

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 13/SM/2020 (Suo-Motu)**

**Coram: 1. Shri P.K. Pujari, Chairperson  
2. Shri I.S. Jha, Member  
3. Shri Arun Goyal, Member**

**Date of Order: July 21<sup>st</sup>, 2020**

IN THE MATTER OF

**Determination of levellised generic tariff for FY 2020-21 under Regulation 8 of the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020.**

**ORDER**

1. The Commission issued the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020, on 24.06.2020 (hereinafter referred to as "the RE Tariff Regulations"), which provide for terms and conditions and the procedure for determination of tariff of the following categories of Renewable Energy (RE) generating stations:

- a. Small Hydro Projects;
- b. Biomass Power Projects with Rankine Cycle technology;
- c. Non-fossil fuel-based co-generation Project;
- d. Biomass Gasifier based Power Projects;
- e. Biogas based Power Projects

2. As per Regulation 7 of the RE Tariff Regulations, the Commission shall determine project specific tariff for the following RE technologies:

- a. Solar PV power projects, floating solar projects and solar thermal power projects;
- b. Wind power projects (both on-shore and off-shore);

- c. Biomass gasifier-based power projects and biogas based power projects – if a project developer opts for project specific tariff;
- d. Municipal solid waste-based power projects and refuse derived fuel based power projects;
- e. Renewable hybrid energy projects;
- f. Renewable energy with storage projects; and
- g. Any other project based on new renewable energy sources or technologies approved by MNRE.

3. Further, Regulation 8(1) of the RE Tariff Regulations provides as under:

*“8. Petition and proceedings for determination of tariff*

*1) In case of renewable energy projects for which generic tariff has to be determined as per these regulations, the Commission shall determine such generic tariff through a Generic Tariff Order at least one month before the commencement of year for each year of the Control Period:*

*Provided that for first year of Control Period i.e., from 1.7.2020 to 31.3.2021, the Generic Tariff Order shall be determined upon issuance of these regulations.”*

4. The Commission, in due discharge of the mandate under Regulation 8(1) of the RE Tariff Regulations, is required to determine the generic tariff of the RE projects for the first year of control period (i.e. FY 2020-21) .

5. For this purpose, the Commission issued a Public Notice on June 28, 2020 along with a proposal for “Determination of levellised generic tariff for FY 2020-21 under Regulation 8 of the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020, dated June 28, 2020 and invited comments/suggestions from the stakeholders. The last date for submission of comments/suggestions as July 12, 2020.

6. In response this public notice, written comments/suggestions were received from the following stakeholders:

- a) Venika Hydro Projects Pvt. Ltd.
- b) Shree Bhavani Power Projects Pvt. Ltd.

c) Gujarat Biomass Energy Developers Association (GBEDA)

7. The Commission has considered the views/comments/suggestions of the stakeholders and the analysis/decisions of the Commission thereon is presented as under:

**COMMENTS /SUGGESTION RECEIVED AND COMMISSION'S DECISION THERON**

**8. Applicability of Tariff**

Commission's Proposal

As regards the applicability of Tariff, Regulation 8 of RE Tariff Regulations specified as under:

*"8. Petition and proceedings for determination of tariff*

*1) In case of renewable energy projects for which generic tariff has to be determined as per these regulations, the Commission shall determine such generic tariff through a Generic Tariff Order at least one month before the commencement of year for each year of the Control Period:*

*Provided that for first year of Control Period i.e., from 1.7.2020 to 31.3.2021, the Generic Tariff Order shall be determined upon issuance of these regulations."*

Comments Received

8.1 GBEDA submitted that, in order to encourage sustained development of the RE projects and mitigate uncertainty and safe guard the development of the RE project, it is suggested that applicability of the tariff should sustain for the RE Generating plants, who have attained financial closure for the project, have signed Power Purchase agreement with the utility, and have commenced construction work of the RE Project during the Tariff Period rather than linking it with the commissioning of the project.

Analysis and Decision

8.2 As per present RE Tariff Regulations, the applicability of tariff is linked to commissioning of the project, not with financial closure and commencement of construction of the project. Any change in the applicability of tariff will tantamount to amendment in the RE Tariff Regulations and is therefore outside the scope of the present exercise of determination of levellised generic tariff for FY 2020-21.

In view of the above, the Commission continues with the existing approach of linking the applicability of tariff with commissioning of the project in line with the RE Tariff Regulations.

9. **Debt Equity ratio**

Commission's Proposal

As regards Debt Equity Ratio, Regulation 13 (1) of the RE Tariff Regulations, as stipulated below, specifies debt-equity ratio of 70:30 for determination of generic tariff

Comments Received

9.1 GBEDA submitted that, in case the ratio of equity is increased more than 30% for RE Project, the RE Project Developer shall be entitled for higher tariff and the RE Project Developer shall have liberty to approach the Commission for determination of tariff.

Analysis and Decision

9.2 The Commission has approved normative debt equity ratio of 70:30 in line with approach adopted in Tariff Regulations for conventional generators. Further, the generic tariff is determined on normative parameters. The actual equity or debt is relevant only for project specific tariff, As such, the suggestion made is beyond the scope of the present dispensation of generic tariff determination.

10. **Return on Equity**

Commission's Proposal

As regards Rate of Return on Equity, Regulation 16 (2) of the RE Tariff Regulations specifies as under:

***"16. Return on Equity***

*... ..(2) The normative Return on Equity shall be 14%. The normative Return on Equity shall be grossed up by the latest available notified Minimum Alternate Tax (MAT) rate for the first 20 years of the Tariff Period and by the latest available notified Corporate Tax rate for the remaining Tariff Period."*

For computation of Rate of Return on Equity, MAT Rate of 17.47% and Corporate Tax Rate of 34.94% has been considered. Accordingly, Rate of Return has been computed as 16.96% for first 20 years and 21.52% after 20 years of useful life.

Comments Received

10.1 Venika Hydro Projects Pvt. Ltd. has suggested to consider the Return on Equity of 16% to be grossed up by Minimum Alternate Tax (MAT) Rate.

Analysis and Decision

10.2 The Return on Equity considered for generic tariff determination is as per the RE Tariff Regulations. Any change in the Return of Equity, is outside the scope of the present exercise of determination of levellised generic tariff. In view of the above, the Commission has continued with the rate of return on equity as per provisions of RE Tariff Regulations.

**11. Interest on Loan Capital**

Commission's Proposal

Regulation 14(1) of the RE Regulations specifies the rate of interest as equivalent to SBI MCLR (one-year tenor) prevalent during the last available six months plus 200 basis points, for the purpose of determination of generic and project specific tariff for RE projects. The relevant extract of RE Tariff Regulations is reproduced as under:

- “(a) The loans arrived at in the manner indicated in Regulation 13 shall be considered as gross normative loan for calculation for interest on loan.....*  
*(b) For the purpose of computation of tariff, normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months shall be considered.*  
*(c) Notwithstanding any moratorium period availed by project developer, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.”*

Accordingly, the Commission has considered the rate of interest of 9.67% for determination generic tariff for RE projects for FY 2020-21.

Comments Received

11.1 Venika Hydro Projects Pvt. Ltd. and Shree Bhavani Power Projects Pvt Ltd. has suggested to consider the rate of interest as per interest rates stipulated by Indian Renewable Energy Development Agency (IREDA).

Analysis and Decision

11.2 The Rate of Interest considered for generic tariff determination is as per the RE Tariff Regulations. Any change in the Rate of Interest, is outside the scope of the present exercise of determination of levellised generic tariff. In view of the above, the Commission has continued with the rate of interest as per provisions of RE Tariff Regulations.

**12. Interest on Working Capital**

Commission's Proposal

Regulation 17 of the RE Tariff Regulations specifies for the working capital requirements of the RE projects as under:

*“(1)The Working Capital requirement in respect of wind power projects, small hydro projects, solar PV power projects, floating solar projects, solar thermal power projects, and renewable energy with storage projects shall be computed in accordance with the following:*

- (a) Operation & Maintenance expenses for one month*
- (b) Receivables equivalent to 45 days of tariff for sale of electricity calculated on normative Capacity Utilisation Factor or Plant Load Factor, as the case may be and*
- (c) Maintenance spares equivalent to 15% of Operation and Maintenance expenses.*

*(2) The Working Capital requirement in respect of biomass power projects with Rankine cycle technology, biogas power projects, biomass gasifier based power projects, non-fossil fuel based co-generation projects, municipal solid waste based power projects and refuse derived fuel based power projects shall be computed in accordance with the following*

- (a) Fuel costs for four months equivalent to normative Plant Load Factor;*
- (b) Operation and Maintenance expense for one month;*
- (c) Receivables equivalent to 45 days of tariff for sale of electricity calculated on the plant load factor; and*
- (d) Maintenance spares equivalent to 15% of Operation and Maintenance expenses.*

*(3) In case of renewable hybrid energy projects, the Working Capital requirement shall be sum of the Working Capital requirement determined as per norms applicable for renewable energy sources, in proportion to their rated capacity in the project*

*(4) Interest on Working Capital shall be at interest rate equivalent to the normative interest rate of three hundred and fifty (350) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months.”*

Receivables equivalent to forty-five (45) days of tariff for sale of electricity calculated on the plant load factor and four months of fuel cost, (as applicable

for biomass power, non-fossil fuel-based co-generation, biomass gasifier and biogas power) have been considered.

Interest rate has been computed as average of State Bank of India MCLR (One Year Tenor) prevalent during the last available six months plus 350 basis points (equivalent to interest rate of 11.17%).

The parameters considered for computation of the interest on working capital are stipulated in following table:

<b>Details</b>	<b>Small Hydro</b>	<b>Biomass Based (Rankine Cycle), Non-Fossil Fuel Generation, Biomass Gasifier and Biogas.</b>
<i>For Fixed Charge</i>		
O&M Expenses (Month)	1 month	1 month
Maintenance Spares (%) of O&M Expenses	15%	15%
Receivables (Days)	45 Days	45 Days
<i>For Variable Charge</i>		
Biomass/Bagasse Stock (Months)	-	4 months
Rate of Interest (%)	11.17%	11.17%

Comments Received

12.1 Venika Hydro Projects Pvt. Ltd. has suggested to consider the interest rate as per Indian Renewable Energy Development Agency (IREDA) norms.

Analysis and Decision

12.2 The Interest on Working Capital considered for generic tariff determination is as per the RE Tariff Regulations. Any change in the Interest Rate, is outside the scope of the present exercise of determination of levellised generic tariff. In view of the above, the Commission has continued with the rate of interest on working capital as per provisions of RE Tariff Regulations.

**13. Operation and Maintenance (O&M) Expenses**

Commission's Proposal

Regulation 19 of the RE Tariff Regulations specifies for O&M expenses in respect of RE projects as following

**"19. Operation and Maintenance Expenses**

(1) *Operation and Maintenance expenses shall be determined for the Tariff Period of the project based on normative O&M expenses specified in these regulations for the first year of the Control Period."*

(2) *Normative O&M expenses allowed during first year of the Control Period i.e., financial year 2020-21 under these Regulations shall be escalated at the rate of 3.84% per annum over the Tariff Period."*

The normative O&M expenses for various RE technologies specified under the relevant provisions of the RE Tariff Regulations are as under:

(a) **Small Hydro:** Regulation 30 of RE Regulations provide for the normative O&M expenses for small hydro projects for the first year of the Control Period (FY 2020-21), which shall be escalated at the rate of 3.84% per annum over the tariff period for determination of the levellised tariff. Accordingly, the table below represents the O&M cost for SHP as specified by the Commission for FY 2020-21:

Region	Project Size	O&M Expenses FY 2020-21 (Rs Lakh/ MW)
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States	Below 5 MW	41.78
	5 MW to 25 MW	31.34
Other States	Below 5 MW	33.66
	5 MW to 25 MW	24.37

(b) **Biomass Based:** Regulation 35 of RE Tariff Regulations provides that the normative O& M expenses for Biomass-based projects for first year of the Control Period (FY 2020-21) shall be Rs. 46.42 Lakh per MW

(c) **Non-Fossil Fuel Cogeneration:** As per Regulation 45 of RE Tariff Regulations, the normative O&M expenses for non-fossil fuel co-generation projects for the first year of the Control Period (FY 2020-21) shall be Rs. 24.52 Lakh per MW.

(d) **Biomass Gasifier:** As per Regulation 54 of the RE Tariff Regulations, normative O&M expenses for Biomass Gasifier power projects shall be Rs. 61.31 lakh/MW for the first year of Control Period (FY 2020-21).

(e) **Biogas:** As per Regulation 59 of the RE Tariff Regulations, normative



O&M expenses for biogas shall be Rs. 61.31 Lakh/MW for the first year of Control Period (FY2020-21).

The Commission has considered the normative O&M Expenses as specified in RE Tariff Regulations for different RE technologies as stated above.

Comments Received

13.1 Venika Hydro Projects Pvt. Ltd. has suggested to consider O&M Charges for Other States (5MW – 25MW) as Rs. 35 Lakh/MW at 5% escalation rate as increase in the prices for goods such as Diesel, Cement, Steel, labour etc. due to COVID -19.

Shree Bhavani Power Projects Pvt Ltd. has suggested to analyse inflation data of the past 15 years for determination of escalation rate as consideration of past 5 years data for projection for next 25 years will lead to correlation variation. Further, due to COVID-19, cost of labour will increase. Therefore, it has been suggested to increase the escalation rate or else continue the same escalation rate of 5.72% as in the previous regulations.

Analysis and Decision

13.2 The O&M expenses and the escalation rate for O&M expenses considered for generic tariff determination are as per the RE Tariff Regulations. Any change in this regard is outside the scope of the present exercise of determination of levellised generic tariff. Accordingly, the Commission decides to apply the normative O&M Expenses and escalation rate for O&M expenses as specified in RE Tariff Regulations for different RE technologies.

**14. Gross Calorific Value and Station Heat Rate for Biomass based (rankine cycle) RE Projects**

Commission's Proposal

Regulation 37 of RE Tariff Regulations specifies the calorific value for biomass fuel used as 3100 kcal/kg.

Also, Regulation 34 of RE Tariff Regulations specifies Station Heat Rate of 4200 kcal/kwh for projects using travelling grate boilers and 4125 kcal/kwh for projects with AFBC boilers.

Comments Received

14.1 GBEDA submitted that the value of the calorific value and Station Heat Rate for biomass based plants should be at par with those in individual states. It has been suggested to clearly state that the calorific value and Station Heat Rate determined will be applicable for all the states in the country, specifically for the state of Gujarat as well.

Analysis and Decision

14.2 While determining the generic tariff for the Biomass projects covered within the jurisdiction of the Commission, the Commission has considered the same calorific value and station heat rate for all States as per Regulation 37 and 34 of RE Tariff Regulations.

15. Other comments received on issues of Open Access Charges, Waiver of contract demand and Deviation settlement mechanism are beyond the scope of this Tariff Order. Hence, these suggestions have not been considered by the commission in the present exercise of determination of levellised generic tariff for FY 2020-21.

16. No other comment on any other parameter has been received. Hence, the Commission determines the levellised generic tariff for RE based generating stations for FY 2020-21 as enclosed in Annexure – I to this Order.

Sd/-  
**[Arun Goyal]**  
**MEMBER**

Sd/-  
**[Indu Shekhar Jha]**  
**MEMBER**

Sd/-  
**[P.K. Pujari]**  
**CHARIPERSON**

New Delhi, 21<sup>st</sup> July 2020

**ANNEXURE I**

**LEVELLISED GENERIC TARIFF FOR VARIOUS RENEWABLE ENERGY TECHNOLOGIES FOR FY 2020-21**

1. The levellised generic tariffs for Small Hydro projects, Biomass with Rankine Cycle, Non-fossil fuel-based co-generation, Biomass Gasifier and Biogas based projects, for FY 2020-21 are discussed below.
2. For Solar PV, Floating Solar, Solar Thermal, Wind (onshore and offshore), MSW/RDF, Renewable hybrid energy projects, Renewable energy with storage projects and other emerging renewable energy technologies, the tariff will be project specific. The separate petition is required to be filed for determination of project specific tariff as per Regulation 8 of RE Tariff Regulations.

**A. Useful Life**

3. The clause (hh) of sub-Regulation (1) of Regulation 2 of the RE Tariff Regulations defines 'useful life' in relation to project, including dedicated evacuation system, from the date of commercial operation (COD) of such project, shall mean the following:

<b>Renewable Energy Projects</b>	<b>Years</b>
Small Hydro	40
Biomass power project with Rankine Cycle technology	25
Non-fossil fuel-based co-generation	25
Biomass Gasifier	25
Biogas	25

**B. Control Period**

4. Regulation 5 of the RE Tariff Regulations specifies that the Control Period for determination of tariff for renewable energy projects (RE projects) shall be from 01.07.2020 to 31.03.2023. The provision to Regulation 5 specifies that the tariff determined for the RE projects commissioned during the control period, shall remain valid for the tariff period (Useful life of the project). Accordingly, the tariff determined is for the first year of the control period, which shall be applicable for the Projects commissioned during the period from July 1, 2020 till March 31, 2021.

### **C. Tariff Structure**

5. Regulation 9 of the RE Regulations stipulates that the tariff for renewable energy sources shall consist of the following components:
  - a. Return on equity;
  - b. Interest on loan capital;
  - c. Depreciation;
  - d. Interest on working capital; and
  - e. Operation and Maintenance expenses
6. For renewable energy technologies having fuel cost component, like biomass power projects with rankine cycle technology, non-fossil fuel based cogeneration, biomass gasifier based projects and biogas based power project, single part tariff with two components i.e. fixed cost component and fuel cost component, is to be determined.

### **D. Tariff Design**

7. In terms of Regulation 10 of the RE Tariff Regulations, the tariff design for renewable energy generating stations is as under:

*“(1) The generic tariff shall be determined, on levellised basis, considering the year of commissioning of the project, for the tariff period of the project:*

*Provided that for renewable energy projects having single part tariff with two components, fixed cost component shall be determined on levellised basis considering the year of commissioning of the project while fuel cost component shall be determined on year of operation basis in the Tariff Order to be issued by the Commission.”*

### **E. Levellised Tariff**

8. Levellised Tariff is to be calculated by carrying out levellisation for 'useful life' of each technology considering the discount factor for time value of money.

### **F. Discount Factor**

9. Regulations 10 (2) specify methodology to calculate discount factor for the

purpose of levelled tariff computation as under:

**“10. Tariff Design**

... ..

*(2) For the purpose of levelled tariff computation, discount factor equivalent to post-tax weighted average cost of capital shall be considered.”*

10. Accordingly, the discount factor considered for this exercise is equal to the post tax weighted average cost of capital on the basis of normative debt: equity ratio (70:30) specified in the Regulations. Considering the normative debt equity ratio and weighted average of the post-tax rates for debt and equity component, the discount factor is calculated.

11. Interest Rate considered for the loan component (i.e.,70% of capital cost) is 9.67%. For equity component (i.e.,30% of capital cost), the rate of Return on Equity (ROE) is considered at post-tax rate of 14%. Further, Corporate tax rate has been considered as 34.94%<sup>1</sup>. Accordingly, the discount factor derived by this method for all technologies is 8.61%  $[(9.67\% \times 0.70) \times (1 - 34.94\%) + (14.0\% \times 0.30)]$

**G. Capital Cost**

12. Regulation 12 of the RE Tariff Regulations specifies as under:

**“12. Capital Cost**

*Norms for capital cost, as specified in relevant chapters of these regulations, shall be inclusive of 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 inter-connection point.”*

13. The Commission has considered the normative capital cost as specified in RE Tariff Regulations, applicable for the first year of control period i.e. FY 2020-21, for various RE technologies viz. Small Hydro Power, Biomass Power based on Rankine cycle, Non-Fossil Fuel based Cogeneration, Biomass Gasifier and Biogas based power projects. The RE Technology specific capital cost of RE projects is discussed as under:

---

<sup>1</sup> Income Tax rate of 30% + 12% surcharge on IT rate +4% Health and Education cess on IT rate and Surcharge

**Capital cost of Small Hydro Projects (SHP)**

14. Small Hydro Projects for the purpose of the RE Tariff Regulations cover those projects which are located at the sites approved by the State Nodal Agencies/State Governments using new plant and machinery and with installed power plant capacity lower than or equal to 25 MW.
15. The Commission has specified the normative capital cost for small hydro projects for FY 2020-21 in accordance to Regulation 27 (1) as under:

<b>Region</b>	<b>Projects Size</b>	<b>Capital Cost (Rs.Lakh/MW)</b>
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States	Below 5 MW	1100
	5 MW to 25 MW	1100
Others States	Below 5 MW	780
	5 MW to 25 MW	900

**Capital cost of Biomass based Power Projects**

16. The Commission, under Regulation 31 of the RE Tariff Regulations has specified the normative capital cost for Biomass based Power Projects for FY 2020-21, as under:

<b>Biomass Rankine Cycle Projects</b>	<b>Capital Cost (Rs lakh/ MW)</b>
Project [other than rice straw and juliflora (plantation) based project] with water cooled condenser	559
Project [other than rice straw and Juliflora(plantation) based project] with air cooled condenser	600
For rice straw and Juliflora (plantation) based project with water cooled condenser	611
For rice straw and Juliflora (plantation) based project with air cooled condenser	652

**Capital cost of Non-fossil fuel based Cogeneration Projects**

17. Non-fossil based cogeneration has been defined as the process in which more than one form of energy is produced in a sequential manner by using

biomass. As per Regulation 4(d) of the RE Tariff Regulations, a project to qualify as non-fossil based co-generation project must be using new plant and machinery with topping cycle mode of operation which uses the non-fossil fuel input for power generation and utilizes the thermal energy generated for useful heat applications in other industrial activities simultaneously, and where the sum of useful power output and half of useful thermal output is greater than 45% of the plant's energy consumption during the season.

18. The Commission, under Regulation 39, has specified normative capital cost for the Non-Fossil Fuel Based Cogeneration Projects as Rs. 492 lakh/MW for FY 2020-21. After taking into account the capital subsidy of Rs. 25 Lakh/MW, net project cost works out to be Rs. 467 lakh/MW for FY 2020-21.

**Capital cost of Biomass Gasifier Power Projects**

19. The Commission, under Regulation 50, has specified the normative capital cost for Biomass Gasifier power projects as Rs. 593 lakh/MW for FY 2020-21. After taking into account the capital subsidy of Rs. 150.00 lakh/MW (by Ministry of New and Renewable Energy), net project cost works out to be Rs. 443 lakh/MW for FY 2020-21.

