

**Clarifications to the comments received on tariff determination for Waste to Energy Projects in Telangana**

Sl. No.	Name	Comments received	Clarification
1	Hema Sri Projects	<p>Capital Cost: 11Crores/ MW, as the collection is decentralised. But in the long run optimised resource recovery and transportation cost justify the higher CAPEX PLF to be 75% from 2nd year</p> <p>Aux. Consumption: CERC allowed for 15% and the project developer estimate the Aux. consumption to be 13%.</p> <p>O&amp;M Costs: The project developer estimates the O&amp;M to be 7% of capital cost or 78 lakhs/MW.</p> <p>9SHR: 4200 kCal/kWh as determined by CERC</p> <p>G10CV: 2200 kCal/Kg including coal and secondary fuels.</p> <p>Fuel Cost: an additional transportation cost of 400 Rs/ Ton and 200 Rs/ Ton for Co-fuels. Hence the fuel cost of 2,400 Rs/MT</p> <p>Fuel Cost escalation: 6% due to scarcity of manpower in WtE sector.</p> <p>Depreciation: As proposed by CERC</p> <p>Loan Tenure: 12 Years as proposed by CERC</p> <p>Interest on Term loan: 11.5% - base interest, 1% for Asset Manager, 0.5% SDRA and FRA, Hence a total of 13%</p> <p>Interest on Working Capital: As per CERC Norms of 13.5%</p>	Clarified in the later stage of this document
2	Engineering Staff College of India	WtE projects to be supported by the government on the recommendation of the commission.	There is wide consensus on encouraging WtE projects. The recently notified Tariff policy mandates that the disoms would need to procure 100% of the power generated from WtE plants based on the tariff determined by the Appropriate Commission under Section 62 of the Act.

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3	Dr. G. Dayakar Reddy, Indian Medical Association	To fix a viable tariff at the earliest for the WtE Plant in Telangana	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society
4	Dr. P. Sandhya Rani, Indian Medical Association	To fix a viable tariff at the earliest for the WtE Plant in Telangana	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society.
5	Banoth Madanlal	Expedite the process of fixing a viable tariff to ensure the operationalization and sustainable functioning of the plant.	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society.

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6	Dr. Syeda Azeem, Osmania University	Commission needs to direct the government to make informed choices by analysing the failures of the past and accordingly plan for the future. Incentives given by the government are for promotion and strengthening of WtE, and hence should not affect the tariff determined by the commission.	While the incentives and other measures announced by the Government are for promotion of the WtE projects, it is pertinent to note that the electricity consumers should not be unduly burdened with higher tariffs. Hence the same needs to be factored by Hon'ble Commission while determination of tariffs. This will ensure reasonable returns to the project developers and also would not pose any undue burden to the consumer.
7	Leaf Industries Pvt. Ltd.	Encourage WtE promoters to take up entire process including collection. (or) Provide incentives to encourage recovery and scientific processing of waste.	A WtE project spans across different sectors - Municipal Administration, Urban development and Power Sector. As a regulatory body for Power Sector, role of the Hon'ble Commission would be to determine tariff payable by electricity consumers for power generated by WtE projects. However announcing of incentives and other support for promotion of WtE projects and encouraging WtE promoters to take up the entire process including collection would not fall under the purview of the Commission.
8	INDEN Technology Pvt. Ltd.	Special consideration for more advanced technologies such as gasification which are more environmentally friendly but more expensive. Hence, the existing tariff will not make them viable.	Projects involving gasification technology would entail higher capital costs. Such projects could be considered as and when the costs decline due to higher efficiencies or technological improvement. Hon'ble Commission

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			would take up tariff determination for such projects then.
9	Venkatesh, MSW Specialist	MSW sector needs economical support to make it more sustainable.	A WtE project spans across different sectors - Municipal Administration, Urban development and Power Sector. As a regulatory body for Power Sector, role of the Hon'ble Commission would be to determine tariff payable by electricity consumers for power generated by WtE projects. However announcing of incentives and other support for promotion of WtE projects and encouraging WtE promoters to take up the entire process including collection would not fall under the purview of the Commission.
10	Sri Venkateshwara	<p>Capital Cost: Consider an escalated capital cost of 12 Crs/MW</p> <p>PLF: 70% from second years seems more reasonable.</p> <p>Aux. Consumption: Request the commission to take aux. consumption of 15%</p> <p>O&amp;M To make the plant comply with MSW handling rules they request the O&amp;M to be 7% of the capital costs.</p> <p>SHR: 4200 as considered by CERC</p> <p>GCV: they estimate the GCV of 2300 kCal/kg</p> <p>Fuel Cost. In addition to 1800 Rs/MT an additional royalty of 25 Rs/MT and secondary fuels of 400 Rs/MT. Thus a total cost of 2225 Rs/MT</p> <p>Interest on Term loan: 13% (same as Hema Sri)</p> <p>Tipping fee to fulfil the viability gap and to be finalised after</p>	Clarified in the later stage of this document

