Sustainability

SUGGESTIONS ON CERC DRAFT RE REGULATIONS 2024

MSW / RDF PROJECT DEFINITION

CERC Regulations Explanatory Memorandum 2015	CERC Draft Regulations Explanatory Memorandum 2024	Remarks
MSW Project is defined as a Project inclusive of Processing facility of MSW. Cost of Processing plant is considered 35-40% of the project cost of Rs 15 Cr /MW Thus, the Processing plant for manufacturing RDF is Rs 6 Cr/MW & Waste to Energy Plant is Rs 9 Cr/MW Totalling Rs 15 cr/MW The RDF based Power project is Rs 9 Cr/MW as it will not have any Processing plant and instead RDF is procured at a certain price by generator of RDF based WTE Plant	The draft explanatory memorandum makes a monumental change in the definition. Now CERC considers MSW based WTE as mass incineration without involving any pre-processing of the MSW and at a cost of Rs 18 Cr/MW RDF based WTE plant comprising of Pre-processing plant of Rs 3 Cr/MW and Rs 18 Cr/MW of Waste to Energy totalling Rs 21 Cr/MW	CERC reckoning that MSW Waste to Energy as direct mass incineration being permissible is to be re-examined in the light of SWM rules 2016 which makes it mandatory for segregation of MSW into RDF and Wet waste. Secondly, the Hon'ble NGT has laid down clearly in its order Dec 2016 in matter of OP 199/2014, that segregation of MSW is absolutely necessary for incineration /waste to energy. (Para 6 /Page 82 and Para 9/Page 83 and most importantly Para 10/Page 84)

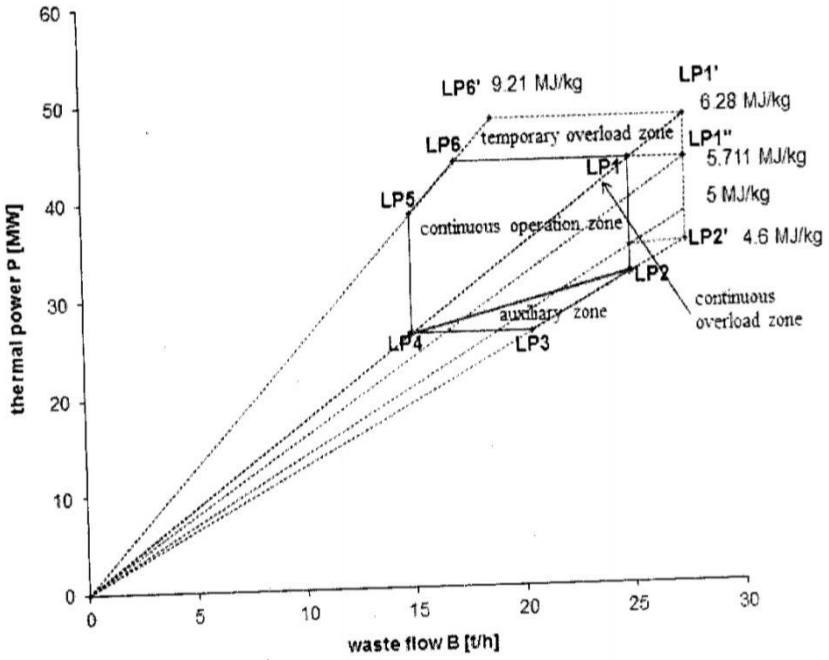
REGULATORY FRAME WORK

1. CERC definition for MSW projects is direct mass incineration which counter to the stipulations of SWM 2016 and Directions by Hon'ble NGT order. CERC is transgressing into the domain of Solid Waste Management (SWM) arena, governed by SWM Rules 2016 and interpreted by Hon'ble NGT from time to time .
2. SWM Rules 2016 have laid out an elaborate framework for treatment & disposal of Municipal waste making it mandatory to segregate, deploy processes for treatment of RDF and wet waste, dispose the residues to Sanitary landfill, post closure of the Sanitary landfill, treatment and disposal of leachate (effluent from Municipal Solid Waste). All these functions are performed by Urban Local Body or by its selected operator usually for a fee called gate fee/tipping fee which is not an incentive but a consideration for contract with ULB. Such contracts are called Concession Agreements.
3. It is to be noted that Waste to energy is one of the approved processes for utilizing the Refuse derived fuel (RDF/combustible fraction /dry waste) after mandatory segregation of Mixed MSW, while wet waste is treated through aerobic composting or anaerobic digestion. The residues from both Waste to Energy and Aerobic composting/Anaerobic digestion goes to a mandatory sanitary landfill which is not a dump but a scientific operation with a specific construction standard given in the SWM rules 2016 including a mandatory post closure maintenance for 15 years of such SLF after the expiry of concession agreement usually 25 to 30 years.
4. The standards for treatment of leachate (effluent from Municipal waste) are laid down in the SWM rules 2016. The cost of Leachate treatment varies from Rs 2000 to Rs 2500 per KL to meet the laid down standards.

In the light of the above, it is requested that CERC may limit the definition/scope of waste to energy plant from the RDF storage bunker onwards.

FIRING / COMBUSTION DIAGRAM

The design basis /firing principle for these waste fired boilers entail a range of heat value usually ranging from 1100 Kcal/kg to 1900 Kcal/kg. The design point is the upper value of heat value, and the corresponding capacity sizing of the electricity generation, though the installed capacity of electricity is often is not realized for at least.