**Capital cost of Biogas based Power Projects**

20. The Commission, under Regulation 56, has specified the normative capital cost for Biogas based power projects as Rs. 1186 lakh/MW for FY 2020-21. After taking into account the capital subsidy of Rs. 300 lakh/MW (by Ministry of New and Renewable Energy), net project cost works out to be Rs. 886 lakh/MW for FY 2020-21.
21. The capital cost for FY 2020-21 in respect of the renewable energy power generating stations is summarized as following:

<b>Renewable Energy Projects</b>	<b>Net Capital Cost Norm for FY 2020-21 (Rs. lakh/MW)</b>
<b>Small Hydro</b>	
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States (Below 5 MW)	1100
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States ( 5 MW to 25 MW)	1100
Other States (Below 5 MW)	780
Other States (5 MW to 25 MW)	900
<b>Biomass Based</b>	
Project [other than rice straw and Juliflora (plantation) based project] with water cooled condenser	559
Project [other than rice straw and Juliflora (plantation) based project] with air cooled condenser	600
Rice straw and Juliflora (plantation) based project with water cooled condenser	611
Rice straw and Juliflora (plantation) based project with air cooled condenser	652
<b>Non-fossil fuel co-generation</b>	<b>467</b>
<b>Biomass Gasifier based Power Projects</b>	<b>443</b>
<b>Biogas based Power Projects</b>	<b>886</b>

#### H. Debt-Equity Ratio

22. Sub-Regulation (1) of Regulation 13 of the RE Tariff Regulations, as stipulated below, specifies debt-equity ratio of 70:30 for determination of generic tariff based on suo-motu petition.

23. Based on the debt equity ratio of 70:30, the debt and equity components of the normative capital cost for determination of tariff for the RE projects have been worked out as following:



<b>Renewable Energy Projects</b>	<b>Debt Amount (Rs. Lakh)</b>	<b>Equity Amount (Rs. Lakh)</b>	<b>Net Capital Cost (Rs. Lakh)</b>
<b>Small Hydro</b>			
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States. (Below 5 MW)	770.00	330.00	1,100.00
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States. ( 5 MW to 25 MW)	770.00	330.00	1,100.00
Other States (Below 5 MW)	546.00	234.00	780.00
Other States (5 MW to 25 MW)	630.00	270.00	900.00
<b>Biomass Based</b>	-	-	
Project [other than rice straw and Juliflora (plantation) based project] with water cooled condenser	391.30	167.70	559.00
Project [other than rice straw and Juliflora (plantation) based project] with air cooled condenser	420.00	180.00	600.00
Rice straw and Juliflora (plantation) based project with water cooled condenser	427.70	183.30	611.00
Rice straw and Juliflora (plantation) based project with air cooled condenser	456.40	195.60	652.00
<b>Non-fossil fuel co-generation</b>	<b>326.90</b>	<b>140.10</b>	<b>467.00</b>
<b>Biomass Gasifier based Power Projects</b>	<b>310.10</b>	<b>132.90</b>	<b>443.00</b>
<b>Biogas based Power Projects</b>	<b>620.20</b>	<b>265.80</b>	<b>886.00</b>

**I Return on Equity**

24.As regards Rate of Return on Equity, sub-Regulation (2) of Regulation 16 of the RE Tariff Regulations specifies as under:

**“16. Return on Equity**

... ..

*(2) The normative Return on Equity shall be 14%. The normative Return on Equity shall be grossed up by the latest available notified Minimum Alternate Tax (MAT) rate for the first 20 years of the Tariff Period and by the latest available notified Corporate Tax rate for the remaining Tariff Period.”*

25.For computation of Rate of Return on Equity, MAT Rate of 17.47% and Corporate Tax Rate of 34.94% has been considered. Accordingly, Rate of Return has been computed as 16.96% for first 20 years and 21.52% after 20 years of useful life.

**J. Interest on Loan**

26.Sub-Regulation (1) of Regulation 14 of the RE Regulations specifies the loan tenure of 15 years for the purpose of determination of generic and project specific tariff for RE projects, which is reproduced as under:

*“(a) The loans arrived at in the manner indicated in Regulation 13 shall be considered as gross normative loan for calculation for interest on loan.....*

*(b) For the purpose of computation of tariff, normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months shall be considered.*

*(c) Notwithstanding any moratorium period availed by project developer, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.”*

27.The monthly data of MCLR for the last available six months from State Bank of India and the average MCLR is shown in following table:

<b>Effective Date</b>	<b>One (1) Year Tenor MCLR rates<sup>2</sup></b>
10.12.2019 to 09.01.2020	7.90%
10.01.2020 to 09.02.2020	7.90%
10.02.2020 to 09.03.2020	7.85%
10.03.2020 to 09.04.2020	7.75%
10.04.2020 to 09.05.2020	7.40%
10.05.2020 to 09.06.2020	7.25%
<b>Avg. for last Available 6 months</b>	<b>7.67%</b>

<sup>2</sup> Source: <https://www.sbi.co.in/web/interest-rates/interest-rates/mclr-historical-data>

28. Accordingly, interest rate for loan component is determined as 9.67%.

**K. Depreciation**

29. Regulation 15 of the RE Tariff Regulations specifies for computation of depreciation in the following manner:

*“(1) The value base for the purpose of depreciation shall be the capital cost of the project admitted by the Commission. The salvage value of the project shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the project”*

*Provided that, no depreciation shall be allowed to the extent of grant or capital subsidy received for the project.*

*(2) Depreciation rate of 4.67% per annum shall be considered for the first 15 years and remaining depreciation shall be evenly spread during remaining Useful Life of the project”*

*(3) Depreciation shall be computed from the first year of commercial operation:*

*Provided, that for determination of project specific tariff, in case of commercial operation of the project for part of the year, depreciation shall be computed on pro rata basis.”*

30. In accordance with the above, the rate of depreciation for the first 15 years is specified as 4.67% and the rate of depreciation from the 16<sup>th</sup> year onwards is to be spread over the balance useful life of the RE project as under:

<b>Details</b>	<b>Small Hydro</b>	<b>Biomass based</b>	<b>Non-Fossil Fuel cogeneration</b>	<b>Biomass Gasifier</b>	<b>Biogas</b>
Useful Life (in years)	40	25	25	25	25
Rate of depreciation for 15 years (%)	4.67	4.67	4.67	4.67	4.67
Rate of depreciation from 16 <sup>th</sup> year onwards (%)	0.80%	2.00%	2.00%	2.00%	2.00%

**L. Interest on Working Capital**

31. Regulation 17 of the RE Tariff Regulations specifies for the working capital requirements of the RE projects as under:

*“(1)The Working Capital requirement in respect of wind power projects, small hydro projects, solar PV power projects, floating solar projects, solar thermal power projects, and renewable energy with storage projects shall be computed in accordance with the following:*

*(d) Operation & Maintenance expenses for one month*

*(e) Receivables equivalent to 45 days of tariff for sale of electricity*

*calculated on normative Capacity Utilisation Factor or Plant Load Factor, as the case may be and*

*(f) Maintenance spares equivalent to 15% of Operation and Maintenance expenses.*

*(2) The Working Capital requirement in respect of biomass power projects with Rankine cycle technology, biogas power projects, biomass gasifier based power projects, non-fossil fuel based co-generation projects, municipal solid waste based power projects and refuse derived fuel based power projects shall be computed in accordance with the following*

*(e) Fuel costs for four months equivalent to normative Plant Load Factor:*

*(f) Operation and Maintenance expense for one month;*

*(g) Receivables equivalent to 45 days of tariff for sale of electricity calculated on the plant load factor; and*

*(h) Maintenance spares equivalent to 15% of Operation and Maintenance expenses.*

*(3) In case of renewable hybrid energy projects, the Working Capital requirement shall be sum of the Working Capital requirement determined as per norms applicable for renewable energy sources, in proportion to their rated capacity in the project*

*(4) Interest on Working Capital shall be at interest rate equivalent to the normative interest rate of three hundred and fifty (350) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months.”*

32. Receivables equivalent to forty five (45) days of tariff for sale of electricity calculated on the plant load factor and four months of fuel cost, (as applicable for biomass power, non-fossil fuel based co- generation, biomass gasifier and biogas power) have been considered.

33. Interest rate has been computed as average of State Bank of India MCLR (One Year Tenor) prevalent during the last available six months plus 350 basis points (equivalent to interest rate of 11.17%).

34. The parameters considered for computation of the interest on working capital are stipulated in following table:

Details	Small Hydro	Biomass Based (Rankine Cycle), Non-Fossil Fuel Generation, Biomass Gasifier and Biogas.
<b>For Fixed Charge</b>		
O&M Expenses (Month)	1 month	1 month
Maintenance Spares (%) of O&M Expenses	15%	15%
Receivables (Days)	45 Days	45 Days
<b>For Variable Charge</b>		
Biomass/Bagasse Stock (Months)	-	4 months
<b>Rate of Interest (%)</b>	11.17%	11.17%

**M. Operation and Maintenance Expenses**

35.Regulation 19 of the RE Tariff Regulations specifies for Operation and Maintenance Expenses (O&M expenses) in respect of RE projects as following

**"19. Operation and Maintenance Expenses**

(1) *Operation and Maintenance expenses shall be determined for the Tariff Period of the project based on normative O&M expenses specified in these regulations for the first year of the Control Period."*

(2) *Normative O&M expenses allowed during first year of the Control Period i.e., financial year 2020-21 under these Regulations shall be escalated at the rate of 3.84% per annum over the Tariff Period."*

36.The normative O&M expenses for various RE technologies specified under the relevant provisions of the RE Tariff Regulations are as under:

(f) **Small Hydro:** Regulation 30 of RE Regulations provide for the normative O&M expenses for small hydro projects for the first year of the Control Period (FY 2020-21), which shall be escalated at the rate of 3.84% per annum over the tariff period for determination of the levellised tariff. Accordingly, the table below represents the O&M cost for SHP as specified by the Commission for FY 2020-21:

Region	Project Size	O&M Expenses FY 2020-21 (Rs Lakh/ MW)
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States	Below 5 MW	41.78
	5 MW to 25 MW	31.34
Other States	Below 5 MW	33.66
	5 MW to 25 MW	24.37

(g) **Biomass Based:** Regulation 35 of RE Tariff Regulations provides that the normative O& M expenses for Biomass-based projects for first year of the Control Period (FY 2020-21) shall be Rs. 46.42 Lakh per MW

(h) **Non-Fossil Fuel Cogeneration:** As per Regulation 45 of RE Tariff Regulations, the normative O&M expenses for non-fossil fuel co-generation projects for the first year of the Control Period (FY 2020-21) shall be Rs. 24.52 Lakh per MW.

(i) **Biomass Gasifier:** As per Regulation 54 of the RE Tariff Regulations, normative O&M expenses for Biomass Gasifier power projects shall be Rs. 61.31 lakh/MW for the first year of Control Period (FY 2020-21).

(j) **Biogas:** As per Regulation 59 of the RE Tariff Regulations, normative O&M expenses for biogas shall be Rs. 61.31 Lakh/MW for the first year of Control Period (FY2020-21).

37. The Commission has considered the normative O&M Expenses as specified in RE Tariff Regulations for different RE technologies as stated above.

**N. Capacity Utilisation factor (CUF)/Plant Load Factor (PLF)**

38. Regulation 18 of the RE Tariff Regulations, as defined below, specifies number of hours for calculation of CUF/PLF as 8766.

*“The number of hours in a year for calculation of capacity utilization factor and plant load factor, as the case may be, shall be considered as 8766.”*

39. Regulation 28 of the RE Tariff Regulations specifies the norms for Capacity

Utilization Factor (CUF) of units generated in a year in respect of the Small Hydro generating stations as per the details given in the table below:

<b>Renewable Energy Projects</b>	<b>CUF (%)</b>
Small Hydro	
(i) Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States.	45%
(ii) Other States	30%

40. In the present Order, the Commission has considered the CUF for small hydro projects as shown in the above Table.

41. Further, the Commission has considered the Plant Load Factor (PLF) for Biomass (Rankine Cycle), Biomass Gasifier, and Biogas based renewable energy generating stations as specified in Regulations 32, 51 and 57 of the RE Tariff Regulations, which are given in the following table:

<b>Renewable Energy Projects</b>	<b>PLF (%)</b>
(i) Biomass Based (Rankine Cycle)	80%
(ii) Biomass Gasifier	85%
(iii) Biogas	90%

42. Further, as regards Non-fossil Fuel based Co-generation projects, the Commission has considered PLF as specified in Regulation 40, which is given in the following Table:

<b>States</b>	<b>PLF (%)</b>
(i) Uttar Pradesh & Andhra Pradesh	45%
(ii) Tamil Nadu & Maharashtra	60%
(iii) Other States	53%

#### **O. Auxiliary Consumption**

43. The Commission has considered the Auxiliary Consumption as specified

Regulations 29, 33, 41, 52 and 58 of the RE Tariff Regulations, which is shown in the following Table:

<b>Renewable Energy Projects</b>	<b>Auxiliary Consumption (%)</b>
(i) Small Hydro	1.00%
(ii) Biomass Based Projects	
a) Using Water Cooled Condenser	10.00%
b) Using Air Cooled Condenser	12.00%
(iii) Non-Fossil Fuel Generation	8.50%
(iv) Biomass Gasifier	10.00%
(v) Biogas based	12.00%

**P. Station Heat Rate**

44. The Station Heat Rates (SHR) specified under Regulations 34 and 42 of the RE Tariff Regulations for biomass and non-fossil fuel based co-generation projects are as under:

<b>Renewable Energy Projects</b>	<b>SHR (kcal/Kwh)</b>
Biomass based	(a) 4200: For projects using travelling grate boilers (b) 4125: For Projects using AFBC boilers
Non-Fossil Fuel based Cogeneration	3600

**Q. Fuel Parameters**

**(a) Fuel Mix**

45. Regulation 53 of the RE Tariff Regulations specifies that the normative specific fuel consumption shall be 1.25 kg per kWh for Biomass Gasifier based power project.

46. Also, Regulation 60 of the RE Tariff Regulations specifies that the normative



specific fuel consumption shall be 3 kg of substrate mix per kWh for Biogas based power project.

47. The Commission has considered the fuel mix for Biomass Gasifier based power project and Biogas based power projects as specified above.

**(b) Calorific Value**

48. The Commission has considered the calorific value for biomass fuel used as 3100 kcal/kg as per Regulation 37 of the RE Tariff Regulations.

49. Also, the gross calorific value for bagasse in case of non-fossil fuel co-generation projects has been considered as 2250 kCal/kg as per Regulation 43 of RE Tariff Regulations, and for the use of biomass fuels other than bagasse, the calorific value as specified in above Para shall be applicable.

**(c) Fuel Cost**

50. The Commission, as per Regulation 38 of the RE Tariff Regulations, has specified the Biomass fuel price for first year of the Control Period (i.e. FY 2020-21) in the table below:

<b>States</b>	<b>Biomass Price for FY 2020-21 (Rs/ MT)</b>
Andhra Pradesh	3,326
Haryana	3,786
Maharashtra	3,872
Punjab	3,960
Rajasthan	3,305
Tamil Nadu	3,272
Telangana	3,326
Uttar Pradesh	3,384
Other States	3,557

51. The Commission, as per Regulation 44 (1) of the RE Tariff Regulations, has specified the Bagasse fuel price during first year of the Control Period (i.e. FY 2020-21) in the following table:

<b>States</b>	<b>Bagasse Price for FY 2020-21 (Rs/ MT)</b>
Andhra Pradesh	1,878
Haryana	2,671
Maharashtra	2,632

<b>States</b>	<b>Bagasse Price for FY 2020-21 (Rs/ MT)</b>
Punjab	2,351
Tamil Nadu	2,023
Telangana	1,877
Uttar Pradesh	2,095
Other States	2,274

52. As per Regulation 55 of the RE Tariff Regulations, the biomass fuel price for Biomass gasifier based power projects applicable for FY 2020-21 shall be the same as for biomass based power projects (Rankine cycle), as determined in accordance with Regulation 38 and as mentioned in Clause 50 of this Order

53. The Commission, as per Regulation 61 of the RE Tariff Regulations, has specified the feed stock price for Biogas based power projects during first year of the Control Period (FY 2020-21) at Rs.1422/MT.

**R. Subsidy or Incentives by State/Central Government**

54. Regulation 22 (1) of the RE Tariff Regulations provides as under:

*"The Commission shall take into consideration any incentive, grant or subsidy from the Central or State Government, including accelerated depreciation benefit if availed by the project while determining the tariff under these Regulations.*

*Provided that the following principles shall be considered for ascertaining income tax benefit on account of accelerated depreciation, if availed, for the purpose of tariff determination:"*

*"1) Assessment of benefit shall be based on normative capital cost, accelerated depreciation rate and corporate income tax rate as per relevant provisions under Income Tax Act as amended from time to time*

*2) Capitalization of Renewable energy projects during second half of the fiscal year*

*3) Per unit benefit shall be derived on levelled basis at discount factor equivalent to weighted average cost of capital"*

55. Capital subsidy provided by the Government as per prevailing scheme/policy has already been considered, while considering the capital cost of the project.

56. In terms of the above regulation, for the projects availing the benefit of accelerated depreciation, an applicable Corporate tax rate of 34.94% has been considered. For the purpose of determining net depreciation benefits, depreciation @ 5.28% as per straight line method (Book depreciation as per

Companies Act, 1956) has been compared with depreciation as per Income Tax Act i.e. 40% of the written down value method. Moreover, additional 20% depreciation in the initial year is proposed to be extended to new assets acquired by power generation companies vide amendment in the section 32, sub-section (1) clause (iia) of the Income Tax Act.

57. Depreciation for the first year has been calculated at the rate of 50% of accelerated depreciation (40%) and 50% of additional depreciation (20%) (as project is capitalized during the second half of the financial year as per proviso to sub regulation (1) of Regulation 22). Income tax benefits of accelerated depreciation and additional depreciation, have been worked out as per normal tax rate on the net depreciation benefit. Per unit levelled accelerated depreciation benefit has been computed considering the post-tax weighted average cost of capital as discount factor. Accelerated depreciation benefit has been computed as per existing provisions of Income Tax Act.

58. In the light of the discussion made in the preceding paragraphs, the generic tariffs of different RE projects for the financial year 2020-21 have been arrived as follows:

**GENERIC TARIFF FOR RE TECHNOLOGIES FOR FY 2020-21**

59. The Generic Tariff for RE Technologies computed for FY 2020-21 is shown in the subsequent Tables:

<b>Particulars</b>	<b>Levelling Total Tariff (FY 2020-21) (Rs/kWh)</b>
<b>Small Hydro Power Project</b>	
Himachal Pradesh, Uttarakhand, West Bengal, North Eastern States and Union Territories of Jammu and Kashmir & Ladakh. (Below 5 MW)	5.16
Himachal Pradesh, Uttarakhand, West Bengal, North Eastern States and Union Territories of Jammu and Kashmir & Ladakh. (5 MW to 25 MW)	4.72
Others States (Below 5 MW)	5.74
Others States (5 MW to 25 MW)	5.71

State	Levelling Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levelling tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and travelling grate boiler</b>					
AP	2.61	5.01	7.62	0.12	7.50
Haryana	2.67	5.70	8.37	0.12	8.25
Maharashtra	2.68	5.83	8.51	0.12	8.39
Punjab	2.69	5.96	8.65	0.12	8.53
Rajasthan	2.61	4.98	7.58	0.12	7.47
Tamil Nadu	2.60	4.93	7.53	0.12	7.41
Telangana	2.61	5.01	7.62	0.12	7.50
UP	2.62	5.09	7.71	0.12	7.60
Others	2.64	5.35	7.99	0.12	7.88

State	Levelling Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levelling tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and travelling grate boiler</b>					
AP	2.75	5.12	7.88	0.13	7.75
Haryana	2.81	5.83	8.64	0.13	8.51
Maharashtra	2.82	5.96	8.78	0.13	8.66
Punjab	2.83	6.10	8.93	0.13	8.80
Rajasthan	2.75	5.09	7.84	0.13	7.71
Tamil Nadu	2.75	5.04	7.79	0.13	7.66
Telangana	2.75	5.12	7.88	0.13	7.75
UP	2.76	5.21	7.97	0.13	7.84
Others	2.78	5.48	8.26	0.13	8.13

State	Levelling Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levelling tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
-------	----------------------	----------------------------	--------------------------------------	--	---

State	Levellised Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and travelling grate boiler</b>					
AP	2.72	5.01	7.72	0.13	7.60
Haryana	2.77	5.70	8.47	0.13	8.34
Maharashtra	2.78	5.83	8.61	0.13	8.48
Punjab	2.79	5.96	8.75	0.13	8.63
Rajasthan	2.71	4.98	7.69	0.13	7.56
Tamil Nadu	2.71	4.93	7.63	0.13	7.51
Telangana	2.72	5.01	7.72	0.13	7.60
UP	2.72	5.09	7.82	0.13	7.69
Others	2.74	5.35	8.10	0.13	7.97

State	Levellise d Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and travelling grate boiler</b>					
AP	2.86	5.12	7.98	0.14	7.85
Haryana	2.92	5.83	8.75	0.14	8.61
Maharashtra	2.93	5.96	8.89	0.14	8.75
Punjab	2.94	6.10	9.04	0.14	8.90
Rajasthan	2.86	5.09	7.95	0.14	7.81
Tamil Nadu	2.86	5.04	7.89	0.14	7.76
Telangana	2.86	5.12	7.98	0.14	7.85
UP	2.87	5.21	8.08	0.14	7.94
Others	2.89	5.48	8.37	0.14	8.23

State	Levelling Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and AFBC boiler</b>					
AP	2.60	4.92	7.52	0.12	7.40
Haryana	2.66	5.60	8.26	0.12	8.14
Maharashtra	2.67	5.72	8.39	0.12	8.28
Punjab	2.68	5.85	8.53	0.12	8.42
Rajasthan	2.60	4.89	7.49	0.12	7.37
Tamil Nadu	2.60	4.84	7.43	0.12	7.32
Telangana	2.60	4.92	7.52	0.12	7.40
UP	2.61	5.00	7.61	0.12	7.50
Others	2.63	5.26	7.89	0.12	7.77