<b>Sl. No.</b>	<b>Name</b>	<b>Comments received</b>	<b>Clarification</b>
		careful consideration of the power purchase order given by TSERC and hence TSERC order need not be revised	
11	Green Cop Society	Propose a viable tariff to encourage WtE Projects.	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society
12	Dr. KVJ Rao, Swami Vivekananda Institute of Technology	Propose a viable tariff to encourage WtE Projects.	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society
13	Dr. M. Prasad	Propose a viable tariff to encourage WtE Projects.	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and

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			considering the benefits of WtE projects to the society
14	IL&FS	<p>TSERC should expedite the decision on viable tariff  PLF: Second year PLF for RDF plants should be 70%, also the projects should enjoy a must run status. And will not be subjected to merit order dispatch.  Aux. consumption: Should be 15% as per the CERC norms  Capital Cost: Capital cost of RDF should be 15 Crs/MW because they involve different type of grate of boiler, furnace design, processing of MSW, Flue gas emission and disposal.  Loan Terms: Requested that CERC recommendation should be followed  RoE: Requested that CERC recommendations be followed  SHR: Requested that CERC recommendation of 4200 should be followed  GCV: Range of 2000-2200 should be considered.  Fuel Mix. : 25% supporting fuels should be allowed  Fuel Cost: Fuel cost in the range of 2200-2400 should be considered without the reduction of tipping fee if applicable.</p>	Clarified in the later stage of this document
15	Shalivahana Green Energy	<p>Aux. Consumption: Reasonable rate of 13%  SHR: 4200 kCal/kWh as per CERC  GCV: 2200 kCal including 25% secondary fuel mix  Fuel Cost: 2400 Rs/MT, the lower fuel cost of 1800 is one of the major reasons for the failure of WtE plants  Fuel Cost Escalation: 6% instead of the considered 5%</p>	Clarified in the later stage of this document
16	Nallala Odelu, Govt. Whip, Telangana State Legislative Assembly	Propose a viable tariff to encourage WtE Projects.	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be

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			followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society
17	Putta Madhukar, MLA	Propose a viable tariff to encourage WtE Projects.	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society
18	Diwakar Rao Nadipelli, MLA	Propose a viable tariff to encourage WtE Projects.	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society
19	RDF Power Projects	Aux. Consumption: 11% is not sufficient and request Aux. consumption of 18% O&M: Consider O&M at 8% of the Capital cost due to additional leachate treatment, flue gas treatment and transportation of the rejects to Sanitary Landfill presently at 40KM away.	Clarified in the later stage of this document

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		<p>O&amp;M Escalation: to be considered 6% instead of the 5.72% due to increased inflation  SHR: due to large size of the boiler consider SHR of 4200 kCal/kWh  GCV: Consider GCV of 2200 kCal/kWh  Fuel Cost: Suggested to consider a fuel cost of 2200 Rs/MT  Fuel Cost Escalation: 6%  Loan Tenure: 10 years with 2 years moratorium  Interest on Term loan: 13%( as suggested by Hema Sri)</p>	
20	M. Dana Kishore, Director of Municipal Administration.	The plants incurring additional transportation costs is be considered while determining tariff, i.e. project specific tariff.	<p>WtE projects play a key role in generation of energy from waste hence contributing to a sustainable environment.</p> <p>Going forward developers are expected to establish projects using technology and operating procedures best suited to them at the tariff determined by the Commission. In this scenario going for project specific tariff determination would require greater regulatory oversight and collection of data for specific projects. This is not desirable and norm based tariff determination would promote greater efficiencies among the developers in setting up WtE projects.</p>
21	Hema Sri	Capital Cost Breakup	<p>For the projects studied, hard costs range from 64% to 85% of the total project cost. The following gives the range of the key project cost elements-  Plant &amp; Machinery – 50% to 75%  Civil works – 3% to 13%</p>

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22	Bio Power Infra.	Commission should not interfere in the govt. grants/ benefit of WtE plants for processing purposes.	As the tariff derived is preferential, if any grant is received, it should be factored in the tariff.
23	Koram Kanakaiah, MLA, Khammam	Propose a suitable tariff	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society
24	Lubna Sarwath	Suggests ward wise waste handling units with waste collectors in charge for handling ward's waste.	While the Commission has undertaken this exercise of determination of tariff for WtE projects, the issue of ward wise waste handling units does not fall under the purview of the Commission.
25	Zenith Energy	Adopt the tariff as suggested by CERC	Clarified in the later stage of this document
26	Hyderabad Integrated MSW Ltd.	Determination of Tariff should not be linked to tipping fee (as it's not a global standard) Capital Cost: CERC norm itself is low and actual capital cost comes out to be 15 Crs/MW (must have included the cost of processing facilitates also) O&M Expenses: Globally 6-7%, for Asian markets they request to consider 7% Interest on Term Loan: 11.5% is not in line with market alignment and hence is not justified. Suggested to consider 13% for long term loans and 13.5% for short term loan PLF: RDF is heterogeneous and hence PLF of 70% as considered by CERC (CERC Considered 80% for RDF	Clarified in the later stage of this document

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		based plants) should be taken GCV: Because of increased recycling activity the assumed values is very high and is not practically possible. ROE: the given 16% is not attractive for investment Suggests to follow the CERC Generic model and adopt the same	
27	Praveen Prakash	Undertake a similar exercise as CERC and come up with viable tariff for WtE plants	The present exercise of proposing norms for determination of the tariff for WtE projects is for eliciting views from all the concerned stakeholders and is one of the key pre-requisite for tariff determination. Due process will be followed for the fixation of viable tariffs by considering the interest of project developers, DISCOMS, consumer and considering the benefits of WtE projects to the society and this is a standard regulatory practice.