Grate Capacity Table For Each Load Point

Point		P	B	LHV	
No.	Load rate	MW	t/h	kJ/kg	kcal/kg
LP1	100.0%	43.61	25.00	6280	1500
LP2	73.2%	31.94	25.00	4600	1099
LP3	60.0%	26.17	20.48	4600	1099
LP4	60.0%	26.17	15.00	6280	1500
LP5	88.0%	38.38	15.00	9210	2200
LP6	100.0%	43.61	17.05	9210	2200
LP6'	110.0%	47.97	18.75	9210	2200
LP1'	110.0%	47.97	27.50	6280	1500
LP1"	100.0%	43.61	27.50	5709	1364
LP2'	80.6%	35.14	27.50	4600	1099
LP2'	80.6%	35.14	27.50	4600	1099

CAPITAL COST

It is submitted that capital costs are generally mentioned as cost per annual capacity of waste disposal of the waste fired boilers, than in terms of MW (e) output for the waste to energy industry.

For example, there are five plants in India with same waste disposal capacity but with different electricity output in terms of MW (E) as stated below.

Name of the Unit	Capacity of Waste fired boilers	Capacity of Electricity /Power Generation
Delhi MSW Energy Solutions Ltd	2 X 600 TPD Equalling 1200 Tons per day of Processed waste	24 MW Cost Rs 490 Cr
Hyderabad MSW Energy Solutions P Ltd	2 X 600 TPD Equalling 1200 Tons per day of Processed waste	19.8 MW initial Assessed and approved to be 24 MW by MOEF&CC, TSPCB. However, TSERC declines to accept the revised capacity Cost Rs 500 Cr
Waste to Energy Plant at Vizag	2 X 600 TPD Equalling 1200 Tons per day of Processed waste	20 MW installed. However, the present approved capacity is 15 MW only and APERC has approved the capacity to be 20 MW Cost mentioned in CERC paper as Rs 23.9 Cr/MW
Waste to Energy plant at Guntur	2 X 600 TPD Equalling 1200 Tons per day of Processed waste	15 MW installed. CERC paper has mentioned that the cost is Rs 18 Cr/MW
Waste to Energy plant at Tekhand, Delhi	2 X 600 TPD Equalling 1200 Tons per day of Processed waste	30 MW installed. However, the PPA is reportedly for 25 MW Minimum. Presently operational over 25 MW capacity

Thus, in all above cases, the output of power is rated differently, while the capacity of waste combustion is same namely 1200 TPD. The difference lies in heat value of waste and the resultant heat energy converted to electrical energy.

CAPACITY AUGMENTATION

It is noteworthy that three waste to energy plants in India have been approved for capacity augmentation over the initial capacity.

Name of the unit	Initial Capacity MW	Approved revised capacity MW
Okhla Waste to Energy plant 1350 TPD Capacity	16 MW in 2012	23 MW in 2020 Without any change in waste combustion capacity and generator change
Jawahar Nagar, Hyderabad 1200 TPD Capacity	19.8 MW in Year 2000`	Revised to 24 MW in 2022. However, state ERC declines the capacity augmentation
Waste to Energy plant Guntur` 1200 TPD Capacity	15 MW in 2022 but with prior installed capacity of 20 MW	Approved to be 20 MW
Waste to Energy plant in Vizag 1200 TPD Capacity	15 MW in 2023	

Hence, there is lot of diversity in the capital costs vis-à-vis power capacity with same waste combustion capacity. Given such diversity and configuration, the methodology of tariff determination assumes lot of uncertainty and imponderables.

PROJECT LIFE PERIOD

- CERC proposed 20 years of Project Life Period against 25 Years considered in earlier regulations.
- Abroad plants have been operated for 30-35 years with a major retrofit after 20 years.
- Asset replacement starting from 6th year is envisaged in countries like China, Korea, Japan, Europe etc.
- Plants at Okhla, Guntur, Vizag, Tekhand have got 25 years of PPA, while the rest of the projects have only 20 years
- A provision for 25 years for the other plants should be considered.

INCENTIVES / SUBSIDIES

- An important aspect of digression and aberration caused by TSERC is regarding the tipping fee. Tipping fee is a bid parameter followed by ULBs for selection of MSW Operator for SWM activities with a right of revenue to the operator including risks, on the derivatives such as compost, power, energy, biogas, recyclables etc.
- The SERCs have to perform within the realm of Electricity Act and to determine the costs associated with power generation. The provisions of Concession Agreement are beyond the jurisdiction of the SERCs or for that matter even CERC. The generic order of TSERC dated 18.4.2020 stipulating the reimbursement of an unquantified amount of tipping fee has led to a lot imbroglio which continues today with avoidable litigation and costs.
- It is submitted that the CERC regulations may make it abundantly clear that the regime of tipping fee is beyond the jurisdiction of SERCs and such orders involving tipping fee as revenue out of power generation should be avoided.

O&M EXPENSES & PLANT LOAD FACTOR

O&M expenses

- O&M expenses should include that of asset replacement starting from 6th Year after COD.
- It is suggested that 50% of the capital cost of waste fired boilers should be considered as asset replacement fund in 15 years of life after first 5 years after COD.

Plant Load factor

- The NTP provisions are clear that 100% power to be procured by DISCOMs at a rate determined under s/62 of Act by SERCs.
- Thus, the plant load factor is only a normative for purpose of tariff determination, and the special dispensation given to Waste to Energy sector by NTP should continue without any linkage to any normatives of PLF either under Generic order route or under project specific route.

SUBMISSION FOR DETERMINING TARIFF

- A National Tariff for WTE to prescribed applicable all over India in all states without SERCs determining the tariff and without any provision for sharing of revenue nor tipping fee in any manner.
- China WTE market evolved with National Tariff Applicability & Tipping fee being the sole bid variable.
- The ULBs can carry out a transparent bidding process considering Tipping fee as bid Parameter keeping Prescribed National Tariff applicable.

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