State	Levelling Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and AFBC boiler</b>					
AP	2.75	5.03	7.78	0.13	7.65
Haryana	2.80	5.72	8.53	0.13	8.40
Maharashtra	2.81	5.85	8.67	0.13	8.54
Punjab	2.82	5.99	8.81	0.13	8.69
Rajasthan	2.74	5.00	7.74	0.13	7.62
Tamil Nadu	2.74	4.95	7.69	0.13	7.56
Telangana	2.75	5.03	7.78	0.13	7.65
UP	2.75	5.12	7.87	0.13	7.74
Others	2.78	5.38	8.15	0.13	8.03

State	Levelling Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and AFBC boiler</b>					
AP	2.71	4.92	7.63	0.13	7.50
Haryana	2.76	5.60	8.36	0.13	8.23
Maharashtra	2.77	5.72	8.50	0.13	8.37
Punjab	2.78	5.85	8.64	0.13	8.51
Rajasthan	2.71	4.89	7.59	0.13	7.47
Tamil Nadu	2.70	4.84	7.54	0.13	7.41
Telangana	2.71	4.92	7.63	0.13	7.50
UP	2.72	5.00	7.72	0.13	7.59
Others	2.74	5.26	8.00	0.13	7.87

State	Levelling Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and AFBC boiler</b>					
AP	2.86	5.03	7.88	0.14	7.75
Haryana	2.91	5.72	8.64	0.14	8.50
Maharashtra	2.92	5.85	8.78	0.14	8.64
Punjab	2.93	5.99	8.92	0.14	8.78
Rajasthan	2.85	5.00	7.85	0.14	7.71
Tamil Nadu	2.85	4.95	7.80	0.14	7.66
Telangana	2.86	5.03	7.88	0.14	7.75
UP	2.86	5.12	7.98	0.14	7.84
Others	2.88	5.38	8.26	0.14	8.12

State	Levellised Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levelled tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Bagasse Based Co-generation Project</b>					
AP	2.91	3.28	6.20	0.17	6.03
Haryana	2.63	4.67	7.30	0.14	7.15
Maharashtra	2.36	4.60	6.96	0.13	6.83
Punjab	2.58	4.11	6.69	0.14	6.55
Tamil Nadu	2.27	3.54	5.81	0.13	5.68
Telangana	2.51	3.28	5.80	0.14	5.65
UP	2.94	3.66	6.61	0.17	6.44
Others	2.57	3.98	6.55	0.14	6.40

State	Levellised Fixed Cost	Variable Cost (FY 2020-21)	Applicable Tariff Rates (FY 2020-21)	Benefit of Accelerated Depreciation (if availed)	Net levelled tariff (upon adjusting for Accelerated Depreciation Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
<b>Biomass Gasifier Power Project</b>					
AP	2.55	4.62	7.17	0.09	7.08
Haryana	2.60	5.26	7.86	0.09	7.77
Maharashtra	2.61	5.38	7.99	0.09	7.90
Punjab	2.62	5.50	8.12	0.09	8.03
Rajasthan	2.55	4.59	7.14	0.09	7.05
Tamil Nadu	2.54	4.54	7.09	0.09	7.00
Telangana	2.55	4.62	7.17	0.09	7.08
UP	2.56	4.70	7.26	0.09	7.17
Others	2.58	4.94	7.52	0.09	7.43
<b>Biogas based generation</b>					
Biogas	3.31	4.85	8.16	0.17	7.99



60. The detailed computations for the generic tariff for various RE technologies have been enclosed with this draft Order as per the details given hereunder:

<b>Sl. No.</b>	<b><u>Renewable Energy Projects</u></b>	<b><u>Annexure</u></b>
A	<b>Small Hydro Power Projects</b>	
	<i>Projects Less than 5 MW for HP, Uttarakhand, West Bengal, Jammu and Kashmir, Ladakh and NE States</i>	<i>Annexure 1A</i>
	<i>Projects between 5 MW and 25 MW for HP, Uttarakhand, West Bengal, Jammu and Kashmir, Ladakh and NE States</i>	<i>Annexure 1B</i>
	<i>Projects less than 5 MW for other States</i>	<i>Annexure 1C</i>
	<i>Projects between 5 MW and 25 MW for other states</i>	<i>Annexure 1D</i>
B.1	<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.1A</i>
	<i>Haryana</i>	<i>Annexure 2.1B</i>
	<i>Maharashtra</i>	<i>Annexure 2.1C</i>
	<i>Punjab</i>	<i>Annexure 2.1D</i>
	<i>Rajasthan</i>	<i>Annexure 2.1E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.1F</i>
	<i>Telangana</i>	<i>Annexure 2.1G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.1H</i>
	<i>Others</i>	<i>Annexure 2.1I</i>
B.2	<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate boiler</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.2A</i>
	<i>Haryana</i>	<i>Annexure 2.2B</i>
	<i>Maharashtra</i>	<i>Annexure 2.2C</i>
	<i>Punjab</i>	<i>Annexure 2.2D</i>
	<i>Rajasthan</i>	<i>Annexure 2.2E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.2F</i>
	<i>Telangana</i>	<i>Annexure 2.2G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.2H</i>
	<i>Others</i>	<i>Annexure 2.2I</i>

<b>Sl. No.</b>	<b>Renewable Energy Projects</b>	<b>Annexure</b>
B.3	<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.3A</i>
	<i>Haryana</i>	<i>Annexure 2.3B</i>
	<i>Maharashtra</i>	<i>Annexure 2.3C</i>
	<i>Punjab</i>	<i>Annexure 2.3D</i>
	<i>Rajasthan</i>	<i>Annexure 2.3E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.3F</i>
	<i>Telangana</i>	<i>Annexure 2.3G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.3H</i>
	<i>Others</i>	<i>Annexure 2.3I</i>
B.4	<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate boiler</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.4A</i>
	<i>Haryana</i>	<i>Annexure 2.4B</i>
	<i>Maharashtra</i>	<i>Annexure 2.4C</i>
	<i>Punjab</i>	<i>Annexure 2.4D</i>
	<i>Rajasthan</i>	<i>Annexure 2.4E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.4F</i>
	<i>Telangana</i>	<i>Annexure 2.4G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.4H</i>
	<i>Others</i>	<i>Annexure 2.4I</i>
B.5	<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.5A</i>
	<i>Haryana</i>	<i>Annexure 2.5B</i>
	<i>Maharashtra</i>	<i>Annexure 2.5C</i>
	<i>Punjab</i>	<i>Annexure 2.5D</i>
	<i>Rajasthan</i>	<i>Annexure 2.5E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.5F</i>
	<i>Telangana</i>	<i>Annexure 2.5G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.5H</i>
	<i>Others</i>	<i>Annexure 2.5I</i>
B.6	<b>Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air</b>	

<b>Sl. No.</b>	<b><u>Renewable Energy Projects</u></b>	<b><u>Annexure</u></b>
	<b>Cooled Condenser and using AFBC</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.6A</i>
	<i>Haryana</i>	<i>Annexure 2.6B</i>
	<i>Maharashtra</i>	<i>Annexure 2.6C</i>
	<i>Punjab</i>	<i>Annexure 2.6D</i>
	<i>Rajasthan</i>	<i>Annexure 2.6E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.6F</i>
	<i>Telangana</i>	<i>Annexure 2.6G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.6H</i>
	<i>Others</i>	<i>Annexure 2.6I</i>
B.7	<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.7A</i>
	<i>Haryana</i>	<i>Annexure 2.7B</i>
	<i>Maharashtra</i>	<i>Annexure 2.7C</i>
	<i>Punjab</i>	<i>Annexure 2.7D</i>
	<i>Rajasthan</i>	<i>Annexure 2.7E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.7F</i>
	<i>Telangana</i>	<i>Annexure 2.7G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.7H</i>
	<i>Others</i>	<i>Annexure 2.7I</i>
B.8	<b>Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC boiler</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 2.8A</i>
	<i>Haryana</i>	<i>Annexure 2.8B</i>
	<i>Maharashtra</i>	<i>Annexure 2.8C</i>
	<i>Punjab</i>	<i>Annexure 2.8D</i>
	<i>Rajasthan</i>	<i>Annexure 2.8E</i>
	<i>Tamil Nadu</i>	<i>Annexure 2.8F</i>
	<i>Telangana</i>	<i>Annexure 2.8G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 2.8H</i>
	<i>Others</i>	<i>Annexure 2.8I</i>
C	<b>Non-Fossil Fuel Based Cogeneration</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 3A</i>
	<i>Haryana</i>	<i>Annexure 3B</i>

<b>Sl. No.</b>	<b>Renewable Energy Projects</b>	<b>Annexure</b>
	<i>Maharashtra</i>	<i>Annexure 3C</i>
	<i>Punjab</i>	<i>Annexure 3D</i>
	<i>Tamil Nadu</i>	<i>Annexure 3E</i>
	<i>Telangana</i>	<i>Annexure 3F</i>
	<i>Uttar Pradesh</i>	<i>Annexure 3G</i>
	<i>Others</i>	<i>Annexure 3H</i>
<b>D</b>	<b>Biomass Gasifier Power Projects</b>	
	<i>Andhra Pradesh</i>	<i>Annexure 4A</i>
	<i>Haryana</i>	<i>Annexure 4B</i>
	<i>Maharashtra</i>	<i>Annexure 4C</i>
	<i>Punjab</i>	<i>Annexure 4D</i>
	<i>Rajasthan</i>	<i>Annexure 4E</i>
	<i>Tamil Nadu</i>	<i>Annexure 4F</i>
	<i>Telangana</i>	<i>Annexure 4G</i>
	<i>Uttar Pradesh</i>	<i>Annexure 4H</i>
	<i>Others</i>	<i>Annexure 4I</i>
<b>E</b>	<b>Biogas Power Projects</b>	<i>Annexure 5A</i>

Assumption for Small Hydro based Project Parameters			Himachal Pradesh, Uttarakhand, WB, UT of J&K, Ladakh, North Eastern States - <=5MW		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	1.00%
			Capacity Utilization Factor	%	45%
			Useful Life	Years	40
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	1100.00
			Capital Cost	Rs. Lakh	1100
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	1100.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	40
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	770.00
			Total Equity Amount	Rs. Lakh	330.00
			Loan Amount	Rs. Lakh	770.00
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	330.00
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
MAT Rate	%		17.47%		
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	0.80%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	41.78	
		O&M expenses p.a	Rs. Lakh	41.78	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Generation and Sale of Power	Number of Hours	Hours	8766.00	

**CERC RE Tariff Order FY 2020-21**

**Determination of Tariff Components Small Hydro Based Power Project**

Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Net Generation	MU		3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91

Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
OMI Expenses	Rs Lakh		41.78	43.38	45.05	46.78	48.57	50.43	52.37	54.38	56.47	58.63	60.88	63.22	65.64	68.16	70.78	73.49	76.31	79.24	82.28	85.44	88.72	92.12	95.66	99.33	103.14	107.10	111.20	115.47	119.90	124.50	129.28	134.24	139.39	144.74	150.29	156.06	162.05	168.27	174.72	181.43			
Depreciation	Rs Lakh		51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	
Interest on term loan	Rs Lakh		72.01	67.04	62.08	57.11	52.15	47.18	42.21	37.25	32.28	27.31	22.35	17.38	12.42	7.45	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		4.24	4.23	4.23	4.23	4.23	4.24	4.24	4.26	4.27	4.29	4.31	4.33	4.36	4.39	4.43	3.90	4.02	4.14	4.26	4.39	4.73	4.87	5.02	5.16	5.32	5.48	5.65	5.82	6.00	6.19	6.38	6.58	6.79	7.01	7.23	7.47	7.71	7.96	8.23	8.50			
Return on Equity	Rs Lakh		55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>225.34</b>	<b>221.97</b>	<b>218.67</b>	<b>215.43</b>	<b>212.26</b>	<b>209.17</b>	<b>206.14</b>	<b>203.20</b>	<b>200.33</b>	<b>197.55</b>	<b>194.85</b>	<b>192.25</b>	<b>189.74</b>	<b>187.32</b>	<b>185.01</b>	<b>142.18</b>	<b>145.11</b>	<b>148.16</b>	<b>151.32</b>	<b>154.61</b>	<b>173.27</b>	<b>176.81</b>	<b>180.49</b>	<b>184.31</b>	<b>188.27</b>	<b>192.39</b>	<b>196.67</b>	<b>201.11</b>	<b>205.72</b>	<b>210.51</b>	<b>215.48</b>	<b>220.64</b>	<b>226.00</b>	<b>231.56</b>	<b>237.34</b>	<b>243.34</b>	<b>249.58</b>	<b>256.05</b>	<b>262.76</b>	<b>269.74</b>			

**Levelised tariff corresponding to Useful life**

Per Unit Cost of Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
OMI expn	Rs/KWh	1.67	1.07	1.11	1.15	1.20	1.24	1.29	1.34	1.39	1.45	1.50	1.56	1.62	1.68	1.75	1.81	1.88	1.95	2.03	2.11	2.19	2.27	2.36	2.45	2.54	2.64	2.74	2.85	2.96	3.07	3.19	3.31	3.44	3.57	3.71	3.85	4.00	4.15	4.31	4.47	4.65		
Depreciation	Rs/KWh	1.03	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	
Int. on term loan	Rs/KWh	0.84	1.84	1.72	1.59	1.46	1.34	1.21	1.08	0.95	0.83	0.70	0.57	0.45	0.32	0.19	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/KWh	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.11	0.11	0.11	0.11	0.12	0.12	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.17	0.18	0.19	0.19	0.20	0.20	0.21	0.22		
RoE	Rs/KWh	1.50	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
<b>Total COG</b>	<b>Rs/KWh</b>	<b>5.16</b>	<b>5.77</b>	<b>5.68</b>	<b>5.60</b>	<b>5.52</b>	<b>5.44</b>	<b>5.36</b>	<b>5.28</b>	<b>5.20</b>	<b>5.13</b>	<b>5.06</b>	<b>4.99</b>	<b>4.92</b>	<b>4.86</b>	<b>4.80</b>	<b>4.74</b>	<b>3.72</b>	<b>3.79</b>	<b>3.87</b>	<b>3.96</b>	<b>4.44</b>	<b>4.53</b>	<b>4.62</b>	<b>4.72</b>	<b>4.82</b>	<b>4.93</b>	<b>5.04</b>	<b>5.15</b>	<b>5.27</b>	<b>5.39</b>	<b>5.52</b>	<b>5.65</b>	<b>5.79</b>	<b>5.93</b>	<b>6.08</b>	<b>6.23</b>	<b>6.39</b>	<b>6.56</b>	<b>6.73</b>	<b>6.91</b>			

<b>Levelised Tariff-FY 2020-21</b>	<b>5.16</b>	<b>Rs/KWh</b>
------------------------------------	-------------	---------------

Assumption for Small Hydro based Project Parameters			Himachal Pradesh, Uttarakhand, WB, UT of J&K, Ladakh, North Eastern States - >5 MW upto 25MW		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	1.00%
			Capacity Utilization Factor	%	45%
			Useful Life	Years	40
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	1100.00
			Capital Cost	Rs. Lakh	1100
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	1100.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	40
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	770.00
			Total Equity Amount	Rs. Lakh	330.00
			Loan Amount	Rs. Lakh	770.00
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	330.00
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate for 1st 15 years	%	4.67%
Depreciation Rate 16th years onwards	%		0.80%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	31.34	
		O&M expenses p.a	Rs. Lakh	31.34	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Generation and Sale of Power	Number of Hours	Hours	8766.00	

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components Small Hydro Based Power Project

Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Net Generation	MU		3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91

Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
OM Expend	Rs Lakh		31.34	32.54	33.79	35.09	36.43	37.83	39.28	40.79	42.36	43.98	45.67	47.42	49.24	51.13	53.09	55.13	57.24	59.44	61.72	64.09	66.55	69.10	71.75	74.51	77.37	80.33	83.42	86.62	89.94	93.39	96.98	100.70	104.56	108.57	112.74	117.06	121.56	126.22	131.06	136.09		
Depreciation	Rs Lakh		51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80
Interest on term loan	Rs Lakh		72.01	67.04	62.08	57.11	52.15	47.18	42.21	37.25	32.28	27.31	22.35	17.38	12.42	7.45	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working capital	Rs Lakh		3.81	3.79	3.77	3.75	3.74	3.72	3.71	3.70	3.70	3.69	3.69	3.69	3.70	3.70	3.71	3.16	3.24	3.33	3.42	3.52	3.63	3.94	4.04	4.16	4.27	4.39	4.52	4.65	4.78	4.92	5.07	5.22	5.38	5.54	5.71	5.88	6.07	6.26	6.45	6.66		
Return on Equity	Rs Lakh		55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	55.98	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02	71.02
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>214.48</b>	<b>210.69</b>	<b>206.96</b>	<b>203.27</b>	<b>199.63</b>	<b>196.05</b>	<b>192.52</b>	<b>189.06</b>	<b>185.65</b>	<b>182.30</b>	<b>179.02</b>	<b>175.81</b>	<b>172.67</b>	<b>169.60</b>	<b>166.60</b>	<b>123.07</b>	<b>125.27</b>	<b>127.55</b>	<b>129.93</b>	<b>132.39</b>	<b>150.20</b>	<b>152.86</b>	<b>155.61</b>	<b>158.48</b>	<b>161.45</b>	<b>164.54</b>	<b>167.75</b>	<b>171.08</b>	<b>174.54</b>	<b>178.13</b>	<b>181.86</b>	<b>185.73</b>	<b>189.75</b>	<b>193.93</b>	<b>198.26</b>	<b>202.76</b>	<b>207.44</b>	<b>212.29</b>	<b>217.33</b>	<b>222.56</b>		

Levelised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
OM exgn	Rs/kWh	1.25	0.80	0.83	0.87	0.90	0.93	0.97	1.01	1.04	1.08	1.13	1.17	1.21	1.26	1.31	1.36	1.41	1.47	1.52	1.58	1.64	1.70	1.77	1.84	1.91	1.98	2.06	2.14	2.22	2.30	2.39	2.48	2.58	2.68	2.78	2.89	3.00	3.11	3.23	3.36	3.48	
Depreciation	Rs/kWh	1.03	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Int. on term loan	Rs/kWh	0.84	1.84	1.72	1.59	1.46	1.34	1.21	1.08	0.95	0.83	0.70	0.57	0.45	0.32	0.19	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.17	
RoE	Rs/kWh	1.50	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
<b>Total COG</b>	<b>Rs/kWh</b>	<b>4.72</b>	<b>5.49</b>	<b>5.40</b>	<b>5.30</b>	<b>5.21</b>	<b>5.11</b>	<b>5.02</b>	<b>4.93</b>	<b>4.84</b>	<b>4.75</b>	<b>4.67</b>	<b>4.58</b>	<b>4.50</b>	<b>4.42</b>	<b>4.34</b>	<b>4.27</b>	<b>3.15</b>	<b>3.21</b>	<b>3.27</b>	<b>3.33</b>	<b>3.39</b>	<b>3.85</b>	<b>3.91</b>	<b>3.98</b>	<b>4.06</b>	<b>4.13</b>	<b>4.21</b>	<b>4.30</b>	<b>4.38</b>	<b>4.47</b>	<b>4.56</b>	<b>4.66</b>	<b>4.76</b>	<b>4.86</b>	<b>4.97</b>	<b>5.08</b>	<b>5.19</b>	<b>5.31</b>	<b>5.44</b>	<b>5.57</b>	<b>5.70</b>	

<b>Levelised Tariff-FY 2020-21</b>	<b>4.72</b>	<b>Rs/kWh</b>
------------------------------------	-------------	---------------



Assumption for Small Hydro based Project Parameters		Other States - <= 5 MW			
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	1.00%
			Capacity Utilization Factor	%	30%
			Useful Life	Years	40
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	780.00
			Capital Cost	Rs. Lakh	780
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	780.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	40
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	546.00
			Total Equity Amount	Rs. Lakh	234.00
			Loan Amount	Rs. Lakh	546.00
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	234.00
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
MAT Rate	%		17.47%		
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	0.80%		
4	O&M Expenses	Normative O&M expense		Rs. Lakh/MW	33.66
		O&M expenses p.a		Rs. Lakh	33.66
		Escalation factor		%	3.84%
5	Working Capital	O&M expenses p.a		Month	1
		Maintenance Spares	% of O&M expenses	%	15.00%
		Receivables		Days	1.5
		Interest on Working Capital		% per annum	11.17%
6	Generation and Sale of Power	Number of Hours		Hours	8766.00



Assumption for Small Hydro based Project Parameters			Other States - >5 MW upto 25MW		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	1.00%
			Capacity Utilization Factor	%	30%
			Useful Life	Years	40
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	900.00
			Capital Cost	Rs. Lakh	900
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	900.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	40
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	630.00
			Total Equity Amount	Rs. Lakh	270.00
			Loan Amount	Rs. Lakh	630.00
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	270.00
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
MAT Rate	%		17.47%		
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	0.80%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	24.37	
		O&M expenses p.a	Rs. Lakh	24.37	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Generation and Sale of Power	Number of Hours	Hours	8766.00	

## CERC RE Tariff Order FY 2020-21

### Determination of Tariff Components Small Hydro Based Power Project

Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Net Generation	MU		2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60

Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
O&M Expenses	Rs Lakh		24.37	25.31	26.28	27.28	28.33	29.42	30.55	31.72	32.94	34.20	35.51	36.87	38.29	39.76	41.28	42.87	44.51	46.22	47.99	49.84	51.75	53.73	55.80	57.94	60.16	62.47	64.87	67.35	69.94	72.62	75.41	78.30	81.31	84.43	87.67	91.03	94.52	98.15	101.91	105.83			
Depreciation	Rs Lakh		42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	
Interest on term loan	Rs Lakh		58.92	54.85	50.79	46.73	42.66	38.60	34.54	30.47	26.41	22.35	18.28	14.22	10.16	6.09	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working capital	Rs Lakh		3.07	3.05	3.03	3.01	3.00	2.99	2.97	2.96	2.95	2.94	2.94	2.94	2.94	2.94	2.94	2.95	2.49	2.56	2.63	2.70	2.77	3.03	3.11	3.19	3.28	3.37	3.46	3.56	3.66	3.77	3.87	3.99	4.10	4.23	4.35	4.49	4.62	4.76	4.91	5.06	5.22		
Return on Equity	Rs Lakh		45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80	45.80
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>174.16</b>	<b>171.01</b>	<b>167.90</b>	<b>164.83</b>	<b>161.80</b>	<b>158.81</b>	<b>155.86</b>	<b>152.96</b>	<b>150.11</b>	<b>147.30</b>	<b>144.54</b>	<b>141.84</b>	<b>139.19</b>	<b>136.60</b>	<b>134.07</b>	<b>98.36</b>	<b>100.07</b>	<b>101.85</b>	<b>103.70</b>	<b>105.61</b>	<b>120.08</b>	<b>122.15</b>	<b>124.29</b>	<b>126.52</b>	<b>128.83</b>	<b>131.23</b>	<b>133.73</b>	<b>136.32</b>	<b>139.01</b>	<b>141.80</b>	<b>144.70</b>	<b>147.71</b>	<b>150.84</b>	<b>154.08</b>	<b>157.45</b>	<b>160.95</b>	<b>164.59</b>	<b>168.36</b>	<b>172.28</b>	<b>176.35</b>			