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## 1 HEMA SRI CLARIFICATIONS

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Component	Objections	Clarifications
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Component	Objections	Clarifications
Capital Cost	Proposed Capital Cost is too low and allow for 11Crs./MW	<ul style="list-style-type: none"> <li>• A comparative analysis of the tariff orders passed by other SERCs has been carried out. MPERC and GERC have followed norm based approach and have allowed a capital cost of Rs 6 cr/MW and Rs 6.3 crs/MW respectively.</li> <li>• A prudence assessment of the capital costs submitted by the project developer has been carried out. The expenses incurred towards operation of processing facilities and transportation of fuel has not been considered under capital costs.</li> <li>• A reasonable level of Interest during Construction (IDC) has been considered towards capital cost.</li> <li>• With the aforesaid adjustments in the Capital Cost, the Capital Cost of these projects lie in the range of Rs. 6.60-7.30 Crs./MW</li> <li>• Considering the capital cost allowed by different ERCs and the prudence check exercise of the Capital cost information furnished by the project developers, capital cost of Rs 7 crs/MW can be considered to be reasonable.</li> <li>•</li> </ul>
PLF	75% after stabilization	For RDF based plants certain preprocessing is involved. Hence, the degree of homogeneity is better than MSW and thus RDF based plants should be able to run at higher PLFs. Hence PLF of 80% for RDF based plants after stabilization has been proposed and this is in line with the norm proposed by CERC and other SERCs
Auxiliary Consumption	13% as 11% is too low in comparison with the CERC recommendation of 15%	<ul style="list-style-type: none"> <li>• GERC and MPERC have allowed an auxiliary consumption of 11.5% only for RDF based plants.</li> <li>• The project developers in their tariff application to the Commission have requested for auxiliary consumption in the range of 10-11.5%.</li> <li>• The actual auxiliary consumption of the current running Shalivahana project during the last 3-4 years is around 11%</li> <li>• Hence, auxiliary consumption of 11% has been proposed</li> </ul>
Operation & Maintenance	The developer requests an O&M of 7% as they have to do source separation, door to door collection and processing	<ul style="list-style-type: none"> <li>• As the Commission is fixing a norm based tariff, the collection of waste has not been considered as a processing cost.</li> <li>• The expenditure towards processing of waste and transportation of waste has already been allowed under fuel cost.</li> <li>• CERC and other SERCs for RDF based projects have allowed an O&amp;M of 5-</li> </ul>

Component	Objections	Clarifications
	as per MSW Rules 2000.	6% of the Capital Cost <ul style="list-style-type: none"> <li>In line with other ERCs, O &amp; M expenses have been considered to be at a level of 6% of Capital Costs.</li> </ul>
SHR	4200 kCal/kWh as per CERC recommendation	An SHR of 4,000 Kcal/KWh has been proposed based on the information furnished by the project developers. Due to technological improvement, it is expected that SHR might further reduce in the future for upcoming projects. Hence the proposed level of 4,000 Kcal/KWh is reasonable.
GCV	2500 kCal/kg as per CERC norms cannot be attained. The GCV can be improved by installing driers but it increased the Aux. con. And capital cost	An independent test of RDF samples from various parts of Telangana has estimated the GCV in the range 1800-2450 kCal/kg without usage of secondary fuels. Considering the homogeneity in the type of waste found in Telangana, and with proper processing, storage and improved transportation, it is felt that GCV can be fixed at a level of 2,500 Kcal/KWh.
Fuel Cost	The Developer requests for an additional 400 Rs/MT for transportation and 200Rs/MT for Co fuels, totaling up to 2400 Rs/MT	<ul style="list-style-type: none"> <li>MPERC and GERC have allowed for a fuel cost for RDF projects of Rs.1320 /Tonne</li> <li>As per the data provided by the developers processing cost varied from Rs. 752 /Tonne to Rs. 825 /Tonne and transportation cost varied from Rs. 650 /Tonne to Rs. 1300/Tonne.</li> <li>Hence, A total fuel cost of Rs. 1800/Tonne has been proposed and this includes the transportation costs for a distance of 80-90 KM</li> </ul>
Fuel Cost Escalation	6% against the CERC recommended 5% because of high inflation rates	CERC and different SERC have allowed a fuel cost escalation of 5%. It is felt that 5% fuel price escalation is sufficient to account for the inflation.
Loan Tenure	The CERC recommendation is agreeable	<ul style="list-style-type: none"> <li>RBI <i>"Master Circular - Prudential norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances"</i> dated 1<sup>st</sup> July 2015 allows the banks to provide loans with loan tenure up to 80% of the economic life. Considering a project life of 20 years, the loan tenure would be 16 years.</li> <li>IREDA Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has allowed for loan repayment schedule of 10-15 Years.</li> </ul>

