Attn.: Ms. Harpreet Singh Pruthi (Secretary)

Dear Members of Central Electricity Regulatory Commission,

This correspondence has reference to the draft terms and conditions for tariff determination from renewable energy sources as per the document with reference no. RA-14026(11)/1/2023-CERC. Having studied the same, we, at JFE Engineering India Private Limited, would like to propose the following changes as below, with regard to MSW/RDF based Waste to Energy Projects:

Capital Cost

The current proposed capital cost for Waste to Energy projects are as follows:

- MSW based waste to energy projects – 1800 lacs/MWe.
- RDF based waste to energy projects – 2100 lacs/MWe.

Due to constraints on CAPEX, most of WtE plants in India need to compromise on specifications resulting into shortened life, higher maintenance, and operating troubles. Sufficient CAPEX will allow the use of such latest specifications used in advanced countries.

Also we have noticed that the inclusions in this capital cost as per the draft notification are as follows:

- land cost.
- pre-development expenses.
- all capital work including plant & machinery, civil work, erection, commissioning, financing cost, interest during construction and evacuation infrastructure up to an interconnection point.

JFE Engineering India would like to clarify/propose the following as regards the capital cost for waste to energy projects:

- As per SWM rules 2016, unprocessed MSW can not be combusted in WtE plants. Also there is no clear definition of MSW and RDF. Hence we suggest to remove two separately classified categories. We recommend to keep only one category i.e. pre-segregated waste/RDF.



JFE Engineering India Private Limited

Registered office:

ICC-Devi Gaurav Tech Park, Unit 01-A, S. No. - 191 to 195,

North Block, Ground Floor, Old Mumbai-Pune Road, Pimpri,

Pune - 411018, Maharashtra, India

TEL: +91-20-6817 9700 FAX: +91-20-6817-9777

Email: pune@jfe-eng.co.in CIN: U74210PN2011FTC164621

- Land cost should not be included in capital cost.
- Interest during construction should be considered separately for waste to energy projects.
- The taxes haven't been mentioned in the above estimate. We'd like to clarify that taxes should be considered extra while estimating the capital cost of waste to energy projects.

If all of above has to be included for simplicity in guidelines, CAPEX for a typically 12-14 MW plant with design NCV of 1650 Kcal/Kg should be benchmarked at Rs 28 Crore/MW.

In case the plant is smaller or bigger in power output and also the NCV is different, some correction factors shall be applied.

Our proposal for correction factors for Capital cost:

- Capital cost per MWe should be corrected with NCV (Net calorific value) and the power output.
 - o Rs. 28 Crore per MW mentioned above shall be applied for Nominal plant capacity between 12 to 14 MW power output with NCV of 1650 Kcal/Kg.
 - o The correction factors to be applied are as under.
 - NCV Correction factor (H) should be applied @ 1% for each 20 Kcal (1% higher Capex per 25 Kcal/Kg lower NCV and 1% lower CAPEX for each 20 Kcal higher NCV). This factor adjustment shall be to the maximum of 5% on either side.

NCV	Correction factor H
1570 or lower	1.05
1570 – 1590	1.04
1590 – 1610	1.03
1610- 1630	1.02
1630 – 1650	1.01
1650 – 1670	1.00
1670 – 1690	0.95
1690 – 1710	0.96
1710 – 1730	0.97
1730 – 1750	0.96
1750 or above	0.95

- Since the CAPEX does not exactly change in linear proportion to power Output capacity, we propose a correction (O) factor shall be applied as under –

Gross electric output	Correction factor O
5 MW or Lower	1.4
5 – 5.99 MW	1.35
6 – 6.99 MW	1.3
7 – 7.99 MW	1.25
8 – 8.99 MW	1.2
9 – 9.99 MW	1.15
10 – 10.99 MW	1.1



JFE Engineering India Private Limited

Registered office:

ICC-Devi Gaurav Tech Park, Unit 01-A, S. No. - 191 to 195,
North Block, Ground Floor, Old Mumbai-Pune Road, Pimpri,
Pune - 411018, Maharashtra, India

TEL: +91-20-6817 9700 FAX: +91-20-6817-9777

Email: pune@jfe-eng.co.in CIN: U74210PN2011FTC164621

11 – 11.99 MW	1.05
12 – 14	1.00
14 – 16.99	0.98
17 – 19.99	0.96
20 – 23.99	0.94
24 – 26.99	0.92
27 and above	0.90

For consideration of CAPEX, both correction factors shall be applied.

The capital cost estimated based on data from existing plants do not account for reliable technical features like alloy cladding, special grade of stainless steel for superheater tubes which contribute to more reliable plant operations for Waste to Energy. Such features are quite standard in plants across Europe and Japan. Appropriate correction in capital cost should be considered for only for those Developers incorporating such technical features in their solution.

Operation and Maintenance cost

The Operation and Maintenance cost sees a major maintenance overhaul every 5 years. Factoring the same in the Operation and Maintenance cost, we propose the following estimates for operation and maintenance cost:

- Normal O&M – 8% of Capital Cost
- Major maintenance at each 5 years – 4% of CAPEX

Return on Equity (RoE)

The current RoE is estimated to be 14% for Waste to Energy projects.

In order to attract more Developers so that this sector is incentivized, we propose the RoE to be estimated at 16%.

Tarriff

As a general Guideline, CERC should specify minimum Tarriff as under –

5 – 10 MW	= Rs 10/KWh
10 – 14 MW	= Rs 9/KWh
14 – 20 MW	= Rs 8.5/KWh
20 – 30 MW	= Rs 8.0/KWh
Above 30 MW	= Rs 7.8/KWh

Rate of Interest

As the WtE is perceived as little difficult business, many lenders may likely provide the loan at slightly higher rate of interest. Hence, we request CERC to consider the typical lending rate of 10.5% for the debt component.



JFE Engineering India Private Limited

Registered office:

ICC-Devi Gaurav Tech Park, Unit 01-A, S. No. - 191 to 195,
North Block, Ground Floor, Old Mumbai-Pune Road, Pimpri,
Pune - 411018, Maharashtra, India

TEL: +91-20-6817 9700 FAX: +91-20-6817-9777

Email: pune@jfe-eng.co.in CIN: U74210PN2011FTC164621

Assurance of payment from DISCOM

Suitable assurance of payment from DISCOM (via ESCROW) should be considered as it would mitigate one of the major risks while evaluation in obtaining a loan for the project. Suitable mechanisms securitizing the payment to the Developer from the DISCOM ought to be implemented.

Consent from Beneficiary

As per the Explanatory Memorandum document issued by CERC, for project specific tariffs, consent from procurer of power is necessary for applying project specific tariff application. Our request is to remove such pre-requisite as the purchase of power by local DISCOM from WtE plants is mandatory.

In order to provide a boost this industry and harness this clean energy which will also result in many intangible socio-economic benefits to the society in general, we request CERC to look at data from other countries as well. We welcome the efforts of CERC in this regard and would like to support you with best possible efforts.

Assuring you of our best,

For JFE Engineering India Private Limited

B.G. Kulkarni
Managing Director