### Levelised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
O&M expn	Rs/kWh		1.46	0.94	0.97	1.01	1.05	1.09	1.13	1.17	1.22	1.27	1.31	1.36	1.42	1.47	1.53	1.59	1.65	1.71	1.78	1.84	1.91	1.99	2.06	2.14	2.23	2.31	2.40	2.49	2.59	2.69	2.79	2.90	3.01	3.12	3.24	3.37	3.50	3.63	3.77	3.91	4.06	
Depreciation	Rs/kWh		1.26	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Int. on term loan	Rs/kWh		1.04	2.26	2.11	1.95	1.79	1.64	1.48	1.33	1.17	1.01	0.86	0.70	0.55	0.39	0.23	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.12	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.17	0.18	0.18	0.19	0.19	0.20	
RoE	Rs/kWh		1.84	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23
<b>Total COG</b>	<b>Rs/kWh</b>		<b>5.71</b>	<b>6.69</b>	<b>6.57</b>	<b>6.45</b>	<b>6.33</b>	<b>6.21</b>	<b>6.10</b>	<b>5.99</b>	<b>5.88</b>	<b>5.77</b>	<b>5.66</b>	<b>5.55</b>	<b>5.45</b>	<b>5.35</b>	<b>5.25</b>	<b>5.15</b>	<b>3.78</b>	<b>3.84</b>	<b>3.91</b>	<b>3.98</b>	<b>4.06</b>	<b>4.61</b>	<b>4.69</b>	<b>4.77</b>	<b>4.86</b>	<b>4.95</b>	<b>5.04</b>	<b>5.14</b>	<b>5.24</b>	<b>5.34</b>	<b>5.45</b>	<b>5.56</b>	<b>5.67</b>	<b>5.79</b>	<b>5.92</b>	<b>6.05</b>	<b>6.18</b>	<b>6.32</b>	<b>6.47</b>	<b>6.62</b>	<b>6.77</b>	

<b>Levelised Tariff -FY 2020-21</b>	<b>5.71</b>	<b>Rs/kWh</b>
-------------------------------------	-------------	---------------

Assumption for Biomass Based Rankine Cycle Project Parameters				State	Andhra Pradesh
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
		Depreciation	MAT Rate	%	17.47%
			Depreciation Rate for 1st 15 years	%	4.67%
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3326.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



Annexure 2.1B					
Assumption for Biomass Based Rankine Cycle Project Parameters				State	Haryana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	46.42
			O&M expenses p.a	Rs. Lakh	46.42
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M expenses	15.00%
			Receivables	Days	1.5
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3786.00
			GCV Biomass	kcal/kg	3100.00
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00





Assumption for Biomass Based Rankine Cycle Project Parameters				State	Annexure 2.1C Maharashtra
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3872.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



Assumption for Biomass Based Rankine Cycle Project Parameters					State	Punjab
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00	
			Capital Cost	Rs. Lakh	559.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	559.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	391.30	
			Total Equity Amount	Rs. Lakh	167.70	
			Loan Amount	Rs. Lakh	391.30	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	167.70	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
		Depreciation	MAT Rate	%	17.47%	
			Depreciation Rate for 1st 15 years	%	4.67%	
Depreciation	Depreciation Rate 16th years onwards	%	2.00%			
	Normative O&M expense	Rs. Lakh/MW	46.42			
4	O&M Expenses	O&M expenses p.a	Rs. Lakh	46.42		
		Escalation factor	%	3.84%		
		O&M expenses p.a	Month	1		
5	Working Capital	Maintenance Spares	% of O&M expenses	15.00%		
		Receivables	Days	1.5		
		Interest on Working Capital	% per annum	11.17%		
		Heat Rate	Kcal/kWh	4200.00		
6	Fuel Related Assumptions	Biomass	Fuel Price	Rs./MT	3960.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
			Number of Hours	Hours	8766.00	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



Assumption for Biomass Based Rankine Cycle Project Parameters				State	Rajasthan
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
		Depreciation	MAT Rate	%	17.47%
			Depreciation Rate for 1st 15 years	%	4.67%
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3305.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



Assumption for Biomass Based Rankine Cycle Project Parameters				State	Annexure 2.1 F Tamil Nadu
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
		Depreciation	MAT Rate	%	17.47%
			Depreciation Rate for 1st 15 years	%	4.67%
Depreciation Rate 16th years onwards	%		2.00%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
		O&M expenses p.a	Rs. Lakh	46.42	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3272.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00





Assumption for Biomass Based Rankine Cycle Project Parameters				State	Telangana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
		Depreciation	MAT Rate	%	17.47%
			Depreciation Rate for 1st 15 years	%	4.67%
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3326.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



Assumption for Biomass Based Rankine Cycle Project Parameters				State	Uttar Pradesh
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
		Depreciation	MAT Rate	%	17.47%
			Depreciation Rate for 1st 15 years	%	4.67%
Depreciation Rate 16th years onwards	%		2.00%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
		O&M expenses p.a	Rs. Lakh	46.42	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3384.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



Assumption for Biomass Based Rankine Cycle Project Parameters				State	Other States
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
		Depreciation	MAT Rate	%	17.47%
			Depreciation Rate for 1st 15 years	%	4.67%
Depreciation Rate 16th years onwards	%		2.00%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
		O&M expenses p.a	Rs. Lakh	46.42	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M expenses	15.00%	
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./MT	3557.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



**CERC RE Tariff Order FY 2020-21**

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Annexure 2.2A Andhra Pradesh
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
			Escalation factor	%	3.84%	
5	Working Capital		O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	15.00%	
			Receivables	Days	1.5	
			Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.2B	
				State	Haryana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3786.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	

# CERC RE Tariff Order FY 2020-21

Biomass (Rankine Cycle) Based Power Project																												
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Biomass Cost	Rs. Lakh		359.72	377.70	396.59	416.42	437.24	459.10	482.05	506.16	531.46	558.04	585.94	615.24	646.00	678.30	712.21	747.82	785.21	824.48	865.70	908.98	954.43	1002.16	1052.26	1104.88	1160.12	
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M Expenses	Rs Lakh		46.42	48.20	50.05	51.97	53.97	56.04	58.19	60.42	62.74	65.14	67.64	70.24	72.93	75.73	78.64	81.66	84.79	88.04	91.42	94.93	98.57	102.35	106.28	110.36	114.59	
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	
Interest on term loan	Rs Lakh		39.28	36.57	33.86	31.15	28.44	25.73	23.03	20.32	17.61	14.90	12.19	9.48	6.77	4.06	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		21.96	22.92	23.94	25.01	26.13	27.32	28.56	29.86	31.23	32.67	34.18	35.77	37.44	39.19	41.04	42.76	44.83	47.00	49.28	51.67	54.30	56.93	59.69	62.59	65.63	
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>166.19</b>	<b>166.23</b>	<b>166.39</b>	<b>166.67</b>	<b>167.08</b>	<b>167.62</b>	<b>168.30</b>	<b>169.13</b>	<b>170.11</b>	<b>171.25</b>	<b>172.55</b>	<b>174.03</b>	<b>175.68</b>	<b>177.53</b>	<b>179.56</b>	<b>186.95</b>	<b>172.16</b>	<b>177.58</b>	<b>183.24</b>	<b>189.14</b>	<b>203.60</b>	<b>210.02</b>	<b>216.71</b>	<b>223.68</b>	<b>230.96</b>	

Per Unit Cost of Generation																											
Per unit Variable Cost	Rs/kWh	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M expn	Rs/kWh	1.05	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86
Depreciation	Rs/kWh	0.41	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Int. on term loan	Rs/kWh	0.32	0.34	0.39	0.35	0.30	0.26	0.22	0.17	0.13	0.09	0.06	0.04	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.53	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.61	0.64	0.66	0.69	0.73	0.76	0.80	0.84	0.88	0.92	0.97	1.01	1.06
RoE	Rs/kWh	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
<b>Total COG</b>	<b>Rs/kWh</b>	<b>11.90</b>	<b>8.52</b>	<b>8.81</b>	<b>9.12</b>	<b>9.45</b>	<b>9.79</b>	<b>10.16</b>	<b>10.54</b>	<b>10.94</b>	<b>11.37</b>	<b>11.82</b>	<b>12.29</b>	<b>12.79</b>	<b>13.31</b>	<b>13.87</b>	<b>14.45</b>	<b>14.82</b>	<b>15.51</b>	<b>16.24</b>	<b>17.00</b>	<b>17.79</b>	<b>18.76</b>	<b>19.64</b>	<b>20.56</b>	<b>21.53</b>	<b>22.54</b>

Variable Cost for FY 2020-21	5.83	Rs/kWh
Levelised Tariff (Fixed)	2.81	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>8.64</b>	<b>Rs/kWh</b>

Determination of AD for Biomass based Power Project	
Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	600.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levelised	7.51	Rs/kWh
Electricity Generation (Levelised)	5.90	Rs/kWh
<b>Levelised benefit</b>	<b>0.13</b>	<b>Rs/kWh</b>

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Annexure 2.2C Maharashtra
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
			Escalation factor	%	3.84%	
5	Working Capital		O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	15.00%	
			Receivables	Days	1.5	
			Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3872.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



**CERC RE Tariff Order FY 2020-21**

					Annexure 2.2D	
Assumption for Biomass Based Rankine Cycle Project Parameters				State	Punjab	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3960.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.2E	
				State	Rajasthan	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3305.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass (Rankine Cycle) Based Power Project																										
Units Generation		Unit	Year→																									
Installed Capacity		MW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Net Generation		MU	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	
Variable Cost		Unit	Year→																									
Biomass Cost		Rs. Lakh	314.02	329.72	346.20	363.51	381.69	400.77	420.81	441.85	463.94	487.14	511.50	537.07	563.93	592.12	621.73	652.81	685.46	719.73	755.71	793.50	833.18	874.83	918.58	964.50	1012.73	
Fixed Cost		Unit	Year→																									
O&M Expenses		Rs Lakh	46.42	48.20	50.05	51.97	53.97	56.04	58.19	60.42	62.74	65.14	67.64	70.24	72.93	75.73	78.64	81.66	84.79	88.04	91.42	94.93	98.57	102.35	106.28	110.36	114.59	
Depreciation		Rs Lakh	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	
Interest on term loan		Rs Lakh	39.28	36.57	33.86	31.15	28.44	25.73	23.03	20.32	17.61	14.90	12.19	9.48	6.77	4.06	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital		Rs Lakh	19.58	20.43	21.32	22.26	23.25	24.29	25.38	26.52	27.72	28.99	30.32	31.71	33.18	34.72	36.34	37.83	39.65	41.56	43.57	45.67	48.00	50.32	52.75	55.30	57.98	
Return on Equity		Rs Lakh	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	
<b>Total Fixed Cost</b>		<b>Rs Lakh</b>	<b>163.82</b>	<b>163.74</b>	<b>163.77</b>	<b>163.92</b>	<b>164.19</b>	<b>164.59</b>	<b>165.12</b>	<b>165.79</b>	<b>166.60</b>	<b>167.57</b>	<b>168.69</b>	<b>169.97</b>	<b>171.42</b>	<b>173.05</b>	<b>174.86</b>	<b>162.02</b>	<b>166.97</b>	<b>172.14</b>	<b>177.52</b>	<b>183.14</b>	<b>197.31</b>	<b>203.40</b>	<b>209.76</b>	<b>216.39</b>	<b>223.30</b>	
Levilled tariff corresponding to Useful life																												
Per Unit Cost of Generation		Unit	Year																									
Per unit Variable Cost		Rs/kWh	7.93	5.09	5.34	5.61	5.89	6.18	6.49	6.82	7.16	7.52	7.89	8.29	8.70	9.14	9.59	10.07	10.58	11.11	11.66	12.25	12.86	13.50	14.18	14.88	15.63	16.41
O&M expn		Rs/kWh	1.05	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86
Depreciation		Rs/kWh	0.41	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Int. on term loan		Rs/kWh	0.32	0.64	0.59	0.55	0.50	0.45	0.42	0.37	0.33	0.29	0.24	0.20	0.15	0.11	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital		Rs/kWh	0.47	0.32	0.33	0.35	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.61	0.64	0.67	0.71	0.74	0.78	0.82	0.85	0.90	0.94
RoE		Rs/kWh	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63	
<b>Total COG</b>		<b>Rs/kWh</b>	<b>10.68</b>	<b>7.74</b>	<b>8.00</b>	<b>8.26</b>	<b>8.55</b>	<b>8.85</b>	<b>9.16</b>	<b>9.49</b>	<b>9.85</b>	<b>10.22</b>	<b>10.61</b>	<b>11.02</b>	<b>11.46</b>	<b>11.92</b>	<b>12.40</b>	<b>12.91</b>	<b>13.20</b>	<b>13.81</b>	<b>14.45</b>	<b>15.12</b>	<b>15.83</b>	<b>16.70</b>	<b>17.47</b>	<b>18.28</b>	<b>19.14</b>	<b>20.03</b>
Variable Cost for FY 2020-21		5.09																										
Levilled Tariff (Fixed)		2.75																										
<b>Levilled Tariff -FY 2020-21</b>		<b>7.84</b>																										
Determination of AD for Biomass based Power Project																												
Depreciation amount		90.00%																										
Book Depreciation rate		5.28%																										
Tax Depreciation rate		40.00%																										
Additional Depreciation		20.00%																										
Income Tax (MAT)		17.47%																										
Income Tax (Normal Rates)		34.94%																										
Capital Cost (Rs./Lakh)		600.00																										
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Accelerated Depreciation																												
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Accelerated Depreciation	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	
Net Depreciation Benefit																												
Tax Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Energy generation	MU	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Per unit benefit	Rs/Unit	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14	
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.16	0.16	0.14	
Tax Benefit Levilled		7.51																										
Electricity Generation (Levilled)		5.90																										
<b>Levilled benefit</b>		<b>0.13</b>																										



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.2F	
				State	Tamil Nadu	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3272.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.2G	
				State	Telangana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.2H	
				State	Uttar Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3384.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.2I	
				State	Other States	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3557.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3A	
				State	Andhra Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass (Rankine Cycle) Based Power Project																									
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		316.01	331.81	348.40	365.82	384.11	403.32	423.48	444.66	466.89	490.24	514.75	540.48	567.51	595.88	625.68	656.96	689.81	724.30	760.52	798.54	838.47	880.39	924.41	970.63	1019.16
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		46.42	48.20	50.05	51.97	53.97	56.04	58.19	60.42	62.74	65.14	67.64	70.24	72.93	75.73	78.64	81.66	84.79	88.04	91.42	94.93	98.57	102.35	106.28	110.36	114.59
Depreciation	Rs Lakh		28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51
Interest on term loan	Rs Lakh		40.00	37.24	34.48	31.72	28.96	26.21	23.45	20.69	17.93	15.17	12.41	9.65	6.90	4.14	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.71	20.56	21.46	22.41	23.40	24.44	25.54	26.69	27.90	29.17	30.50	31.91	33.38	34.93	36.56	38.05	39.89	41.81	43.83	45.95	48.29	50.62	53.06	55.63	58.32
Return on Equity	Rs Lakh		31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>165.74</b>	<b>165.61</b>	<b>165.60</b>	<b>165.71</b>	<b>165.94</b>	<b>166.29</b>	<b>166.78</b>	<b>167.40</b>	<b>168.17</b>	<b>169.09</b>	<b>170.17</b>	<b>171.41</b>	<b>172.82</b>	<b>174.41</b>	<b>176.18</b>	<b>163.02</b>	<b>167.99</b>	<b>173.17</b>	<b>178.56</b>	<b>184.19</b>	<b>198.52</b>	<b>204.64</b>	<b>211.01</b>	<b>217.65</b>	<b>224.58</b>

Levilled tariff corresponding to Useful life																											
Per Unit Cost of Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Per unit Variable Cost	Rs/kWh	7.80	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.56	8.99	9.44	9.91	10.41	10.93	11.48	12.05	12.65	13.28	13.95	14.65	15.38	16.15
O&M expn	Rs/kWh	1.03	0.74	0.76	0.79	0.82	0.86	0.89	0.92	0.96	0.99	1.03	1.07	1.11	1.16	1.20	1.25	1.29	1.34	1.39	1.45	1.50	1.56	1.62	1.68	1.75	1.82
Depreciation	Rs/kWh	0.40	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Int. on term loan	Rs/kWh	0.32	0.63	0.59	0.55	0.50	0.46	0.42	0.37	0.33	0.28	0.24	0.20	0.15	0.11	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh	0.46	0.31	0.33	0.34	0.36	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.73	0.77	0.80	0.84	0.88	
ROE	Rs/kWh	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
<b>Total COG</b>	<b>Rs/kWh</b>	<b>10.52</b>	<b>7.63</b>	<b>7.88</b>	<b>8.14</b>	<b>8.42</b>	<b>8.71</b>	<b>9.02</b>	<b>9.35</b>	<b>9.70</b>	<b>10.05</b>	<b>10.45</b>	<b>10.85</b>	<b>11.28</b>	<b>11.73</b>	<b>12.20</b>	<b>12.70</b>	<b>12.99</b>	<b>13.59</b>	<b>14.22</b>	<b>14.88</b>	<b>15.57</b>	<b>16.43</b>	<b>17.19</b>	<b>17.99</b>	<b>18.83</b>	<b>19.71</b>

Variable Cost for FY 2020-21	5.01	Rs/kWh
Levilled Tariff (Fixed)	2.72	Rs/kWh
<b>Levilled Tariff -FY 2020-21</b>	<b>7.72</b>	<b>Rs/kWh</b>

Determination of AD for Biomass based Power Project	
Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	611.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	16.13	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	17.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	183.30	213.85	85.54	51.32	30.79	18.48	11.09	6.65	3.99	2.39	1.44	0.86	0.52	0.31	0.19	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	167.17	181.59	53.28	19.06	-1.47	-13.78	-21.17	-25.61	-28.27	-29.87	-30.82	-31.40	-31.74	-31.95	-32.07	-32.15	-32.19	-17.56	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	58.42	63.45	18.62	6.66	-0.51	-4.82	-7.40	-8.95	-9.88	-10.44	-10.77	-10.97	-11.09	-11.16	-11.21	-11.23	-11.25	-6.13	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.16	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31
Per unit benefit	Rs/Unit	1.85	1.01	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levilled	7.65	Rs/kWh
Electricity Generation (Levilled)	6.04	Rs/kWh
<b>Levilled benefit</b>	<b>0.13</b>	<b>Rs/kWh</b>

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3B	
				State	Haryana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3786.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass (Rankine Cycle) Based Power Project																									
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31

  

Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		359.72	377.70	396.59	416.42	437.24	459.10	482.05	506.16	531.46	558.04	585.94	615.24	646.00	678.30	712.21	747.82	785.21	824.48	865.70	908.98	954.43	1002.16	1052.26	1104.88	1160.12

  

Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		46.42	48.20	50.05	51.97	53.97	56.04	58.19	60.42	62.74	65.14	67.64	70.24	72.93	75.73	78.64	81.66	84.79	88.04	91.42	94.93	98.57	102.35	106.28	110.36	114.59
Depreciation	Rs Lakh		28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51
Interest on term loan	Rs Lakh		40.00	37.24	34.48	31.72	28.96	26.21	23.45	20.69	17.93	15.17	12.41	9.65	6.90	4.14	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		21.98	22.95	23.97	25.03	26.16	27.34	28.58	29.88	31.25	32.69	34.20	35.79	37.46	39.21	41.05	42.77	44.84	47.01	49.29	51.68	54.31	56.94	59.70	62.60	65.64
Return on Equity	Rs Lakh		31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>168.01</b>	<b>168.00</b>	<b>168.11</b>	<b>168.34</b>	<b>168.70</b>	<b>169.19</b>	<b>169.82</b>	<b>170.60</b>	<b>171.53</b>	<b>172.61</b>	<b>173.87</b>	<b>175.29</b>	<b>176.90</b>	<b>178.69</b>	<b>180.68</b>	<b>182.74</b>	<b>184.95</b>	<b>187.31</b>	<b>189.83</b>	<b>192.51</b>	<b>195.36</b>	<b>198.38</b>	<b>201.56</b>	<b>204.91</b>	<b>208.44</b>

Levilled tariff corresponding to Useful life																											
Per Unit Cost of Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Per unit Variable Cost	Rs/kWh	8.88	5.70	5.98	6.28	6.60	6.93	7.27	7.64	8.02	8.42	8.84	9.28	9.75	10.24	10.75	11.28	11.85	12.44	13.06	13.72	14.40	15.12	15.88	16.67	17.51	18.38
O&M expn	Rs/kWh	1.03	0.74	0.76	0.79	0.82	0.86	0.89	0.92	0.96	0.99	1.03	1.07	1.11	1.16	1.20	1.25	1.29	1.34	1.39	1.45	1.50	1.56	1.62	1.68	1.75	1.82
Depreciation	Rs/kWh	0.40	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	
Int. on term loan	Rs/kWh	0.32	0.33	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	
Int. on working capital	Rs/kWh	0.52	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.71	0.74	0.78	0.82	0.86	0.90	0.95	1.04	
RoE	Rs/kWh	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
<b>Total COG</b>	<b>Rs/kWh</b>	<b>11.65</b>	<b>8.36</b>	<b>8.65</b>	<b>8.95</b>	<b>9.26</b>	<b>9.60</b>	<b>9.95</b>	<b>10.33</b>	<b>10.72</b>	<b>11.14</b>	<b>11.58</b>	<b>12.04</b>	<b>12.53</b>	<b>13.04</b>	<b>13.58</b>	<b>14.15</b>	<b>14.51</b>	<b>15.18</b>	<b>15.89</b>	<b>16.63</b>	<b>17.41</b>	<b>18.36</b>	<b>19.22</b>	<b>20.12</b>	<b>21.06</b>	<b>22.06</b>