Component	Objections	Clarifications
Interest on Debt	The project developer requests interest on term loan be 13% and as 1% fees is being charged by asset manager and DSRA and FRA impact to about .5% on the PMDO interest rate of 11.5%	<ul style="list-style-type: none"> <li>Hence a loan tenure of 15 years has been proposed.</li> <li>IREDA Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has laid down the interest rates for Biomass Power and other sector projects. The interest rate ranges from 10.60% to 11.90%</li> <li>WtE projects would also be eligible to avail such loans from IREDA and hence a benchmark Grade II interest rate along with an additional allowance of 0.25% can be applied to WtE projects. Hence 11.5% has been proposed</li> </ul>
Interest on Working Capital	13.5%	An additional 1% for Interest on Working Capital as compared to long term Interest rate of 11.5%. Hence, an Interest of <b>12.5% is proposed for Interest on Working Capital</b> for WtE projects.

## 2 SRI VENKATESWARA

Component	Objections	Clarifications
Capital Cost	Proposed Capital Cost is too low. CERC allows for 8Crs./MW and since the project is located in area of low water availability additional CAPEX has been incurred.	<ul style="list-style-type: none"> <li>A comparative analysis of the tariff orders passed by other SERCs has been carried out. MPERC and GERC have followed norm based approach and have allowed a capital cost of Rs 6 cr/MW and Rs 6.3 crs/MW respectively.</li> <li>A prudence assessment of the capital costs submitted by the project developer has been carried out. The expenses incurred towards operation of processing facilities and transportation of fuel has not been considered under capital costs.</li> <li>A reasonable level of Interest during Construction (IDC) has been considered towards capital cost.</li> <li>With the aforesaid adjustments in the Capital Cost, the Capital Cost of these projects lie in the range of Rs. 6.60-7.30 Crs./MW</li> <li>Considering the capital cost allowed by different ERCs and the prudence check exercise of the Capital cost information furnished by the project developers, capital cost of Rs 7 crs/MW can be considered to be reasonable.</li> </ul> <p>Norm based approach of setting capital and other costs are done. Project</p>

Component	Objections	Clarifications
		specific determination of capital costs would entail regulatory scrutiny and prudence check of the costs incurred by each project developer which is not desirable.
PLF	70% after stabilization	RDF based plants involve a certain preprocessing involved. Hence, the degree of homogeneity is better than MSW and thus RDF based plants should be able to run at higher PLFs. Hence as per CERC norms PLF of 80% for RDF based plants after stabilization has been taken
Auxiliary Consumption	15% as per CERC recommendation	<ul style="list-style-type: none"> <li>• GERC and MPERC have allowed an auxiliary consumption of 11.5% only for RDF based plants.</li> <li>• The project developers in their tariff application to the Commission have requested for auxiliary consumption in the range of 10-11.5%.</li> <li>• The actual auxiliary consumption of the current running Shalivahana project during the last 3-4 years is around 11%</li> <li>• Hence, auxiliary consumption of 11% has been proposed</li> </ul>
Operation & Maintenance	The developer requests an O&M of 7% as WtE plants involve emission treatment and processing	<ul style="list-style-type: none"> <li>• CERC and other SERCs for RDF based projects have allowed an O&amp;M of 5-6% of the Capital Cost</li> <li>• In line with other ERCs, O &amp; M expenses have been considered to be at a level of 6% of Capital Costs. The additional emission treatment and processing equipments should be part of the CAPEX and hence O &amp; M fixed at 6% of the capital cost would cover for the O &amp; M expenses.</li> </ul>
SHR	4200 kCal/kWh as per CERC recommendation	Although CERC has proposed a SHR of 4200 kCal/kg the project developers in Telangana requested an SHR of 4000 kCal/kg before the corresponding order. Hence accepting the request for higher SHR based on CERC order doesn't seem reasonable.
GCV	2500 kCal/kg as per CERC norms cannot be attained. The GCV can be improved by installing driers but it increased the Aux. con. And capital cost	In an independent test of RDF from various WtE projects in Telangana a GCV close to 2500 kCal/kg for RDF without secondary fuels has been attained by a project developer. To encourage competition and discourage inefficiencies the same has been fixed for determining generic tariff. Case by case analysis negates the purpose of norm based Tariff determination
Fuel Cost	The Developer requests for an additional 25 Rs/MT for transportation	<ul style="list-style-type: none"> <li>• The usage of co fuels will be very difficult to monitor and hence has not been allowed.</li> <li>• The CERC order also prohibits usage of Secondary fuel. The tariff policy of</li> </ul>