Variable Cost for FY 2020-21	5.70	Rs/kWh
Levilled Tariff (Fixed)	2.77	Rs/kWh
<b>Levilled Tariff -FY 2020-21</b>	<b>8.47</b>	<b>Rs/kWh</b>

Determination of AD for Biomass based Power Project	
Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	611.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%
Book Depreciation	Rs Lakh	16.13	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	17.60	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	183.30	213.85	85.54	51.32	30.79	18.48	11.09	6.65	3.99	2.39	1.44	0.86	0.52	0.31	0.19	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	167.17	181.59	53.28	19.06	-1.47	-13.78	-21.17	-25.61	-28.27	-29.87	-30.82	-31.40	-31.74	-31.95	-32.07	-32.15	-32.19	-32.19	-32.15	-32.02	0.01	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	58.42	63.45	18.62	6.66	-0.51	-4.82	-7.40	-8.95	-9.88	-10.44	-10.77	-10.97	-11.09	-11.16	-11.21	-11.23	-11.25	-11.25	-11.25	-11.25	-11.25	-11.25	-11.25	-11.25	-11.25	
Energy generation	MU	3.16	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	
Per unit benefit	Rs/Unit	1.85	1.01	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levilled	7.65	Rs/kWh
Electricity Generation (Levilled)	6.04	Rs/kWh
<b>Levilled benefit</b>	<b>0.13</b>	<b>Rs/kWh</b>

**CERC RE Tariff Order FY 2020-21**

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3C
				State	Maharashtra
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00
			Capital Cost	Rs. Lakh	611.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	611.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	427.70
			Total Equity Amount	Rs. Lakh	183.30
			Loan Amount	Rs. Lakh	427.70
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	183.30
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	%	15.00%
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00
			Fuel Price	Rs./T	3872.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass (Rankine Cycle) Based Power Project																									
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		367.89	386.28	405.60	425.88	447.17	469.53	493.00	517.65	543.54	570.71	599.25	629.21	660.67	693.71	728.39	764.81	803.05	843.20	885.36	929.63	976.11	1024.92	1076.17	1129.97	1186.47
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		46.42	48.20	50.05	51.97	53.97	56.04	58.19	60.42	62.74	65.14	67.64	70.24	72.93	75.73	78.64	81.66	84.79	88.04	91.42	94.93	98.57	102.35	106.28	110.36	114.59
Depreciation	Rs Lakh		28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51
Interest on term loan	Rs Lakh		40.00	37.24	34.48	31.72	28.96	26.21	23.45	20.69	17.93	15.17	12.41	9.65	6.90	4.14	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.41	23.39	24.43	25.53	26.67	27.88	29.15	30.48	31.88	33.35	34.89	36.52	38.22	40.01	41.89	43.86	45.77	47.99	50.31	52.76	55.44	58.13	60.95	63.91	67.01
Return on Equity	Rs Lakh		31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>168.43</b>	<b>168.44</b>	<b>168.57</b>	<b>168.83</b>	<b>169.21</b>	<b>169.73</b>	<b>170.39</b>	<b>171.20</b>	<b>172.15</b>	<b>173.27</b>	<b>174.56</b>	<b>176.02</b>	<b>177.66</b>	<b>179.49</b>	<b>181.52</b>	<b>183.83</b>	<b>186.42</b>	<b>189.30</b>	<b>192.48</b>	<b>195.97</b>	<b>199.78</b>	<b>203.91</b>	<b>208.37</b>	<b>213.17</b>	<b>218.31</b>

Levilled tariff corresponding to Useful life																											
Per Unit Cost of Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Per unit Variable Cost	Rs/kWh	9.08	5.83	6.12	6.43	6.75	7.08	7.44	7.81	8.20	8.61	9.04	9.49	9.97	10.47	10.99	11.54	12.12	12.72	13.36	14.03	14.73	15.47	16.24	17.05	17.90	18.80
O&M expn	Rs/kWh	1.03	0.74	0.76	0.79	0.82	0.86	0.89	0.92	0.96	0.99	1.03	1.07	1.11	1.16	1.20	1.25	1.29	1.34	1.39	1.45	1.50	1.56	1.62	1.68	1.75	1.82
Depreciation	Rs/kWh	0.40	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	
Int. on term loan	Rs/kWh	0.32	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	
Int. on working capital	Rs/kWh	0.53	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.61	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88	0.92	0.97	1.01	1.06
RoE	Rs/kWh	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
<b>Total COG</b>	<b>Rs/kWh</b>	<b>11.87</b>	<b>8.50</b>	<b>8.79</b>	<b>9.10</b>	<b>9.42</b>	<b>9.77</b>	<b>10.13</b>	<b>10.51</b>	<b>10.91</b>	<b>11.34</b>	<b>11.79</b>	<b>12.26</b>	<b>12.76</b>	<b>13.28</b>	<b>13.83</b>	<b>14.42</b>	<b>15.04</b>	<b>15.69</b>	<b>16.39</b>	<b>17.14</b>	<b>17.94</b>	<b>18.79</b>	<b>19.69</b>	<b>20.64</b>	<b>21.64</b>	<b>22.69</b>

Variable Cost for FY 2020-21	5.83	Rs/kWh
Levilled Tariff (Fixed)	2.78	Rs/kWh
<b>Levilled Tariff -FY 2020-21</b>	<b>8.61</b>	<b>Rs/kWh</b>

Determination of AD for Biomass based Power Project	
Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	611.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%
Book Depreciation	Rs Lakh	16.13	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	17.60	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	183.30	213.85	85.54	51.32	30.79	18.48	11.09	6.65	3.99	2.39	1.44	0.86	0.52	0.31	0.19	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	167.17	181.59	53.28	19.06	-1.47	-13.78	-21.17	-25.61	-28.27	-29.87	-30.82	-31.40	-31.74	-31.95	-32.07	-32.15	-32.19	-32.19	-17.56	0.02	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	58.42	63.45	18.62	6.66	-0.51	-4.82	-7.40	-8.95	-9.88	-10.44	-10.77	-10.97	-11.09	-11.16	-11.21	-11.23	-11.25	-11.25	-6.13	0.01	0.01	0.00	0.00	0.00	0.00
Energy generation	MU	3.16	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31
Per unit benefit	Rs/Unit	1.85	1.01	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levilled	7.65	Rs/kWh
Electricity Generation (Levilled)	6.04	Rs/kWh
<b>Levilled benefit</b>	<b>0.13</b>	<b>Rs/kWh</b>

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3D	
				State	Punjab	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
			Discount Rate	%	8.61%	
		Tax Rate	Corporate Tax Rate	%	34.94%	
MAT Rate	%		17.47%			
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
4	O&M Expenses	Normative O&M expense		Rs. Lakh/MW	46.42	
		O&M expenses p.a		Rs. Lakh	46.42	
		Escalation factor		%	3.84%	
5	Working Capital	O&M expenses p.a		Month	1	
		Maintenance Spares	% of O&M exepenses	%	15.00%	
		Receivables		Days	1.5	
		Interest on Working Capital		% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3960.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass (Rankine Cycle) Based Power Project																									
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		376.25	395.06	414.81	435.55	457.33	480.20	504.21	529.42	555.89	583.68	612.87	643.51	675.69	709.47	744.95	782.19	821.30	862.37	905.49	950.76	998.30	1048.21	1100.62	1155.65	1213.44
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		46.42	48.20	50.05	51.97	53.97	56.04	58.19	60.42	62.74	65.14	67.64	70.24	72.93	75.73	78.64	81.66	84.79	88.04	91.42	94.93	98.57	102.35	106.28	110.36	114.59
Depreciation	Rs Lakh		28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51
Interest on term loan	Rs Lakh		40.00	37.24	34.48	31.72	28.96	26.21	23.45	20.69	17.93	15.17	12.41	9.65	6.90	4.14	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.84	23.85	24.91	26.03	27.20	28.43	29.73	31.09	32.52	34.02	35.60	37.26	38.00	40.83	42.75	44.56	46.72	48.98	51.36	53.85	56.59	59.34	62.22	65.24	68.41
Return on Equity	Rs Lakh		31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>168.87</b>	<b>168.90</b>	<b>169.05</b>	<b>169.33</b>	<b>169.74</b>	<b>170.28</b>	<b>170.97</b>	<b>171.81</b>	<b>172.80</b>	<b>173.95</b>	<b>175.27</b>	<b>176.76</b>	<b>178.44</b>	<b>180.31</b>	<b>182.38</b>	<b>184.63</b>	<b>187.07</b>	<b>189.70</b>	<b>192.52</b>	<b>195.54</b>	<b>198.76</b>	<b>202.18</b>	<b>205.80</b>	<b>209.52</b>	<b>213.44</b>

Levilled tariff corresponding to Useful life																												
Per Unit Cost of Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Per unit Variable Cost	Rs/kWh		9.29	5.96	6.26	6.57	6.90	7.25	7.61	7.99	8.39	8.81	9.25	9.71	10.20	10.71	11.24	11.80	12.39	13.01	13.66	14.35	15.06	15.82	16.61	17.44	18.31	19.23
O&M expn	Rs/kWh		1.03	0.74	0.76	0.79	0.82	0.86	0.89	0.92	0.96	0.99	1.03	1.07	1.11	1.16	1.20	1.25	1.29	1.34	1.39	1.45	1.50	1.56	1.62	1.68	1.75	1.82
Depreciation	Rs/kWh		0.40	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Int. on term loan	Rs/kWh		0.32	0.63	0.59	0.55	0.50	0.45	0.42	0.37	0.33	0.28	0.24	0.20	0.15	0.11	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh		0.54	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.65	0.68	0.71	0.74	0.76	0.81	0.85	0.90	0.94	0.99	1.03	1.08
ROE	Rs/kWh		0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
<b>Total COG</b>	<b>Rs/kWh</b>		<b>12.08</b>	<b>8.64</b>	<b>8.94</b>	<b>9.25</b>	<b>9.58</b>	<b>9.94</b>	<b>10.31</b>	<b>10.70</b>	<b>11.11</b>	<b>11.55</b>	<b>12.00</b>	<b>12.49</b>	<b>13.00</b>	<b>13.53</b>	<b>14.10</b>	<b>14.69</b>	<b>15.08</b>	<b>15.78</b>	<b>16.52</b>	<b>17.30</b>	<b>18.11</b>	<b>19.09</b>	<b>19.99</b>	<b>20.93</b>	<b>21.91</b>	<b>22.94</b>

Variable Cost for FY 2020-21	5.96	Rs/kWh
Levilled Tariff (Fixed)	2.79	Rs/kWh
<b>Levilled Tariff -FY 2020-21</b>	<b>8.75</b>	<b>Rs/kWh</b>

Determination of AD for Biomass based Power Project	
Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	611.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	16.13	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	17.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	183.30	213.85	85.54	51.32	30.79	18.48	11.09	6.65	3.99	2.39	1.44	0.86	0.52	0.31	0.19	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	167.17	181.59	53.28	19.06	-1.47	-13.78	-21.17	-25.61	-28.27	-29.87	-30.82	-31.40	-31.74	-31.95	-32.07	-32.15	-32.19	-17.56	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	58.42	63.45	18.62	6.66	-0.51	-4.82	-7.40	-8.95	-9.88	-10.44	-10.77	-10.97	-11.09	-11.16	-11.21	-11.23	-11.25	-6.13	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.16	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31
Per unit benefit	Rs/Unit	1.85	1.01	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levilled	7.65	Rs/kWh
Electricity Generation (Levilled)	6.04	Rs/kWh
<b>Levilled benefit</b>	<b>0.13</b>	<b>Rs/kWh</b>



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3E	
				State	Rajasthan	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3305.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Tamil Nadu
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3272.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



**CERC RE Tariff Order FY 2020-21**

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3G	
				State	Telangana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3H	
					State	
					Uttar Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3384.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.3I	
				State	Other States	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3557.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.4A	
				State	Andhra Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Haryana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
O&M expenses p.a			Rs. Lakh	46.42		
Escalation factor			%	3.84%		
5	Working Capital	O&M expenses p.a	Month	1		
		Maintenance Spares	% of O&M exepenses	%	15.00%	
		Receivables	Days	1.5		
		Interest on Working Capital	% per annum	11.17%		
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3786.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.4C	
				State	Maharashtra	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3872.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.4D	
				State	Punjab	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3960.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Rajasthan
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3305.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.4F	
				State	Tamil Nadu	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3272.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Telangana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.4H	
				State	Uttar Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3384.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.4I	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4200.00	
			Fuel Price	Rs./T	3557.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5A	
				State	Andhra Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00	
			Capital Cost	Rs. Lakh	559.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	559.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	391.30	
			Total Equity Amount	Rs. Lakh	167.70	
			Loan Amount	Rs. Lakh	391.30	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	167.70	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5B
				State	Haryana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	46.42
			O&M expenses p.a	Rs. Lakh	46.42
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Heat Rate	Kcal/kWh	4125.00
			Fuel Price	Rs./T	3786.00
			GCV Biomass	kcal/kg	3100.00
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Annexure 2.5C
					State	Maharashtra
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00	
			Capital Cost	Rs. Lakh	559.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	559.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	391.30	
			Total Equity Amount	Rs. Lakh	167.70	
			Loan Amount	Rs. Lakh	391.30	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	167.70	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
O&M expenses p.a			Rs. Lakh	46.42		
Escalation factor			%	3.84%		
5	Working Capital		O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	15.00%	
			Receivables	Days	1.5	
			Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3872.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5D	
				State	Punjab	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00	
			Capital Cost	Rs. Lakh	559.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	559.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	391.30	
			Total Equity Amount	Rs. Lakh	167.70	
			Loan Amount	Rs. Lakh	391.30	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	167.70	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3960.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5E
				State	Rajasthan
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	%	15.00%
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00
			Fuel Price	Rs./T	3305.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5F	
				State	Tamil Nadu	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00	
			Capital Cost	Rs. Lakh	559.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	559.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	391.30	
			Total Equity Amount	Rs. Lakh	167.70	
			Loan Amount	Rs. Lakh	391.30	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	167.70	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3272.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





**CERC RE Tariff Order FY 2020-21**

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5G
				State	Telangana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00
			Capital Cost	Rs. Lakh	559.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	559.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	391.30
			Total Equity Amount	Rs. Lakh	167.70
			Loan Amount	Rs. Lakh	391.30
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	167.70
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	%	15.00%
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00
			Fuel Price	Rs./T	3326.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5H	
				State	Uttar Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00	
			Capital Cost	Rs. Lakh	559.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	559.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	391.30	
			Total Equity Amount	Rs. Lakh	167.70	
			Loan Amount	Rs. Lakh	391.30	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	167.70	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3384.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.5I	
				State	Other States	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	559.00	
			Capital Cost	Rs. Lakh	559.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	559.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	391.30	
			Total Equity Amount	Rs. Lakh	167.70	
			Loan Amount	Rs. Lakh	391.30	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	167.70	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3557.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.6A	
				State	Andhra Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.6B	
				State	Haryana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3786.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Annexure 2.6C
					State	Maharashtra
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
O&M expenses p.a			Rs. Lakh	46.42		
Escalation factor			%	3.84%		
5	Working Capital	O&M expenses p.a		Month	1	
		Maintenance Spares	% of O&M exepenses	%	15.00%	
		Receivables		Days	1.5	
		Interest on Working Capital		% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3872.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.6D	
				State	Punjab	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3960.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	

### CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass (Rankine Cycle) Based Power Project																									
Units Generation		Unit	Year→																								
Installed Capacity		MW	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25																								
Net Generation		MU	6.17 6.17																								
Variable Cost		Unit	Year→																								
Biomass Cost		Rs. Lakh	369.53 388.01 407.41 427.78 449.17 471.62 495.20 519.96 545.96 573.26 601.92 632.02 663.62 696.80 731.64 768.22 806.64 846.97 889.32 933.78 980.47 1029.49 1080.97 1135.02 1191.77																								
Fixed Cost		Unit	Year→																								
O&M Expenses		Rs Lakh	46.42 48.20 50.05 51.97 53.97 56.04 58.19 60.42 62.74 65.14 67.64 70.24 72.93 75.73 78.64 81.66 84.79 88.04 91.42 94.93 98.57 102.35 106.28 110.36 114.59																								
Depreciation		Rs Lakh	28.00 28.00																								
Interest on term loan		Rs Lakh	39.28 36.57 33.86 31.15 28.44 25.73 23.03 20.32 17.61 14.90 12.19 9.48 6.77 4.06 1.35 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00																								
Interest on working Capital		Rs Lakh	22.46 23.46 24.50 25.60 26.75 27.97 29.24 30.68 31.99 33.46 35.01 36.64 38.36 40.16 42.05 43.82 45.94 48.17 50.51 52.96 55.65 58.35 61.18 64.16 67.28																								
Return on Equity		Rs Lakh	30.54 30.54																								
<b>Total Fixed Cost</b>		<b>Rs Lakh</b>	<b>166.70 166.76 166.95 167.26 167.70 168.27 168.99 169.85 170.86 172.04 173.38 174.90 176.60 178.49 180.57 182.81 185.19 187.71 190.37 193.16 196.09 199.27 202.71 206.41 210.38 214.64</b>																								

Levelised tariff corresponding to Useful life																											
Per Unit Cost of Generation		Unit	Year→																								
Per unit Variable Cost		Rs/kWh	9.33 5.99 6.29 6.60 6.93 7.28 7.64 8.02 8.43 8.85 9.29 9.75 10.24 10.75 11.29 11.86 12.45 13.07 13.72 14.41 15.13 15.89 16.68 17.52 18.39 19.31																								
O&M expn		Rs/kWh	1.05 0.75 0.78 0.81 0.84 0.87 0.91 0.94 0.98 1.02 1.06 1.10 1.14 1.18 1.23 1.27 1.32 1.37 1.43 1.48 1.54 1.60 1.66 1.72 1.79 1.86																								
Depreciation		Rs/kWh	0.41 0.45																								
Int. on term loan		Rs/kWh	0.32 0.64 0.59 0.55 0.50 0.46 0.42 0.37 0.33 0.29 0.24 0.20 0.15 0.11 0.07 0.02 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00																								
Int. on working capital		Rs/kWh	0.54 0.36 0.38 0.40 0.41 0.43 0.45 0.47 0.50 0.52 0.54 0.57 0.59 0.62 0.65 0.68 0.71 0.74 0.78 0.82 0.86 0.90 0.95 0.99 1.04 1.09																								
ROE		Rs/kWh	0.50 0.49																								
<b>Total COG</b>		<b>Rs/kWh</b>	<b>12.16 8.69 8.99 9.31 9.64 10.00 10.37 10.76 11.18 11.62 12.08 12.56 13.08 13.62 14.18 14.78 15.37 15.88 16.62 17.40 18.22 19.21 20.11 21.05 22.04 23.08</b>																								

Variable Cost for FY 2020-21	5.99	Rs/kWh
Levelised Tariff (Fixed)	2.82	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>8.81</b>	<b>Rs/kWh</b>

Determination of AD for Biomass based Power Project	
Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	600.00

Years	Unit	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25																								
Book Depreciation	%	2.64% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 5.28% 2.88% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00%																								
Book Depreciation	Rs Lakh	15.84 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 31.68 17.28 0.00 0.00 0.00 0.00 0.00 0.00 0.00																								
Accelerated Depreciation	Unit	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25																								
Opening	%	100% 70% 35% 21% 13% 8% 5% 3% 2% 1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%																								
Allowed during the year	%	30% 35% 14% 8% 5% 3% 2% 1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%																								
Closing	%	70% 35% 21% 13% 8% 5% 3% 2% 1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%																								
Accelerated Depreciation	Rs Lakh	180.00 210.00 84.00 50.40 30.24 18.14 10.89 6.53 3.92 2.35 1.41 0.85 0.51 0.30 0.18 0.11 0.07 0.04 0.02 0.01 0.01 0.01 0.00 0.00 0.00																								

Net Depreciation Benefit		Rs Lakh	164.16 178.32 52.32 18.72 -1.44 -13.54 -20.79 -25.15 -27.76 -29.33 -30.27 -30.83 -31.17 -31.38 -31.50 -31.57 -31.61 -31.61 -17.24 0.02 0.01 0.01 0.00 0.00 0.00																								
Tax Benefit		Rs Lakh	57.36 62.31 18.28 6.54 -0.50 -4.73 -7.27 -8.79 -9.70 -10.25 -10.58 -10.77 -10.89 -10.96 -11.01 -11.03 -11.05 -6.02 0.01 0.00 0.00 0.00 0.00 0.00																								
Energy generation		MU	3.09 6.17																								
Per unit benefit		Rs/Unit	1.86 1.01 0.30 0.11 -0.01 -0.08 -0.12 -0.14 -0.16 -0.17 -0.17 -0.17 -0.18 -0.18 -0.18 -0.18 -0.18 -0.18 -0.10 0.00 0.00 0.00 0.00 0.00 0.00																								
Discounting Factor		1.00	0.92 0.85 0.78 0.72 0.66 0.61 0.56 0.52 0.48 0.44 0.40 0.37 0.34 0.31 0.29 0.27 0.25 0.23 0.21 0.19 0.18 0.16 0.15 0.14 0.14																								
Applicable Discounting Factor		1.00	0.96 0.88 0.81 0.75 0.69 0.64 0.58 0.54 0.50 0.46 0.42 0.39 0.36 0.33 0.30 0.28 0.26 0.24 0.22 0.20 0.18 0.17 0.16 0.14 0.14																								

Tax Benefit Levelised	7.51	Rs/kWh
Electricity Generation (Levelised)	5.90	Rs/kWh
<b>Levelised benefit</b>	<b>0.13</b>	<b>Rs/kWh</b>