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	and 200Rs/MT for Co fuels, totaling up to 2400 Rs/MT	<p>obligates DISCOMS to buy power from WtE plants. Usage of secondary fuels would defeat the purpose of encouraging WtE power plants.</p> <ul style="list-style-type: none"> <li>• MPERC and GERC have allowed for only 1320 Rs/MT</li> <li>• As per the data provided by the developers processing cost varied from 752 Rs/MT to 825 Rs/MT and transportation cost varied from 650 Rs/MT to 1300Rs/MT.</li> <li>• A total fuel cost of Rs 1800/ MT has been finalized including the transportation costs for a distance of 80-90 KM</li> <li>•</li> </ul>
Fuel Cost Escalation	5% as proposed by TSERC is acceptable	
Loan Tenure	The CERC recommendation is agreeable	<ul style="list-style-type: none"> <li>• RBI circular as per, <i>“Master Circular - Prudential norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances” dated 1<sup>st</sup> July 2015</i> allows the banks to provide loans with loan tenure up to 80% of the project life. Considering a project life of 20 years, the loan tenure would be 16 years.</li> <li>• IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has allowed for loan repayment schedule of 10-15 Years.</li> <li>• Hence a loan tenure of 15 years has been suggested keeping in mind the interest of consumers</li> </ul>
Interest on Debt	The project developer requests interest on term loan be 13% and as 1% fees is being charged by asset manager and DSRA and FRA impact to about .5% on the PMDO interest rate of 11.5%	<ul style="list-style-type: none"> <li>• IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has laid down the following interest rates for Biomass Power and other sector projects. The interest rate ranges from a low 10.60% to a high of 11.90%</li> <li>• WtE projects would also be eligible to avail such loans from IREDA and hence a benchmark Grade II interest rate along with an additional allowance of 0.25% can be applied to WtE projects. Hence 11.5% has been suggested</li> </ul>
Interest on Working Capital	13.5%	Since the term loans of 11.5% can be availed and with renewed focus on Swachh Bharat and additional 1% has been allowed and Interest on working capital is proposed at 12.5%

### 3 IL&FS

Component	Objections	Clarifications
Capital Cost	15 Crs./MW	<p>For RDF based Technology</p> <ul style="list-style-type: none"> <li>• A comparative analysis of the tariff orders passed by other SERCs has been carried out. MPERC and GERC have followed norm based approach and have allowed a capital cost of Rs 6 cr/MW and Rs 6.3 crs/MW respectively.</li> <li>• A prudence assessment of the capital costs submitted by the project developer has been carried out. The expenses incurred towards operation of processing facilities and transportation of fuel has not been considered under capital costs.</li> <li>• A reasonable level of Interest during Construction (IDC) has been considered towards capital cost.</li> <li>• With the aforesaid adjustments in the Capital Cost, the Capital Cost of these projects lie in the range of Rs. 6.60-7.30 Crs./MW</li> <li>• Considering the capital cost allowed by different ERCs and the prudence check exercise of the Capital cost information furnished by the project developers, capital cost of Rs 7 crs/MW can be considered to be reasonable.</li> </ul>
Auxiliary Consumption	11% as per CERC recommendation	<ul style="list-style-type: none"> <li>• GERC and MPERC have allowed an auxiliary consumption of 11.5% only for RDF based plants.</li> <li>• The project developers in their tariff application to the Commission have requested for auxiliary consumption in the range of 10-11.5%.</li> <li>• The actual auxiliary consumption of the current running Shalivahana project during the last 3-4 years is around 11%</li> <li>• Hence, auxiliary consumption of 11% has been proposed</li> </ul>
Operation & Maintenance	Rs. 90 Lakhs/MW including Flue gas treatment and leachate treatment	<ul style="list-style-type: none"> <li>• As the Commission is fixing a norm based tariff, the collection of waste has not been considered as a processing cost.</li> <li>• The expenditure towards processing of waste and transportation of waste has already been allowed under fuel cost.</li> <li>• CERC and other SERCs for RDF based projects have allowed an O&amp;M of 5-6% of the Capital Cost</li> <li>• In line with other ERCs, O &amp; M expenses have been considered to be at a</li> </ul>

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SHR	4200 kCal/kWh as per CERC recommendation	<p>level of 6% of Capital Costs.</p> <p>An SHR of 4,000 Kcal/KWh has been proposed based on the information furnished by the project developers. Due to technological improvement, it is expected that SHR might further reduce in the future for upcoming projects. Hence the proposed level of 4,000 Kcal/KWh is reasonable.</p>
GCV	GCV in the range of 2000 kCal/kWh to 2200 kCal/kWh to be considered	An independent test of RDF samples from various parts of Telangana has estimated the GCV in the range 1800-2450 kCal/kg without usage of secondary fuels. Considering the homogeneity in the type of waste found in Telangana, and with proper processing, storage and improved transportation, it is felt that GCV can be fixed at a level of 2,500 Kcal/KWh.
Fuel Cost	Fuel Cost in the range of 2200 Rs./ MT-2400. Rs./MT should be considered	<ul style="list-style-type: none"> <li>• The purpose of setting up WtE projects is to ensure maximum processing of MSW in the most efficient and environment friendly manner. The usage of secondary fuels defeats this purpose and hence the Commission has not considered usage of any secondary fuels while determining the fuel cost.</li> <li>• CERC order also prohibits usage of Secondary fuel.</li> <li>• MPERC and GERC have allowed for a fuel cost for RDF projects of Rs.1320 /Tonne</li> <li>• As per the data provided by the developers processing cost varied from Rs. 752 /Tonne to Rs. 825 /Tonne and transportation cost varied from Rs. 650 /Tonne to Rs. 1300/Tonne.</li> <li>• Hence, A total fuel cost of Rs. 1800/Tonne has been proposed including the transportation costs for a distance of 80-90 KM</li> </ul>
Fuel Mix	Co fuels up to 25% of the fuel should be allowed	<ul style="list-style-type: none"> <li>• The purpose of setting up WtE projects is to ensure maximum processing of MSW in the most efficient and environment friendly manner. The usage of secondary fuels defeats this purpose and hence the Commission has not considered usage of any secondary fuels while determining the fuel cost.</li> <li>• Constant monitoring to prevent over usage of the secondary fuels is another challenge.</li> </ul>

Component	Objections	Clarifications
Fuel Cost Escalation	6% against the CERC recommended 5% because of high inflation rates	CERC and different SERC have allowed a fuel cost escalation of 5%. It is felt that a 5% fuel price escalation is sufficient to account for the inflation.
Loan Tenure	The CERC recommendation is agreeable as, the current economic conditions are not favorable and WtE projects are considered high risk projects. Hence long terms loans like 15 years cannot be possible	<ul style="list-style-type: none"> <li>• RBI circular as per, “<i>Master Circular - Prudential norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances</i>” dated 1<sup>st</sup> July 2015 allows the banks to provide loans with loan tenure up to 80% of the project life. Considering a project life of 20 years, the loan tenure would be 16 years.</li> <li>• IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has allowed for loan repayment schedule of 10-15 Years.</li> <li>• Hence a loan tenure of 15 years has been suggested keeping in mind the interest of consumers</li> </ul>
Interest on Debt	The project developer requests interest on term loan be 13% as, the current economic conditions are not favorable and WtE projects are considered high risk projects.	<ul style="list-style-type: none"> <li>• IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has laid down the following interest rates for Biomass Power and other sector projects. The interest rate ranges from a low 10.60% to a high of 11.90%</li> <li>• WtE projects would also be eligible to avail such loans from IREDA and hence a benchmark Grade II interest rate along with an additional allowance of 0.25% can be applied to WtE projects. Hence 11.5% has been suggested</li> </ul>
Interest on Working Capital	13.5%	Since the loan term loans of 11.5% can be availed and with renewed focus on Swachh Bharat and additional 1% has been allowed and Interest on working capital is suggested at 12.5%

#### 4 SHALIVAHANA GREEN ENERGY LIMITED

Component	Objections	Clarifications
PLF	75% after stabilization	For RDF based plants certain preprocessing is involved. Hence, the degree of homogeneity is better than MSW and thus RDF based plants should be able to run at higher PLFs. Hence PLF of 80% for RDF based plants after stabilization

Component	Objections	Clarifications
		has been proposed and this is in line with the norm proposed by CERC and other SERCs
Auxiliary Consumption	13% as 11% is too low in comparison with the CERC recommendation of 15%	<ul style="list-style-type: none"> <li>• GERC and MPERC have allowed an auxiliary consumption of 11.5% only for RDF based plants.</li> <li>• The project developers in their tariff application to the Commission have requested for auxiliary consumption in the range of 10-11.5%.</li> <li>• The actual auxiliary consumption of the current running Shalivahana project during the last 3-4 years is around 11%</li> <li>• Hence, auxiliary consumption of 11% has been proposed</li> </ul>
Operation & Maintenance	The developer requests an O&M of 7% as they have to do source separation, door to door collection and processing as per MSW Rules 2000.	<ul style="list-style-type: none"> <li>• Collection of waste is in the jurisdiction of the Local Municipal bodies over which the commission has no authority.</li> <li>• Higher operating expenditures due to decentralized processes cannot be requested as processing fee is taken separately in the fuel costs</li> <li>• And for the plant to fully comply with MSW 2000 rules, maintenance of scientific landfill is a must.</li> <li>• As per the actual running data submitted by the developer the O&amp;M was found to be at 5.81% of the Capital Cost.</li> <li>• Hence O&amp;M of 6% seems sufficient</li> </ul>
SHR	4200 kCal/kWh as per CERC recommendation	Although CERC has proposed a SHR of 4200 kCal/kg, the project developers in Telangana requested an SHR of 4000 kCal/kg before the corresponding order. Hence accepting the request for higher SHR based on CERC order doesn't seem prudent.
GCV	2500 kCal/kg as per CERC norms cannot be attained. The GCV can be improved by installing driers but it increased the Aux. con. And capital cost	In an independent test of RDF from various WtE projects in Telangana a GCV close to 2500 kCal/kg for RDF without secondary fuels has been attained by a project developer. To encourage competition and discourage inefficiencies the same has been fixed for determining generic tariff. Case by case analysis negates the purpose of norm based determination of Tariff.
Fuel Cost	The Developer requests for an additional 400 Rs/MT for transportation and 200Rs/MT for Co fuels, totaling up to 2400	<ul style="list-style-type: none"> <li>• The purpose of setting up WtE projects is to ensure maximum processing of MSW in the most efficient and environment friendly manner. The usage of secondary fuels defeats this purpose and hence the Commission has not considered usage of any secondary fuels while determining the fuel cost.</li> <li>• CERC order also prohibits usage of Secondary fuel.</li> </ul>