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Rajasthan
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
			Discount Rate	%	8.61%	
		Tax Rate	Corporate Tax Rate	%	34.94%	
MAT Rate	%		17.47%			
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42		
		O&M expenses p.a	Rs. Lakh	46.42		
		Escalation factor	%	3.84%		
5	Working Capital	O&M expenses p.a	Month	1		
		Maintenance Spares	% of O&M exepenses	%	15.00%	
		Receivables	Days	1.5		
		Interest on Working Capital	% per annum	11.17%		
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3305.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.6F	
				State	Tamil Nadu	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3272.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.6G	
				State	Telangana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.6H	
				State	Uttar Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3384.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.6I	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	600.00	
			Capital Cost	Rs. Lakh	600.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	600.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	420.00	
			Total Equity Amount	Rs. Lakh	180.00	
			Loan Amount	Rs. Lakh	420.00	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	180.00	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3557.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.7A	
				State	Andhra Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.7B	
				State	Haryana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3786.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.7C	
				State	Maharashtra	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3872.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.7D		
				State	Punjab		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter		
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1		
			Aux Consumption	%	10.00%		
			Plant Load Factor	%	80.00%		
			Useful Life	Years	25		
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00		
			Capital Cost	Rs. Lakh	611.00		
			Capital Subsidy	Rs. Lakh	0		
			Net Capital Cost	Rs. Lakh	611.00		
3	Financial Assumption	Debt Equity	Tariff Period	Years	25		
			Debt	%	70%		
			Equity	%	30%		
		Debt Component	Total Debt Amount	Rs. Lakh	427.70		
			Total Equity Amount	Rs. Lakh	183.30		
			Loan Amount	Rs. Lakh	427.70		
			Moratorium Period	Years	0		
			Repayment Period (including Moratorium)	Years	15		
		Equity Component	Interest Rate	%	9.67%		
			Equity Amount	Rs. Lakh	183.30		
			Return on Equity for First 20 years	% p.a	16.96%		
			Return on Equity after 20 years	% p.a	21.52%		
			Discount Rate	%	8.61%		
			Tax Rate	%	34.94%		
Depreciation	Corporate Tax Rate	%	17.47%				
	MAT Rate	%	4.67%				
4	O&M Expenses		Normative O&M expense	Rs. Lakh/MW	46.42		
			O&M expenses p.a	Rs. Lakh	46.42		
			Escalation factor	%	3.84%		
5	Working Capital		O&M expenses p.a	Month	1		
			Maintenance Spares	% of O&M exepenses	%	15.00%	
			Receivables		Days	1.5	
			Interest on Working Capital		% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00		
			Fuel Price	Rs./T	3960.00		
			GCV Biomass	kcal/kg	3100.00		
			Biomass price escalation factor	%	5.00%		
7	Generation and Sale of Power	Number of Hours		Hours	8766.00		





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Rajasthan
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
O&M expenses p.a			Rs. Lakh	46.42		
Escalation factor			%	3.84%		
5	Working Capital	O&M expenses p.a	Month	1		
		Maintenance Spares	% of O&M exepenses	%	15.00%	
		Receivables	Days	1.5		
		Interest on Working Capital	% per annum	11.17%		
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3305.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.7F	
				State	Tamil Nadu	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3272.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.7G	
				State	Telangana	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.7H	
				State	Uttar Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3384.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.71	
				State	Other States	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	10.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	611.00	
			Capital Cost	Rs. Lakh	611.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	611.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	427.70	
			Total Equity Amount	Rs. Lakh	183.30	
			Loan Amount	Rs. Lakh	427.70	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	183.30	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3557.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.8A	
				State	Andhra Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3326.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.8B
				State	Haryana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	12.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00
			Capital Cost	Rs. Lakh	652.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	652.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	456.40
			Total Equity Amount	Rs. Lakh	195.60
			Loan Amount	Rs. Lakh	456.40
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	195.60
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
		Depreciation Rate 16th years onwards	%	2.00%	
4	O&M Expenses	Normative O&M expense		Rs. Lakh/MW	46.42
		O&M expenses p.a		Rs. Lakh	46.42
		Escalation factor		%	3.84%
5	Working Capital	O&M expenses p.a		Month	1
		Maintenance Spares	% of O&M exepenses	%	15.00%
		Receivables		Days	1.5
		Interest on Working Capital		% per annum	11.17%
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00
			Fuel Price	Rs./T	3786.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.8C	
				State	Maharashtra	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3872.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.8D	
				State	Punjab	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3960.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Rajasthan
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
O&M expenses p.a			Rs. Lakh	46.42		
Escalation factor			%	3.84%		
5	Working Capital		O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables		Days	1.5
			Interest on Working Capital		% per annum	11.17%
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3305.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					State	Tamil Nadu
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42	
O&M expenses p.a			Rs. Lakh	46.42		
Escalation factor			%	3.84%		
5	Working Capital		O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables		Days	1.5
			Interest on Working Capital		% per annum	11.17%
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3272.00	
			GCV Biomass	kcal/kg	3100.00	
			Biomass price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.8G
				State	Telangana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	12.00%
			Plant Load Factor	%	80.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00
			Capital Cost	Rs. Lakh	652.00
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	652.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	456.40
			Total Equity Amount	Rs. Lakh	195.60
			Loan Amount	Rs. Lakh	456.40
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	195.60
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	46.42
O&M expenses p.a			Rs. Lakh	46.42	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	%	15.00%
		Receivables	Days	1.5	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Heat Rate	Kcal/kWh	4125.00
			Fuel Price	Rs./T	3326.00
			GCV Biomass	kcal/kg	3100.00
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00





CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.8H	
				State	Uttar Pradesh	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3384.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	



CERC RE Tariff Order FY 2020-21

Assumption for Biomass Based Rankine Cycle Project Parameters					Annexure 2.8I	
				State	Other States	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	12.00%	
			Plant Load Factor	%	80.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	652.00	
			Capital Cost	Rs. Lakh	652.00	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	652.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	456.40	
			Total Equity Amount	Rs. Lakh	195.60	
			Loan Amount	Rs. Lakh	456.40	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	195.60	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	46.42	
			O&M expenses p.a	Rs. Lakh	46.42	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	15.00%
			Receivables	Days	1.5	
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	Kcal/kWh	4125.00	
			Fuel Price	Rs./T	3557.00	
			GCV Biomass	kcal/kg	3100.00	
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%	
				Hours	8766.00	

### CERC RE Tariff Order FY 2020-21

<b>Determination of Tariff Components</b>		<b>Biomass (Rankine Cycle) Based Power Project</b>																									
<b>Units Generation</b>	<b>Unit</b>	<b>Year--&gt;</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
<b>Variable Cost</b>	<b>Unit</b>	<b>Year--&gt;</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
Biomass Cost	Rs. Lakh		331.92	348.52	365.95	384.24	403.45	423.63	444.81	467.05	490.40	514.92	540.67	567.70	596.09	625.89	657.19	690.04	724.55	760.77	798.81	838.75	880.69	924.73	970.96	1019.51	1070.49
<b>Fixed Cost</b>	<b>Unit</b>	<b>Year--&gt;</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
O&M Expenses	Rs Lakh		46.42	48.20	50.05	51.97	53.97	56.04	58.19	60.42	62.74	65.14	67.64	70.24	72.93	75.73	78.64	81.66	84.79	88.04	91.42	94.93	98.57	102.35	106.28	110.36	114.59
Depreciation	Rs Lakh		30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	13.04	13.04	13.04	13.04	13.04	13.04	13.04	13.04	13.04
Interest on term loan	Rs Lakh		42.68	39.74	36.80	33.85	30.91	27.96	25.02	22.08	19.13	16.19	13.25	10.30	7.36	4.42	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		20.63	21.52	22.46	23.45	24.49	25.58	26.72	27.93	29.19	30.52	31.92	33.39	34.93	36.55	38.25	39.81	41.73	43.75	45.86	48.08	50.53	52.97	55.53	58.22	61.04
Return on Equity	Rs Lakh		33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18	33.18
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>173.34</b>	<b>173.07</b>	<b>172.92</b>	<b>172.88</b>	<b>172.97</b>	<b>173.19</b>	<b>173.54</b>	<b>174.03</b>	<b>174.67</b>	<b>175.46</b>	<b>176.42</b>	<b>177.54</b>	<b>178.83</b>	<b>180.31</b>	<b>181.97</b>	<b>183.90</b>	<b>186.19</b>	<b>188.84</b>	<b>191.86</b>	<b>195.25</b>	<b>199.00</b>	<b>203.13</b>	<b>207.65</b>	<b>212.57</b>	<b>217.90</b>

<b>Levelised tariff corresponding to Useful life</b>																											
<b>Per Unit Cost of Generation</b>	<b>Unit</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
Per unit Variable Cost	Rs/kWh	8.38	5.38	5.65	5.93	6.23	6.54	6.86	7.21	7.57	7.95	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.33	12.94	13.59	14.27	14.98	15.73	16.52	17.35
O&M expn	Rs/kWh	1.05	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86
Depreciation	Rs/kWh	0.44	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
Int. on term loan	Rs/kWh	0.35	0.69	0.64	0.60	0.55	0.50	0.45	0.41	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh	0.50	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.71	0.74	0.78	0.82	0.86	0.90	0.94	
ROE	Rs/kWh	0.55	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	
<b>Total COG</b>	<b>Rs/kWh</b>	<b>11.27</b>	<b>8.19</b>	<b>8.45</b>	<b>8.73</b>	<b>9.03</b>	<b>9.34</b>	<b>9.67</b>	<b>10.02</b>	<b>10.39</b>	<b>10.78</b>	<b>11.19</b>	<b>11.62</b>	<b>12.08</b>	<b>12.56</b>	<b>13.06</b>	<b>13.60</b>	<b>14.18</b>	<b>14.84</b>	<b>15.54</b>	<b>16.29</b>	<b>17.09</b>	<b>17.94</b>	<b>18.85</b>	<b>19.82</b>	<b>20.85</b>	

Variable Cost for FY 2020-21	5.38	Rs/kWh
Levelised Tariff (Fixed)	2.88	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>8.26</b>	<b>Rs/kWh</b>

<b>Determination of AD for Biomass based Power Project</b>	
Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	652.00

<b>Years</b>	<b>Unit</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	17.21	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	34.43	18.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00

<b>Accelerated Depreciation</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	195.60	228.20	91.28	54.77	32.86	19.72	11.83	7.10	4.26	2.56	1.53	0.92	0.55	0.33	0.20	0.12	0.07	0.04	0.03	0.02	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	178.39	193.77	56.85	20.34	-1.56	-14.71	-22.60	-27.33	-30.17	-31.87	-32.89	-33.51	-33.87	-34.09	-34.23	-34.31	-34.35	-18.73	0.03	0.02	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	62.34	67.71	19.87	7.11	-0.55	-5.14	-7.90	-9.55	-10.54	-11.14	-11.49	-11.71	-11.84	-11.91	-11.96	-11.99	-12.00	-6.55	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Per unit benefit	Rs/Unit	2.02	1.10	0.32	0.12	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.14

Tax Benefit Levelised	8.16	Rs/kWh
Electricity Generation (Levelised)	5.90	Rs/kWh
<b>Levelised benefit</b>	<b>0.14</b>	<b>Rs/kWh</b>

**CERC RE Tariff Order FY 2020-21**

Assumption for Bagasse based Cogeneration Project Parameters					State	Annexure 3A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Andhra Pradesh	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW		1
			Aux Consumption	%		8.50%
			Plant Load Factor	%		45.00%
			Useful Life	Years		25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW		467.00
			Capital Cost	Rs. Lakh		467
			Capital Subsidy	Rs. Lakh		0
			Net Capital Cost	Rs. Lakh		467.00
3	Financial Assumption	Debt Equity	Tariff Period	Years		25
			Debt	%		70%
			Equity	%		30%
		Debt Component	Total Debt Amount	Rs. Lakh		326.90
			Total Equity Amount	Rs. Lakh		140.10
			Loan Amount	Rs. Lakh		326.90
			Moratorium Period	Years		0
			Repayment Period (including Moratorium)	Years		15
		Equity Component	Interest Rate	%		9.67%
			Equity Amount	Rs. Lakh		140.10
			Return on Equity for First 20 years	% p.a		16.96%
			Return on Equity after 20 years	% p.a		21.52%
		Tax Rate	Discount Rate	%		8.61%
			Corporate Tax Rate	%		34.94%
Depreciation	MAT Rate	%		17.47%		
	Depreciation Rate for 1st 15 years	%		4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%		2.00%
			Normative O&M expense	Rs. Lakh/MW		24.52
			O&M expenses p.a	Rs. Lakh		24.52
5	Working Capital		Escalation factor	%		3.84%
			O&M expenses p.a	Month		1
			Maintenance Spares	% of O&M exepenses		0.15
			Receivables	Days		1.5
			Bagasse Stock	Months		4
6	Fuel Related Assumptions	Bagasse Stock	Interest on Working Capital	% per annum		11.17%
			Heat Rate	kcal/kWh		3600.00
			Fuel Price	Rs./T		1878.00
			GCV Bagasse	kcal/kg		2250.00
7	Generation and Sale of Power	Number of Hours	Bagasse price escalation factor	%		5.00%
				Hours		8766.00

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Bagasse Based Cogeneration Power Project																									
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Generation	MU		3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61

Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Bagasse Cost	Rs. Lakh		118.53	124.46	130.68	137.21	144.07	151.28	158.84	166.78	175.12	183.88	193.07	202.73	212.86	223.51	234.68	246.42	258.74	271.67	285.26	299.52	314.50	330.22	346.73	364.07	382.27
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53
Depreciation	Rs Lakh		21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79
Interest on term loan	Rs Lakh		30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		8.23	8.55	8.88	9.23	9.60	9.99	10.40	10.83	11.28	11.76	12.26	12.79	13.34	13.92	14.54	15.02	15.73	16.47	17.25	18.06	19.01	19.91	20.85	21.84	22.87
Return on Equity	Rs Lakh		23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>108.88</b>	<b>108.03</b>	<b>107.23</b>	<b>106.49</b>	<b>105.80</b>	<b>105.18</b>	<b>104.61</b>	<b>104.12</b>	<b>103.68</b>	<b>103.32</b>	<b>103.04</b>	<b>102.83</b>	<b>102.70</b>	<b>102.65</b>	<b>102.69</b>	<b>91.26</b>	<b>93.62</b>	<b>96.08</b>	<b>98.64</b>	<b>101.31</b>	<b>110.57</b>	<b>113.46</b>	<b>116.48</b>	<b>119.62</b>	<b>122.89</b>

Levelised tariff corresponding to Useful life	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Per Unit Variable Cost	Rs/kWh		5.12	3.28	3.45	3.62	3.80	3.99	4.19	4.40	4.62	4.85	5.09	5.35	5.62	5.90	6.19	6.50	6.83	7.17	7.53	7.90	8.30	8.71	9.15	9.61	10.09
O&M expn	Rs/kWh		0.95	0.68	0.71	0.73	0.75	0.79	0.82	0.85	0.88	0.92	0.95	0.99	1.03	1.07	1.11	1.15	1.19	1.24	1.29	1.34	1.39	1.44	1.50	1.56	1.62
Depreciation	Rs/kWh		0.54	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Int. on term loan	Rs/kWh		0.43	0.85	0.79	0.73	0.67	0.61	0.55	0.50	0.44	0.38	0.32	0.26	0.20	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.33	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.61
RoE	Rs/kWh		0.67	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.84	0.84	0.84
<b>Total COG</b>	<b>Rs/kWh</b>		<b>8.03</b>	<b>6.30</b>	<b>6.44</b>	<b>6.59</b>	<b>6.75</b>	<b>6.92</b>	<b>7.11</b>	<b>7.30</b>	<b>7.51</b>	<b>7.72</b>	<b>7.96</b>	<b>8.20</b>	<b>8.47</b>	<b>8.74</b>	<b>9.04</b>	<b>9.35</b>	<b>9.36</b>	<b>9.76</b>	<b>10.19</b>	<b>10.64</b>	<b>11.11</b>	<b>11.78</b>	<b>12.29</b>	<b>12.83</b>	<b>13.40</b>

Variable Cost for FY 2020-21	3.28	Rs/kWh
Levelised Tariff (Fixed)	2.91	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>6.20</b>	<b>Rs/kWh</b>

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	467.00

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Accelerated Depreciation</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	1.80	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
Per unit benefit	Rs/Unit	2.47	1.34	0.39	0.14	-0.01	-0.10	-0.16	-0.19	-0.21	-0.22	-0.23	-0.23	-0.23	-0.24	-0.24	-0.24	-0.24	-0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levelised	5.84	Rs/kWh
Electricity Generation (Levelised)	3.45	Rs/kWh
<b>Levelised benefit</b>	<b>0.17</b>	<b>Rs/kWh</b>

**CERC RE Tariff Order FY 2020-21**

<b>Assumption for Bagasse based Cogeneration Project Parameters</b>				<b>State</b>	<b>Annexure 3B</b>	
<b>S. No.</b>	<b>Assumption Head</b>	<b>Sub-Head</b>	<b>Sub-Head (2)</b>	<b>Unit</b>	<b>Haryana Parameter</b>	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	8.50%	
			Plant Load Factor	%	53.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00	
			Capital Cost	Rs. Lakh	467	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	467.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	326.90	
			Total Equity Amount	Rs. Lakh	140.10	
			Loan Amount	Rs. Lakh	326.90	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	140.10	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	24.52	
			O&M expenses p.a	Rs. Lakh	24.52	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	0.15
			Receivables	Days	1.5	
			Bagasse Stock	Months	4	
6	Fuel Related Assumptions	Bagasse Stock	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	kcal/kWh	3600.00	
			Fuel Price	Rs./T	2671.00	
			GCV Bagasse	kcal/kg	2250.00	
7	Generation and Sale of Power	Number of Hours	Bagasse price escalation factor	%	5.00%	
				Hours	8766.00	

### CERC RE Tariff Order FY 2020-21

<b>Determination of Tariff Components</b>		<b>Bagasse Based Cogeneration Power Project</b>																									
<b>Units Generation</b>		Unit	Year-->																								
Installed Capacity	MW	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Net Generation	MU	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	
<b>Variable Cost</b>		Unit	Year-->																								
Bagasse Cost	Rs. Lakh	198.55	208.48	218.90	229.85	241.34	253.41	266.08	279.38	293.35	308.02	323.42	339.59	356.57	374.40	393.12	412.77	433.41	455.08	477.84	501.73	526.81	553.15	580.81	609.65	640.35	
<b>Fixed Cost</b>		Unit	Year-->																								
O&M Expenses	Rs Lakh	24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53	
Depreciation	Rs Lakh	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	
Interest on term loan	Rs Lakh	30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh	12.39	12.91	13.46	14.04	14.65	15.29	15.97	16.68	17.42	18.21	19.03	19.90	20.81	21.76	22.77	23.66	24.80	26.00	27.25	28.57	30.04	31.49	33.01	34.60	36.28	
Return on Equity	Rs Lakh	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>	<b>113.04</b>	<b>112.40</b>	<b>111.82</b>	<b>111.30</b>	<b>110.86</b>	<b>110.48</b>	<b>110.18</b>	<b>109.96</b>	<b>109.83</b>	<b>109.77</b>	<b>109.81</b>	<b>109.94</b>	<b>110.16</b>	<b>110.49</b>	<b>110.92</b>	<b>99.90</b>	<b>102.69</b>	<b>105.61</b>	<b>108.65</b>	<b>111.82</b>	<b>121.59</b>	<b>125.04</b>	<b>128.64</b>	<b>132.39</b>	<b>136.30</b>	
<b>Levelised tariff corresponding to Useful life</b>																											
<b>Per Unit Cost of Generation</b>		Unit	Year-->																								
Per unit Variable Cost	RskWh	7.28	4.67	4.30	5.15	5.41	5.68	5.96	6.25	6.57	6.90	7.25	7.61	7.99	8.39	8.81	9.25	9.71	10.20	10.71	11.24	11.80	12.39	13.01	13.66	14.35	
O&M expn	RskWh	0.80	0.58	0.60	0.62	0.65	0.67	0.70	0.72	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.01	1.05	1.09	1.14	1.19	1.22	1.27	1.32	1.37	
Depreciation	RskWh	0.46	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	
Int. on term loan	RskWh	0.36	0.72	0.67	0.62	0.57	0.52	0.47	0.42	0.37	0.32	0.27	0.22	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	RskWh	0.43	0.29	0.30	0.32	0.33	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.58	0.61	0.64	0.67	0.71	0.74	0.78	0.81	
RoE	RskWh	0.57	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	
<b>Total COG</b>	<b>RskWh</b>	<b>9.90</b>	<b>7.33</b>	<b>7.55</b>	<b>7.78</b>	<b>8.02</b>	<b>8.28</b>	<b>8.56</b>	<b>8.85</b>	<b>9.16</b>	<b>9.48</b>	<b>9.83</b>	<b>10.19</b>	<b>10.57</b>	<b>10.98</b>	<b>11.41</b>	<b>11.86</b>	<b>12.06</b>	<b>12.61</b>	<b>13.19</b>	<b>13.80</b>	<b>14.43</b>	<b>15.25</b>	<b>15.95</b>	<b>16.69</b>	<b>17.46</b>	
Variable Cost for FY 2020-21		4.67	Rs/kWh																								
Levelised Tariff (Fixed)		2.63	Rs/kWh																								
<b>Levelised Tariff -FY 2020-21</b>		<b>7.30</b>	<b>Rs/kWh</b>																								
<b>Determination of AD for Bagasse based Cogeneration Project</b>																											
Depreciation amount		90%																									
Book Depreciation rate		5%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17%																									
Income Tax (Normal Rates)		35%																									
Capital Cost (Rs./Lakh)		467.00																									
<b>Years</b>		<b>-----&gt;</b>																									
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Book Depreciation	Rs Lakh	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Accelerated Depreciation</b>																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU	2.13	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	
Per unit benefit	Rs/Unit	2.10	1.14	0.33	0.12	-0.01	-0.09	-0.13	-0.16	-0.18	-0.19	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	
Tax Benefit Levelised		5.84	Rs/kWh																								
Electricity Generation (Levelised)		4.07	Rs/kWh																								
<b>Levelised benefit</b>		<b>0.14</b>	<b>Rs/kWh</b>																								



**CERC RE Tariff Order FY 2020-21**

<b>Assumption for Bagasse based Cogeneration Project Parameters</b>					<b>Annexure 3C</b>	
					<b>State</b>	<b>Maharashtra</b>
<b>S. No.</b>	<b>Assumption Head</b>	<b>Sub-Head</b>	<b>Sub-Head (2)</b>	<b>Unit</b>	<b>Parameter</b>	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	8.50%	
			Plant Load Factor	%	60.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00	
			Capital Cost	Rs. Lakh	467	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	467.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	326.90	
			Total Equity Amount	Rs. Lakh	140.10	
			Loan Amount	Rs. Lakh	326.90	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	140.10	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	24.52	
O&M expenses p.a			Rs. Lakh	24.52		
Escalation factor			%	3.84%		
5	Working Capital	O&M expenses p.a		Month	1	
		Maintenance Spares	% of O&M exepenses	%	0.15	
		Receivables		Days	1.5	
		Bagasse Stock		Months	4	
		Interest on Working Capital		% per annum	11.17%	
6	Fuel Related Assumptions	Bagasse Stock	Heat Rate	kcal/kWh	3600.00	
			Fuel Price	Rs./T	2632.00	
			GCV Bagasse	kcal/kg	2250.00	
			Bagasse price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	



**CERC RE Tariff Order FY 2020-21**

Assumption for Bagasse based Cogeneration Project Parameters					State	Annexure 3D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Punjab	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW		1
			Aux Consumption	%		8.50%
			Plant Load Factor	%		53.00%
			Useful Life	Years		25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW		467.00
			Capital Cost	Rs. Lakh		467
			Capital Subsidy	Rs. Lakh		0
			Net Capital Cost	Rs. Lakh		467.00
3	Financial Assumption	Debt Equity	Tariff Period	Years		25
			Debt	%		70%
			Equity	%		30%
		Debt Component	Total Debt Amount	Rs. Lakh		326.90
			Total Equity Amount	Rs. Lakh		140.10
			Loan Amount	Rs. Lakh		326.90
			Moratorium Period	Years		0
			Repayment Period (including Moratorium)	Years		15
		Equity Component	Interest Rate	%		9.67%
			Equity Amount	Rs. Lakh		140.10
			Return on Equity for First 20 years	% p.a		16.96%
			Return on Equity after 20 years	% p.a		21.52%
		Tax Rate	Discount Rate	%		8.61%
			Corporate Tax Rate	%		34.94%
Depreciation	MAT Rate	%		17.47%		
	Depreciation Rate for 1st 15 years	%		4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%		2.00%
			Normative O&M expense	Rs. Lakh/MW		24.52
			O&M expenses p.a	Rs. Lakh		24.52
5	Working Capital		Escalation factor	%		3.84%
			O&M expenses p.a	Month		1
			Maintenance Spares	% of O&M exepenses		0.15
			Receivables	Days		1.5
			Bagasse Stock	Months		4
6	Fuel Related Assumptions	Bagasse Stock	Interest on Working Capital	% per annum		11.17%
			Heat Rate	kcal/kWh		3600.00
			Fuel Price	Rs./T		2351.00
			GCV Bagasse	kcal/kg		2250.00
7	Generation and Sale of Power	Number of Hours	Bagasse price escalation factor	%		5.00%
				Hours		8766.00

### CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Bagasse Based Cogeneration Power Project																									
Units Generation	Unit	Year-->																									
	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Installed Capacity	MW	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Generation	MU	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
<b>Variable Cost</b>	<b>Unit</b>	<b>Year--&gt;</b>																									
Bagasse Cost	Rs. Lakh	174.76	183.50	192.68	202.31	212.43	223.05	234.20	245.91	258.20	271.12	284.67	298.90	313.85	329.54	346.02	363.32	381.49	400.56	420.59	441.62	463.70	486.88	511.23	536.79	563.63	
<b>Fixed Cost</b>	<b>Unit</b>	<b>Year--&gt;</b>																									
O&M Expenses	Rs Lakh	24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53	
Depreciation	Rs Lakh	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	
Interest on term loan	Rs Lakh	30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh	11.15	11.61	12.10	12.61	13.15	13.72	14.31	14.94	15.60	16.29	17.02	17.78	18.59	19.43	20.32	21.09	22.10	23.16	24.28	25.44	26.76	28.04	29.39	30.81	32.29	
Return on Equity	Rs Lakh	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>	<b>111.80</b>	<b>111.10</b>	<b>110.45</b>	<b>109.87</b>	<b>109.35</b>	<b>108.91</b>	<b>108.53</b>	<b>108.23</b>	<b>108.00</b>	<b>107.86</b>	<b>107.80</b>	<b>107.82</b>	<b>107.94</b>	<b>108.16</b>	<b>108.47</b>	<b>97.33</b>	<b>100.00</b>	<b>102.78</b>	<b>105.67</b>	<b>108.69</b>	<b>118.32</b>	<b>121.60</b>	<b>125.02</b>	<b>128.59</b>	<b>132.31</b>	

Levelised tariff corresponding to Useful life		Per Unit Cost of Generation																									
Per unit Variable Cost	Unit	Year-->																									
	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M expn	RskWh	0.80	0.58	0.60	0.62	0.65	0.67	0.70	0.72	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.01	1.05	1.09	1.14	1.19	1.22	1.27	1.32	1.37	1.42
Depreciation	RskWh	0.46	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	
Int. on term loan	RskWh	0.36	0.72	0.67	0.62	0.57	0.52	0.47	0.42	0.37	0.32	0.27	0.22	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	RskWh	0.39	0.26	0.27	0.28	0.30	0.31	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.57	0.60	0.63	0.66	0.69	0.72	0.76
ROE	RskWh	0.57	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	
<b>Total COG</b>	<b>RskWh</b>	<b>8.99</b>	<b>6.74</b>	<b>6.93</b>	<b>7.13</b>	<b>7.34</b>	<b>7.57</b>	<b>7.81</b>	<b>8.06</b>	<b>8.33</b>	<b>8.61</b>	<b>8.91</b>	<b>9.23</b>	<b>9.57</b>	<b>9.92</b>	<b>10.30</b>	<b>10.69</b>	<b>10.84</b>	<b>11.33</b>	<b>11.84</b>	<b>12.38</b>	<b>12.95</b>	<b>13.69</b>	<b>14.31</b>	<b>14.97</b>	<b>15.65</b>	<b>16.37</b>

Variable Cost for FY 2020-21	4.11	Rs/kWh
Levelised Tariff (Fixed)	2.58	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>6.69</b>	<b>Rs/kWh</b>

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	467.00

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	2.13	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.10	1.14	0.33	0.12	-0.01	-0.09	-0.13	-0.16	-0.18	-0.19	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.11	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levelised	5.84	Rs/kWh
Electricity Generation (Levelised)	4.07	Rs/kWh
<b>Levelised benefit</b>	<b>0.14</b>	<b>Rs/kWh</b>

**CERC RE Tariff Order FY 2020-21**

<b>Assumption for Bagasse based Cogeneration Project Parameters</b>				<b>State</b>	<b>Annexure 3E</b>
<b>S. No.</b>	<b>Assumption Head</b>	<b>Sub-Head</b>	<b>Sub-Head (2)</b>	<b>Unit</b>	<b>Tamil Nadu Parameter</b>
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	8.50%
			Plant Load Factor	%	60.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00
			Capital Cost	Rs. Lakh	467
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	467.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	326.90
			Total Equity Amount	Rs. Lakh	140.10
			Loan Amount	Rs. Lakh	326.90
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	140.10
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	24.52
			O&M expenses p.a	Rs. Lakh	24.52
			Escalation factor	%	3.84%
5	Working Capital		O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	0.15
			Receivables	Days	1.5
			Bagasse Stock	Months	4
			Interest on Working Capital	% per annum	11.17%
6	Fuel Related Assumptions	Bagasse Stock	Heat Rate	kcal/kWh	3600.00
			Fuel Price	Rs./T	2023.00
			GCV Bagasse	kcal/kg	2250.00
			Bagasse price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

### CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Bagasse Based Cogeneration Power Project																								
Units Generation	Unit	Year-->																								
Installed Capacity	MW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Net Generation	MU	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81
<b>Variable Cost</b>	<b>Unit</b>	<b>Year--&gt;</b>																								
Bagasse Cost	Rs. Lakh	170.24	178.75	187.69	197.08	206.93	217.28	228.14	239.55	251.53	264.10	277.31	291.17	305.73	321.02	337.07	353.92	371.62	390.20	409.71	430.19	451.70	474.29	498.00	522.90	549.05
<b>Fixed Cost</b>	<b>Unit</b>	<b>Year--&gt;</b>																								
O&M Expenses	Rs Lakh	24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53
Depreciation	Rs Lakh	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79
Interest on term loan	Rs Lakh	30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	10.92	11.37	11.84	12.34	12.87	13.42	14.00	14.61	15.25	15.93	16.63	17.38	18.17	18.99	19.86	20.60	21.59	22.63	23.71	24.85	26.14	27.39	28.71	30.09	31.54
Return on Equity	Rs Lakh	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>	<b>111.57</b>	<b>110.85</b>	<b>110.19</b>	<b>109.60</b>	<b>109.07</b>	<b>108.61</b>	<b>108.21</b>	<b>107.90</b>	<b>107.65</b>	<b>107.49</b>	<b>107.41</b>	<b>107.42</b>	<b>107.52</b>	<b>107.72</b>	<b>108.01</b>	<b>96.84</b>	<b>99.48</b>	<b>102.24</b>	<b>105.11</b>	<b>108.10</b>	<b>117.69</b>	<b>120.95</b>	<b>124.34</b>	<b>127.87</b>	<b>131.56</b>

Levelised tariff corresponding to Useful life																										
Per Unit Cost of Generation	Unit	Year-->																								
Per unit Variable Cost	RskWh	5.51	3.54	3.71	3.90	4.10	4.30	4.51	4.74	4.98	5.23	5.49	5.76	6.05	6.35	6.67	7.00	7.35	7.72	8.11	8.51	8.94	9.39	9.86	10.35	10.87
O&M expn	RskWh	0.71	0.51	0.53	0.55	0.57	0.59	0.62	0.64	0.66	0.69	0.72	0.74	0.77	0.80	0.83	0.86	0.90	0.93	0.97	1.00	1.04	1.08	1.12	1.17	1.21
Depreciation	RskWh	0.40	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	RskWh	0.32	0.64	0.59	0.55	0.50	0.46	0.42	0.37	0.33	0.28	0.24	0.20	0.15	0.11	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	RskWh	0.33	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.32	0.33	0.35	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.57	0.60	0.63
RoE	RskWh	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
<b>Total COG</b>	<b>RskWh</b>	<b>7.78</b>	<b>5.86</b>	<b>6.02</b>	<b>6.19</b>	<b>6.37</b>	<b>6.57</b>	<b>6.77</b>	<b>6.99</b>	<b>7.22</b>	<b>7.46</b>	<b>7.72</b>	<b>7.99</b>	<b>8.28</b>	<b>8.59</b>	<b>8.91</b>	<b>9.25</b>	<b>9.37</b>	<b>9.79</b>	<b>10.23</b>	<b>10.70</b>	<b>11.19</b>	<b>11.83</b>	<b>12.37</b>	<b>12.93</b>	<b>13.52</b>

Variable Cost for FY 2020-21	3.54	RskWh
Levelised Tariff (Fixed)	2.27	RskWh
<b>Levelised Tariff -FY 2020-21</b>	<b>5.81</b>	<b>RskWh</b>

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	467.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Accelerated Depreciation</b>																										
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU	2.41	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levelised	5.84	RskWh
Electricity Generation (Levelised)	4.60	RskWh
<b>Levelised benefit</b>	<b>0.13</b>	<b>RskWh</b>

**CERC RE Tariff Order FY 2020-21**

<b>Assumption for Bagasse based Cogeneration Project Parameters</b>					<b>Annexure 3F</b>	
					<b>State</b>	<b>Telangana</b>
<b>S. No.</b>	<b>Assumption Head</b>	<b>Sub-Head</b>	<b>Sub-Head (2)</b>	<b>Unit</b>	<b>Parameter</b>	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	8.50%	
			Plant Load Factor	%	53.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00	
			Capital Cost	Rs. Lakh	467	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	467.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	326.90	
			Total Equity Amount	Rs. Lakh	140.10	
			Loan Amount	Rs. Lakh	326.90	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	140.10	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Corporate Tax Rate	%	34.94%	
			MAT Rate	%	17.47%	
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%			
	Depreciation Rate 16th years onwards	%	2.00%			
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	24.52		
		O&M expenses p.a	Rs. Lakh	24.52		
		Escalation factor	%	3.84%		
5	Working Capital	O&M expenses p.a	Month	1		
		Maintenance Spares	% of O&M exepenses	%	0.15	
		Receivables		Days	1.5	
		Bagasse Stock		Months	4	
		Interest on Working Capital		% per annum	11.17%	
6	Fuel Related Assumptions	Bagasse Stock	Heat Rate	kcal/kWh	3600.00	
			Fuel Price	Rs./T	1877.00	
			GCV Bagasse	kcal/kg	2250.00	
			Bagasse price escalation factor	%	5.00%	
7	Generation and Sale of Power	Number of Hours		Hours	8766.00	

# CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Bagasse Based Cogeneration Power Project																											
Units Generation	Unit	Year-->																											
Installed Capacity	MW	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Net Generation	MU	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Variable Cost	Unit	Year-->																											
Bagasse Cost	Rs. Lakh	139.53	146.50	153.83	161.52	169.60	178.08	186.98	196.33	206.15	216.45	227.28	238.64	250.57	263.10	276.26	290.07	304.57	319.80	335.79	352.58	370.21	388.72	408.16	428.56	449.99			
Fixed Cost	Unit	Year-->																											
O&M Expenses	Rs Lakh	24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53			
Depreciation	Rs Lakh	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	9.34	9.34	9.34	9.34	9.34	9.34	9.34	9.34	9.34	9.34	9.34	9.34
Interest on term loan	Rs Lakh	30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	9.32	9.69	10.08	10.49	10.93	11.38	11.86	12.36	12.89	13.45	14.04	14.65	15.30	15.98	16.70	17.29	18.11	18.97	19.87	20.82	21.90	22.95	24.04	25.19	26.39			
Return on Equity	Rs Lakh	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77
Total Fixed Cost	Rs Lakh	109.97	109.18	108.44	107.75	107.13	106.57	106.08	105.65	105.30	105.02	104.81	104.69	104.66	104.71	104.85	93.53	96.00	98.58	101.27	104.07	113.46	116.50	119.67	122.97	126.41			

Levelled tariff corresponding to Useful life		Year-->																										
Per Unit Cost of Generation	Unit	Year-->																										
Per unit Variable Cost	RskWh	5.11	3.28	3.45	3.62	3.80	3.99	4.19	4.40	4.62	4.85	5.09	5.35	5.61	5.89	6.19	6.50	6.82	7.16	7.52	7.90	8.29	8.71	9.14	9.60	10.08	10.59	
O&M expn	RskWh	0.80	0.58	0.60	0.62	0.65	0.67	0.70	0.72	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.01	1.05	1.09	1.14	1.18	1.22	1.27	1.32	1.37	1.42	
Depreciation	RskWh	0.46	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Int. on term loan	RskWh	0.36	0.72	0.67	0.62	0.57	0.52	0.47	0.42	0.37	0.32	0.27	0.22	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	RskWh	0.32	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.32	0.33	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.57	0.59	0.62	
RoE	RskWh	0.57	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.71	0.71	0.71	0.71	0.71	0.71	
Total COG	RskWh	7.63	5.87	6.01	6.17	6.33	6.51	6.70	6.89	7.10	7.33	7.56	7.81	8.08	8.36	8.65	8.96	9.02	9.42	9.84	10.28	10.74	11.38	11.88	12.42	12.97	13.56	

Variable Cost for FY 2020-21	3.28	RskWh
Levelled Tariff (Fixed)	2.51	RskWh
<b>Levelled Tariff -FY 2020-21</b>	<b>5.80</b>	<b>RskWh</b>

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	467.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	2.13	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.10	1.14	0.33	0.12	-0.01	-0.09	-0.13	-0.16	-0.18	-0.19	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levelled	5.84	RskWh
Electricity Generation (Levelled)	4.07	RskWh
<b>Levelled benefit</b>	<b>0.14</b>	<b>RskWh</b>



**CERC RE Tariff Order FY 2020-21**

<b>Assumption for Bagasse based Cogeneration Project Parameters</b>				<b>State</b>	<b>Annexure 3G</b>	
<b>S. No.</b>	<b>Assumption Head</b>	<b>Sub-Head</b>	<b>Sub-Head (2)</b>	<b>Unit</b>	<b>Uttar Pradesh</b>	
					<b>Parameter</b>	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	8.50%	
			Plant Load Factor	%	45.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00	
			Capital Cost	Rs. Lakh	467	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	467.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	326.90	
			Total Equity Amount	Rs. Lakh	140.10	
			Loan Amount	Rs. Lakh	326.90	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	140.10	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	24.52	
			O&M expenses p.a	Rs. Lakh	24.52	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	0.15
			Receivables	Days	1.5	
			Bagasse Stock	Months	4	
6	Fuel Related Assumptions	Bagasse Stock	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	kcal/kWh	3600.00	
			Fuel Price	Rs./T	2095.00	
			GCV Bagasse	kcal/kg	2250.00	
7	Generation and Sale of Power	Number of Hours	Bagasse price escalation factor	%	5.00%	
				Hours	8766.00	

# CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Bagasse Based Cogeneration Power Project																									
Units Generation	Unit	Year-->																									
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Generation	MU		3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61

  

Variable Cost	Unit	Year-->																									
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Bagasse Cost	Rs. Lakh		132.23	138.84	145.78	153.07	160.72	168.76	177.20	186.06	195.36	205.13	215.38	226.15	237.46	249.33	261.80	274.89	288.63	303.07	318.22	334.13	350.84	368.38	386.80	406.14	426.44

  

Fixed Cost	Unit	Year-->																									
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53
Depreciation	Rs Lakh		21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79
Interest on term loan	Rs Lakh		30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		8.94	9.29	9.66	10.05	10.46	10.90	11.35	11.83	12.33	12.86	13.42	14.00	14.62	15.27	15.95	16.50	17.28	18.10	18.96	19.86	20.90	21.89	22.93	24.02	25.17
Return on Equity	Rs Lakh		23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>109.59</b>	<b>108.78</b>	<b>108.02</b>	<b>107.31</b>	<b>106.67</b>	<b>106.09</b>	<b>105.57</b>	<b>105.12</b>	<b>104.74</b>	<b>104.43</b>	<b>104.20</b>	<b>104.04</b>	<b>103.97</b>	<b>103.99</b>	<b>104.10</b>	<b>104.24</b>	<b>104.46</b>	<b>104.77</b>	<b>105.14</b>	<b>105.58</b>	<b>110.36</b>	<b>111.44</b>	<b>115.44</b>	<b>121.81</b>	<b>125.19</b>

Levelled tariff corresponding to Useful life																												
Per Unit Cost of Generation	Unit	Year-->																										
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Per unit Variable Cost	RskWh		5.71	3.66	3.85	4.04	4.24	4.45	4.68	4.91	5.15	5.41	5.68	5.97	6.27	6.58	6.91	7.25	7.62	8.00	8.40	8.82	9.26	9.72	10.21	10.72	11.25	11.81
O&M expn	RskWh		0.95	0.68	0.71	0.73	0.76	0.79	0.82	0.85	0.88	0.92	0.95	0.99	1.03	1.07	1.11	1.15	1.19	1.24	1.29	1.34	1.39	1.44	1.50	1.56	1.62	1.68
Depreciation	RskWh		0.54	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Int. on term loan	RskWh		0.43	0.85	0.79	0.73	0.67	0.61	0.55	0.50	0.44	0.38	0.32	0.26	0.20	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	RskWh		0.36	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.61	0.64	0.67	0.70
RoE	RskWh		0.67	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
<b>Total COG</b>	<b>RskWh</b>		<b>8.65</b>	<b>6.70</b>	<b>6.86</b>	<b>7.03</b>	<b>7.21</b>	<b>7.41</b>	<b>7.61</b>	<b>7.83</b>	<b>8.07</b>	<b>8.31</b>	<b>8.58</b>	<b>8.85</b>	<b>9.15</b>	<b>9.46</b>	<b>9.79</b>	<b>10.14</b>	<b>10.19</b>	<b>10.63</b>	<b>11.10</b>	<b>11.60</b>	<b>12.11</b>	<b>12.84</b>	<b>13.40</b>	<b>14.00</b>	<b>14.63</b>	<b>15.28</b>

Variable Cost for FY 2020-21	3.66	Rs/kWh
Levelled Tariff (Fixed)	2.94	Rs/kWh
<b>Levelled Tariff -FY 2020-21</b>	<b>6.61</b>	<b>Rs/kWh</b>

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	467.00

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	1.80	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
Per unit benefit	Rs/Unit	2.47	1.34	0.39	0.14	-0.01	-0.10	-0.16	-0.19	-0.21	-0.22	-0.23	-0.23	-0.24	-0.24	-0.24	-0.24	-0.24	-0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levelled	5.84	Rs/kWh
Electricity Generation (Levelled)	3.45	Rs/kWh
<b>Levelled benefit</b>	<b>0.17</b>	<b>Rs/kWh</b>

**CERC RE Tariff Order FY 2020-21**

<b>Assumption for Bagasse based Cogeneration Project Parameters</b>					<b>Annexure 3C</b>	
				<b>State</b>	<b>Other States</b>	
<b>S. No.</b>	<b>Assumption Head</b>	<b>Sub-Head</b>	<b>Sub-Head (2)</b>	<b>Unit</b>	<b>Parameter</b>	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	8.50%	
			Plant Load Factor	%	53.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00	
			Capital Cost	Rs. Lakh	467	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	467.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	326.90	
			Total Equity Amount	Rs. Lakh	140.10	
			Loan Amount	Rs. Lakh	326.90	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	140.10	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	24.52	
			O&M expenses p.a	Rs. Lakh	24.52	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	0.15
			Receivables	Days	1.5	
			Bagasse Stock	Months	4	
6	Fuel Related Assumptions	Bagasse Stock	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	kcal/kWh	3600.00	
			Fuel Price	Rs./T	2274.00	
			GCV Bagasse	kcal/kg	2250.00	
7	Generation and Sale of Power	Number of Hours	Bagasse price escalation factor	%	5.00%	
				Hours	8766.00	