Component	Objections	Clarifications
	Rs/MT	<ul style="list-style-type: none"> <li>• MPERC and GERC have allowed for a fuel cost for RDF projects of Rs.1320 /Tonne</li> <li>• As per the data provided by the developers processing cost varied from Rs. 752 /Tonne to Rs. 825 /Tonne and transportation cost varied from Rs. 650 /Tonne to Rs. 1300/Tonne.</li> <li>• Hence, A total fuel cost of Rs. 1800/Tonne has been proposed including the transportation costs for a distance of 80-90 KM</li> </ul>
Fuel Cost Escalation	6% against the CERC recommended 5% because of high inflation rates	CERC and different SERC have allowed a fuel cost escalation of 5%. It is felt that a 5% fuel price escalation is sufficient to account for the inflation.

## 5 RDF POWER PROJECTS

Component	Objections	Clarifications
Capital Cost	Allow for 15 Crs/MW as per CERC Norms	<ul style="list-style-type: none"> <li>• GERC has allowed for 14 Crs./MW for MSW based plants.</li> <li>• Preliminary and pre operating expenses have been capped at 4% as done by various SERCs. Based on similar projects across India, IDC would fall in the range of 10-11% of the capital costs.</li> <li>• Considering the above factors CAPEX of 14 Crs/MW has been proposed.</li> </ul>
PLF	70% after stabilization	RDF based plants involve a certain preprocessing involved. Hence, the degree of homogeneity is better than MSW and thus RDF based plants should be able to run at higher PLFs. Hence as per CERC norms PLF of 80% for RDF based plants after stabilization has been taken. For MSW based plants, a discount has been given and PLF after stabilization has been proposed at 75%.
Auxiliary Consumption	18% as per the load data	<ul style="list-style-type: none"> <li>• GERC has allowed for Aux. consumption of 12% for MSW based projects</li> <li>• The developers have requested only for 10% in their petition to the TSERC.</li> <li>• As per the actual plant running data submitted by one of the developer the Auxiliary consumption was seen as 11%. But that was a RDF based</li> </ul>

Component	Objections	Clarifications
		<p>technology.</p> <ul style="list-style-type: none"> <li>Hence 12% Auxiliary consumption is proposed for MSW based projects seems sufficient.</li> </ul>
Operation & Maintenance	The developer requests an O&M of 8% as they have to transport rejects to sanitary landfill , and properly treat flue gas and leachate	<ul style="list-style-type: none"> <li>For the plant to fully comply with MSW 2000 rules, maintenance of scientific landfill is a must.</li> <li>Adherence to environmental norms is a must for the MSW plants.</li> <li>Hence the proposed norm of 6% of capital cost is reasonable</li> </ul>
SHR	4200 kCal/kWh as per CERC recommendation	Although CERC has proposed a SHR of 4200 kCal/kg the project developers requested an SHR of 4000 kCal/kg before the corresponding order. Hence accepting the request for higher SHR based on CERC order is not reasonable.
GCV	2500 kCal/kg as per CERC norms cannot be attained. The GCV can be improved by installing driers but it increased the Aux. con. And capital cost	Not applicable for MSW based plant
Fuel Cost	The Developer requests for an additional 400 Rs/MT for transportation and 200Rs/MT for Co fuels, totaling up to 2400 Rs/MT	Not Applicable for MSW based plant
Fuel Cost Escalation	6% against the CERC recommended 5% because of high inflation rates	Not applicable for MSW based plant
Loan Tenure	The CERC recommendation is agreeable	<ul style="list-style-type: none"> <li>RBI circular as per, <i>“Master Circular - Prudential norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances” dated 1<sup>st</sup> July 2015</i> allows the banks to provide loans with loan tenure up to 80% of the project life. Considering a project life of 20 years, the loan tenure would be 16 years.</li> </ul>

Component	Objections	Clarifications
		<ul style="list-style-type: none"> <li>IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has allowed for loan repayment schedule of 10-15 Years.</li> <li>Hence a loan tenure of 15 years has been suggested keeping in mind the interest of consumers</li> </ul>
Interest on Debt	The project developer requests interest on term loan be 13% and as 1% fees is being charged by asset manager and DSRA and FRA impact to about .5% on the PMDO interest rate of 11.5%	<ul style="list-style-type: none"> <li>IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has laid down the following interest rates for Biomass Power and other sector projects. The interest rate ranges from a low 10.60% to a high of 11.90%</li> <li>WtE projects would also be eligible to avail such loans from IREDA and hence a benchmark Grade II interest rate along with an additional allowance of 0.25% can be applied to WtE projects. Hence 11.5% has been suggested</li> </ul>
Interest on Working Capital	13.5%	Since the loan term loans of 11.5% can be availed and with renewed focus on Swachh Bharat and additional 1% has been allowed and Interest on working capital is suggested at 12.5%

## 6 HYDERABAD INTEGRATED MSW LTD.

Component	Objections	Clarifications
Capital Cost	Allow for 15 Crs/MW for RDF based technology	<ul style="list-style-type: none"> <li>For RDF based technology –</li> <li>A comparative analysis of the tariff orders passed by other SERCs has been carried out. MPERC and GERC have followed norm based approach and have allowed a capital cost of Rs 6 cr/MW and Rs 6.3 crs/MW respectively.</li> <li>A prudence assessment of the capital costs submitted by the project developer has been carried out. The expenses incurred towards operation of processing facilities and transportation of fuel has not been considered under capital costs.</li> <li>A reasonable level of Interest during Construction (IDC) has been considered towards capital cost.</li> <li>With the aforesaid adjustments in the Capital Cost, the Capital Cost of these projects lie in the range of Rs. 6.60-7.30 Crs./MW</li> <li>Considering the capital cost allowed by different ERCs and the prudence</li> </ul>

Component	Objections	Clarifications
		check exercise of the Capital cost information furnished by the project developers, capital cost of Rs 7 crs/MW can be considered to be reasonable for RDF based plants
PLF	70% after stabilization as per CERC (CERC says 80%)	RDF based plants involve a certain preprocessing involved. Hence, the degree of homogeneity is better than MSW and thus RDF based plants should be able to run at higher PLFs. Hence as per CERC norms PLF of 80% for RDF based plants after stabilization has been taken.
Operation & Maintenance	7% for Asian countries	<ul style="list-style-type: none"> <li>As per the actual running data submitted by the developer the O&amp;M was found to be at 5.81% of the Capital Cost.</li> <li>CERC recommendations suggest 6% of the capital cost.</li> <li>Going for norm based tariffs to encourage efficiencies Hence O&amp;M of 6% seems sufficient</li> </ul>
SHR	4200 kCal/kWh as per CERC recommendation	Although CERC has proposed a SHR of 4200 kCal/kg the project developers in Telangana requested an SHR of 4000 kCal/kg before the corresponding order. Hence accepting the request for higher SHR based on CERC order doesn't seem reasonable.
GCV	2500 kCal/kg as per CERC norms cannot be attained. The GCV can be improved by installing driers but it increased the Aux. con. And capital cost	In an independent test of RDF from various WtE projects in Telangana a GCV close to 2500 kCal/kg for RDF without secondary fuels has been attained by a project developer. To encourage competition and discourage inefficiencies the same has been fixed for determining generic tariff. Case by case analysis negates the purpose of Generic Tariff.
Fuel Cost	2500 Rs/MT	<ul style="list-style-type: none"> <li>MPERC and GERC have allowed for only 1320 Rs/MT</li> <li>As per the data provided by the developers processing cost varied from 752 Rs/MT to 825 Rs/MT and transportation cost varied from 650 Rs/MT to 1300Rs/MT.</li> <li>A total fuel cost of Rs 1800/ MT has been finalized including the transportation costs for a distance of 80-90 KM</li> </ul>
Fuel Cost Escalation	6% against the CERC recommended 5% because of high inflation rates	ERC and different SERC have allowed a fuel cost escalation of 5%. It is felt that that a 5% fuel price escalation is sufficient to account for the inflation

Component	Objections	Clarifications
Loan Tenure	The CERC recommendation is agreeable	<ul style="list-style-type: none"> <li>• RBI circular as per, “<i>Master Circular - Prudential norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances</i>” dated 1<sup>st</sup> July 2015 allows the banks to provide loans with loan tenure up to 80% of the project life. Considering a project life of 20 years, the loan tenure would be 16 years.</li> <li>• IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has allowed for loan repayment schedule of 10-15 Years.</li> <li>• Hence a loan tenure of 15 years has been suggested keeping in mind the interest of consumers</li> </ul>
Interest on Debt	13%	<ul style="list-style-type: none"> <li>• IREDA in the Financing Norms and Schemes dated 01<sup>st</sup> November 2015 has laid down the interest rates for Biomass Power and other sector projects ranging from 10.60% to 11.90%</li> <li>• WtE projects would also be eligible to avail such loans from IREDA and hence a benchmark Grade II interest rate along with an additional allowance of 0.25% can be applied to WtE projects. Hence 11.5% has been suggested</li> </ul>
Interest on Working Capital	13.5%	Since the loan term loans of 11.5% can be availed and with renewed focus on Swachh Bharat an additional 1% has been allowed and Interest on working capital is proposed at 12.5%
ROE	20% for 10 years followed by 24% as 16% is unattractive for investment	16% RoE post tax is the same as CERC proposed Norms