### CERC RE Tariff Order FY 2020-21

Determination of Tariff Components Bagasse Based Cogeneration Power Project																													
Units Generation		Unit	Year-->																										
Installed Capacity	MW	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Net Generation	MU	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	
Variable Cost		Unit	Year-->																										
Bagasse Cost	Rs. Lakh	169.04	177.49	186.37	195.68	205.47	215.74	226.53	237.86	249.75	262.24	275.35	289.11	303.57	318.75	334.69	351.42	368.99	387.44	406.81	427.15	448.51	470.94	494.48	519.21	545.17			
Fixed Cost		Unit	Year-->																										
O&M Expenses	Rs Lakh	24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53			
Depreciation	Rs Lakh	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79
Interest on term loan	Rs Lakh	30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	10.85	11.30	11.77	12.27	12.79	13.34	13.91	14.52	15.16	15.83	16.53	17.27	18.05	18.87	19.73	20.47	21.45	22.48	23.56	24.69	25.97	27.22	28.52	29.90	31.33			
Return on Equity	Rs Lakh	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77
Total Fixed Cost	Rs Lakh	111.51	110.79	110.13	109.53	108.99	108.53	108.13	107.81	107.56	107.39	107.31	107.31	107.41	107.60	107.88	108.21	108.59	110.09	110.66	111.33	112.10	112.97	113.94	115.01	116.18	117.45	118.82	120.29

Levelised tariff corresponding to Useful life																												
Per Unit Cost of Generation		Unit	Year-->																									
Par unit Variable Cost	RskWh	6.20	3.98	4.18	4.38	4.60	4.83	5.07	5.33	5.60	5.87	6.17	6.48	6.80	7.14	7.50	7.87	8.27	8.68	9.11	9.57	10.05	10.55	11.08	11.63	12.21	12.82	
O&M expn	RskWh	0.80	0.58	0.60	0.62	0.65	0.67	0.70	0.72	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.01	1.05	1.09	1.14	1.19	1.22	1.27	1.32	1.37	1.42	
Depreciation	RskWh	0.46	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Int. on term loan	RskWh	0.36	0.72	0.67	0.62	0.57	0.52	0.47	0.42	0.37	0.32	0.27	0.22	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	RskWh	0.37	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.61	0.64	0.67	0.70	0.74	
RoE	RskWh	0.57	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Total COG	RskWh	8.77	6.60	6.78	6.97	7.18	7.40	7.63	7.87	8.13	8.41	8.69	9.00	9.33	9.67	10.03	10.41	10.84	11.02	11.52	12.04	12.59	13.32	13.92	14.55	15.22	15.91	

Variable Cost for FY 2020-21	3.98	Rs/kWh
Levelised Tariff (Fixed)	2.57	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>6.55</b>	<b>Rs/kWh</b>

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capitol Cost (Rs./Lakh)	467.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Accelerated Depreciation</b>		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU	2.13	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	
Per unit benefit	Rs/Unit	2.10	1.14	0.33	0.12	-0.01	-0.09	-0.13	-0.16	-0.18	-0.19	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	

Tax Benefit Levelised	5.84	Rs/kWh
Electricity Generation (Levelised)	4.07	Rs/kWh
<b>Levelised benefit</b>	<b>0.14</b>	<b>Rs/kWh</b>

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Andhra Pradesh Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3326.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

**CERC RE Tariff Order FY 2020-21**

Determination of Tariff Components		Biomass Gasifier Based Power Project																												
Units Generation		Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Net Generation	MU			6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71			
Variable Cost		Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Biomass Cost	Rs. Lakh			309.78	325.27	341.53	358.61	376.54	395.37	415.13	435.89	457.69	480.57	504.60	529.83	556.32	584.14	613.34	644.01	676.21	710.02	745.52	782.80	821.94	863.03	906.19	951.50	999.07		
Fixed Cost		Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
O&M Expenses	Rs Lakh			61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35		
Depreciation	Rs Lakh			20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86		
Interest on term loan	Rs Lakh			29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Interest on working Capital	Rs Lakh			19.60	20.48	21.39	22.35	23.36	24.42	25.54	26.71	27.93	29.22	30.58	32.00	33.49	35.06	36.70	38.28	40.12	42.05	44.07	46.20	48.51	50.85	53.30	55.87	58.57		
Return on Equity	Rs Lakh			22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55		
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>			<b>153.15</b>	<b>154.37</b>	<b>155.73</b>	<b>157.22</b>	<b>158.87</b>	<b>160.66</b>	<b>162.61</b>	<b>164.73</b>	<b>167.02</b>	<b>169.48</b>	<b>172.14</b>	<b>174.99</b>	<b>178.04</b>	<b>181.30</b>	<b>184.78</b>	<b>177.53</b>	<b>183.51</b>	<b>189.74</b>	<b>196.22</b>	<b>202.98</b>	<b>210.16</b>	<b>217.49</b>	<b>225.13</b>	<b>233.09</b>	<b>241.38</b>		
Levillised tariff corresponding to Useful life																														
Per Unit Cost of Generation		Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Per unit Variable Cost	Rs/kWh		<b>7.20</b>	4.62	4.85	5.09	5.35	5.61	5.90	6.19	6.50	6.83	7.17	7.52	7.90	8.30	8.71	9.15	9.60	10.08	10.59	11.12	11.67	12.26	12.87	13.51	14.19	14.90		
O&M expn	Rs/kWh		<b>1.27</b>	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26		
Depreciation	Rs/kWh		<b>0.28</b>	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13		
Int. on term loan	Rs/kWh		<b>0.22</b>	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Int. on working capital	Rs/kWh		<b>0.44</b>	0.29	0.31	0.32	0.33	0.35	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.79	0.83	0.87		
RoE	Rs/kWh		<b>0.34</b>	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34		
<b>Total COG</b>	<b>Rs/kWh</b>		<b>9.75</b>	<b>6.90</b>	<b>7.15</b>	<b>7.42</b>	<b>7.69</b>	<b>7.98</b>	<b>8.29</b>	<b>8.62</b>	<b>8.96</b>	<b>9.32</b>	<b>9.69</b>	<b>10.09</b>	<b>10.51</b>	<b>10.95</b>	<b>11.41</b>	<b>11.90</b>	<b>12.25</b>	<b>12.82</b>	<b>13.42</b>	<b>14.04</b>	<b>14.70</b>	<b>15.48</b>	<b>16.20</b>	<b>16.96</b>	<b>17.75</b>	<b>18.59</b>		
Variable Cost for FY 2020-21		4.62	Rs/kWh																											
Levillised Tariff (Fixed)		2.55	Rs/kWh																											
<b>Levillised Tariff -FY 2020-21</b>		<b>7.17</b>	<b>Rs/kWh</b>																											
Determination of AD for Biomass Gasifier based Power Project																														
Depreciation amount		90%																												
Book Depreciation rate		5%																												
Tax Depreciation rate		40%																												
Additional Depreciation		20%																												
Income Tax (MAT)		17%																												
Income Tax (Normal Rates)		35%																												
Capital Cost (Rs./Lakh)		443.00																												
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00			
Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00			
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71			
Per unit benefit	Rs/Unit	1.26	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14			
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.14			
Tax Benefit Levillised		5.54	Rs/kWh																											
Electricity Generation (Levillised)		6.41	Rs/kWh																											
<b>Levillised benefit</b>		<b>0.09</b>	<b>Rs/kWh</b>																											

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Haryana Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3786.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71

  

Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		352.62	370.25	388.77	408.21	428.62	450.05	472.55	496.18	520.99	547.03	574.39	603.11	633.26	664.92	698.17	733.08	769.73	808.22	848.63	891.06	935.61	982.40	1031.52	1083.09	1137.25

  

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		21.83	22.81	23.84	24.93	26.07	27.26	28.52	29.84	31.22	32.68	34.20	35.81	37.49	39.25	41.11	42.90	44.97	47.15	49.43	51.82	54.42	57.05	59.81	62.71	65.75
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>155.37</b>	<b>156.71</b>	<b>158.18</b>	<b>159.80</b>	<b>161.57</b>	<b>163.50</b>	<b>165.59</b>	<b>167.86</b>	<b>170.30</b>	<b>172.94</b>	<b>175.76</b>	<b>178.79</b>	<b>182.03</b>	<b>185.49</b>	<b>189.18</b>	<b>182.16</b>	<b>188.37</b>	<b>194.84</b>	<b>201.58</b>	<b>208.60</b>	<b>222.06</b>	<b>229.69</b>	<b>237.64</b>	<b>245.93</b>	<b>254.56</b>

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Per unit Variable Cost	Rs/kWh		8.19	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.57	8.99	9.44	9.92	10.41	10.93	11.48	12.05	12.65	13.29	13.95	14.65	15.38	16.15	16.96
O&M expn	Rs/kWh		1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh		0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	
Int. on term loan	Rs/kWh		0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh		0.49	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.44	0.47	0.49	0.51	0.53	0.56	0.59	0.61	0.64	0.67	0.70	0.74	0.77	0.81	0.85	0.89	0.94	0.98
RoE	Rs/kWh		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	
<b>Total COG</b>	<b>Rs/kWh</b>		<b>10.80</b>	<b>7.58</b>	<b>7.86</b>	<b>8.16</b>	<b>8.47</b>	<b>8.80</b>	<b>9.15</b>	<b>9.52</b>	<b>9.90</b>	<b>10.31</b>	<b>10.74</b>	<b>11.19</b>	<b>11.66</b>	<b>12.16</b>	<b>12.68</b>	<b>13.23</b>	<b>13.65</b>	<b>14.29</b>	<b>14.96</b>	<b>15.66</b>	<b>16.40</b>	<b>17.26</b>	<b>18.07</b>	<b>18.93</b>	<b>19.82</b>	<b>20.75</b>

Variable Cost for FY 2020-21	5.26	Rs/kWh
Levillised Tariff (Fixed)	2.60	Rs/kWh
<b>Levillised Tariff -FY 2020-21</b>	<b>7.86</b>	<b>Rs/kWh</b>

Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

  

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14

  

Tax Benefit Levillised	5.54	Rs/kWh
Electricity Generation (Levillised)	6.41	Rs/kWh
<b>Levillised benefit</b>	<b>0.09</b>	<b>Rs/kWh</b>



Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4C
				State	Maharashtra
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3872.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
<b>Units Generation</b>	Unit	Year																											
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Net Generation	MU			6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	
<b>Variable Cost</b>	Unit	Year																											
Biomass Cost	Rs. Lakh			360.63	378.66	397.60	417.48	438.35	460.27	483.28	507.45	532.82	559.46	587.43	616.81	647.65	680.03	714.03	749.73	787.22	826.58	867.91	911.30	956.87	1004.71	1054.95	1107.69	1163.08	
<b>Fixed Cost</b>	Unit	Year																											
O&M Expenses	Rs Lakh			61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35	
Depreciation	Rs Lakh			20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	
Interest on term loan	Rs Lakh			29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			22.25	23.25	24.30	25.41	26.57	27.79	29.08	30.42	31.84	33.32	34.88	36.52	38.24	40.04	41.93	43.77	45.88	48.10	50.43	52.87	55.52	58.21	61.03	63.99	67.09	
Return on Equity	Rs Lakh			22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	
<b>Total Fixed Cost</b>	Rs Lakh			155.79	157.14	158.64	160.28	162.08	164.03	166.15	168.45	170.92	173.58	176.44	179.50	182.78	186.28	190.01	183.02	189.27	195.79	202.58	209.65	223.17	230.85	238.86	247.20	255.90	

Levillised tariff corresponding to Useful life				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
<b>Per Unit Cost of Generation</b>	Unit	Year																											
Per unit Variable Cost	Rs/kWh			8.38	5.38	5.65	5.93	6.23	6.54	6.86	7.21	7.57	7.95	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.33	12.94	13.59	14.27	14.98	15.73	16.52	17.34
O&M expn	Rs/kWh			1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh			0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Int. on term loan	Rs/kWh			0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh			0.50	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.60	0.63	0.65	0.68	0.72	0.75	0.79	0.83	0.87	0.91	0.95	1.00
RoE	Rs/kWh			0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
<b>Total COG</b>	Rs/kWh			10.99	7.70	7.99	8.29	8.62	8.95	9.31	9.68	10.08	10.49	10.93	11.39	11.87	12.38	12.92	13.48	13.91	14.56	15.25	15.96	16.72	17.60	18.42	19.29	20.20	21.16

Variable Cost for FY 2020-21	5.38	Rs/kWh
Levillised Tariff (Fixed)	2.61	Rs/kWh
<b>Levillised Tariff -FY 2020-21</b>	<b>7.99</b>	<b>Rs/kWh</b>

Determination of AD for Biomass Gasifier based Power Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.00
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.00

Tax Benefit Levillised	5.54	Rs/kWh
Electricity Generation (Levillised)	6.41	Rs/kWh
<b>Levillised benefit</b>	<b>0.09</b>	<b>Rs/kWh</b>

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Punjab Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3960.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

### CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
Units Generation	Unit	Year→																									
Installed Capacity	MW		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Variable Cost	Unit	Year→																									
Biomass Cost	Rs. Lakh		368.83	387.27	406.63	426.97	448.31	470.73	494.27	518.98	544.93	572.18	600.78	630.82	662.36	695.48	730.26	766.77	805.11	845.36	887.63	932.01	978.61	1027.55	1078.92	1132.87	1189.51
Fixed Cost	Unit	Year→																									
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.67	23.70	24.77	25.90	27.09	28.34	29.65	31.02	32.47	33.98	35.57	37.25	39.00	40.84	42.78	44.85	46.81	49.08	51.45	53.95	56.65	59.39	62.27	65.29	68.46
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>196.21</b>	<b>157.59</b>	<b>159.11</b>	<b>160.77</b>	<b>162.59</b>	<b>164.57</b>	<b>166.72</b>	<b>169.04</b>	<b>171.55</b>	<b>174.24</b>	<b>177.13</b>	<b>180.23</b>	<b>183.54</b>	<b>187.08</b>	<b>190.85</b>	<b>183.91</b>	<b>190.20</b>	<b>196.77</b>	<b>203.60</b>	<b>210.73</b>	<b>224.30</b>	<b>232.04</b>	<b>240.10</b>	<b>248.51</b>	<b>257.27</b>
Levelised tariff corresponding to Useful life																											
Per Unit Cost of Generation	Unit																										
Per unit Variable Cost	Rs/kWh	<b>8.57</b>	5.50	5.78	6.06	6.37	6.69	7.02	7.37	7.74	8.13	8.53	8.96	9.41	9.88	10.37	10.89	11.43	12.01	12.61	13.24	13.90	14.59	15.32	16.09	16.89	17.74
O&M exn	Rs/kWh	<b>1.27</b>	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	<b>0.28</b>	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh	<b>0.22</b>	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	<b>0.51</b>	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.80	0.84	0.89	0.93	0.97	1.02
RoE	Rs/kWh	<b>0.34</b>	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
<b>Total COG</b>	<b>Rs/kWh</b>	<b>11.19</b>	<b>7.83</b>	<b>8.12</b>	<b>8.44</b>	<b>8.76</b>	<b>9.11</b>	<b>9.47</b>	<b>9.86</b>	<b>10.26</b>	<b>10.68</b>	<b>11.13</b>	<b>11.60</b>	<b>12.09</b>	<b>12.61</b>	<b>13.16</b>	<b>13.74</b>	<b>14.18</b>	<b>14.84</b>	<b>15.54</b>	<b>16.27</b>	<b>17.04</b>	<b>17.94</b>	<b>18.78</b>	<b>19.67</b>	<b>20.60</b>	<b>21.57</b>
Variable Cost for FY 2020-21	5.50	Rs/kWh																									
Levelised Tariff (Fixed)	2.62	Rs/kWh																									
<b>Levelised Tariff -FY 2020-21</b>	<b>8.12</b>	<b>Rs/kWh</b>																									
Determination of AD for Biomass Gasifier based Power Project																											
Depreciation amount	90%																										
Book Depreciation rate	5%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17%																										
Income Tax (Normal Rates)	35%																										
Capital Cost (Rs./Lakh)	443.00																										
Years	Unit																										
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.26	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0						

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Rajasthan Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3305.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																												
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71		
Variable Cost																														
Biomass Cost	Rs. Lakh		307.82	323.21	339.38	356.34	374.16	392.87	412.51	433.14	454.80	477.54	501.41	526.48	552.81	580.45	609.47	639.94	671.94	705.54	740.81	777.85	816.75	857.58	900.46	945.49	992.76			
Fixed Cost																														
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35			
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69		
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Interest on working Capital	Rs Lakh		19.50	20.37	21.28	22.24	23.24	24.29	25.40	26.56	27.78	29.07	30.41	31.83	33.31	34.87	36.50	38.06	39.89	41.81	43.83	45.94	48.24	50.75	53.00	55.56	58.24			
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55		
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>153.05</b>	<b>154.26</b>	<b>155.61</b>	<b>157.11</b>	<b>158.74</b>	<b>160.53</b>	<b>162.48</b>	<b>164.59</b>	<b>166.87</b>	<b>169.33</b>	<b>171.97</b>	<b>174.81</b>	<b>177.85</b>	<b>181.11</b>	<b>184.58</b>	<b>177.32</b>	<b>183.29</b>	<b>189.50</b>	<b>195.98</b>	<b>202.72</b>	<b>215.89</b>	<b>223.21</b>	<b>230.83</b>	<b>238.78</b>	<b>247.05</b>			
Levilled tariff corresponding to Useful life																														
<b>Per Unit Cost of Generation</b>																														
Per unit Variable Cost	Rs/kWh	<b>7.15</b>	4.59	4.82	5.06	5.31	5.58	5.86	6.15	6.46	6.78	7.12	7.48	7.85	8.24	8.66	9.09	9.54	10.02	10.52	11.05	11.60	12.18	12.79	13.43	14.10	14.80			
O&M expn	Rs/kWh	<b>1.27</b>	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26			
Depreciation	Rs/kWh	<b>0.28</b>	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31		
Int. on term loan	Rs/kWh	<b>0.22</b>	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Int. on working capital	Rs/kWh	<b>0.44</b>	0.29	0.30	0.32	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.69	0.72	0.75	0.79	0.83	0.87			
ROE	Rs/kWh	<b>0.34</b>	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34		
<b>Total COG</b>	<b>Rs/kWh</b>	<b>9.70</b>	<b>6.87</b>	<b>7.12</b>	<b>7.38</b>	<b>7.66</b>	<b>7.95</b>	<b>8.25</b>	<b>8.57</b>	<b>8.91</b>	<b>9.27</b>	<b>9.65</b>	<b>10.04</b>	<b>10.46</b>	<b>10.90</b>	<b>11.36</b>	<b>11.84</b>	<b>12.19</b>	<b>12.75</b>	<b>13.35</b>	<b>13.97</b>	<b>14.62</b>	<b>15.40</b>	<b>16.12</b>	<b>16.87</b>	<b>17.66</b>	<b>18.49</b>			
Variable Cost for FY 2020-21																														
		4.59																												
		Rs/kWh																												
Levilled Tariff (Fixed)																														
		2.55																												
		Rs/kWh																												
Levilled Tariff -FY 2020-21																														
		7.14																												
		Rs/kWh																												
Determination of AD for Biomass Gasifier based Power Project																														
Depreciation amount 90%																														
Book Depreciation rate 5%																														
Tax Depreciation rate 40%																														
Additional Depreciation 20%																														
Income Tax (MAT) 17%																														
Income Tax (Normal Rates) 35%																														
Capital Cost (Rs./Lakh) 443.00																														
Years ----->																														
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Accelerated Depreciation																														
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Net Depreciation Benefit																														
Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71		
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14	0.14	0.14		
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.16	0.16	0.16	0.16		
Tax Benefit Levilled																														
		5.54																												
		Rs/kWh																												
Electricity Generation (Levilled)																														
		6.41																												
		Rs/kWh																												
Levilled benefit																														
		0.09																												
		Rs/kWh																												

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Tamil Nadu Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3272.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																										
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	
Variable Cost		Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		304.75	319.99	335.99	352.79	370.43	388.95	408.39	428.81	450.25	472.77	496.41	521.23	547.29	574.65	603.38	633.55	665.23	698.49	733.42	770.09	808.59	849.02	891.47	936.05	982.85	
Fixed Cost		Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35	
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.34	20.20	21.10	22.05	23.05	24.09	25.19	26.34	27.55	28.82	30.15	31.55	33.02	34.57	36.19	37.73	39.55	41.45	43.44	45.54	47.82	50.12	52.54	55.07	57.73	
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>152.89</b>	<b>154.10</b>	<b>155.44</b>	<b>156.92</b>	<b>158.55</b>	<b>160.33</b>	<b>162.26</b>	<b>164.36</b>	<b>166.63</b>	<b>169.08</b>	<b>171.71</b>	<b>174.54</b>	<b>177.57</b>	<b>180.80</b>	<b>184.26</b>	<b>176.99</b>	<b>182.94</b>	<b>189.14</b>	<b>195.59</b>	<b>202.32</b>	<b>215.47</b>	<b>222.76</b>	<b>230.37</b>	<b>238.29</b>	<b>246.54</b>	

Per Unit Cost of Generation		Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Per unit Variable Cost	Rs/kWh		7.08	4.54	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.57	9.00	9.45	9.92	10.42	10.94	11.48	12.06	12.66	13.29	13.96	14.66
O&M expn	Rs/kWh		1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh		0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh		0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.43	0.29	0.30	0.31	0.33	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86
ROE	Rs/kWh		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
<b>Total COG</b>	<b>Rs/kWh</b>		<b>9.63</b>	<b>6.82</b>	<b>7.07</b>	<b>7.33</b>	<b>7.60</b>	<b>7.89</b>	<b>8.19</b>	<b>8.51</b>	<b>8.85</b>	<b>9.20</b>	<b>9.57</b>	<b>9.96</b>	<b>10.38</b>	<b>10.81</b>	<b>11.27</b>	<b>11.75</b>	<b>12.09</b>	<b>12.65</b>	<b>13.24</b>	<b>13.85</b>	<b>14.50</b>	<b>15.27</b>	<b>15.98</b>	<b>16.73</b>	<b>17.51</b>	<b>18.33</b>

Variable Cost for FY 2020-21	4.54	Rs/kWh
Levelised Tariff (Fixed)	2.54	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>7.09</b>	<b>Rs/kWh</b>

Determination of AD for Biomass Gasifier based Power Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.26	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14	
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.14	

Tax Benefit Levelised	5.54	Rs/kWh
Electricity Generation (Levelised)	6.41	Rs/kWh
<b>Levelised benefit</b>	<b>0.09</b>	<b>Rs/kWh</b>



Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4G
				State	Telangana
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
MAT Rate	%		17.47%		
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	61.31	
		O&M expenses p.a	Rs. Lakh	61.31	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	15.00%	
		Receivables	Days	1.5	
		Biomass Stock	Months	4	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Fuel Price	Rs./T	3326.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

## CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																										
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Biomass Cost	Rs. Lakh		309.78	325.27	341.53	358.61	376.54	395.37	415.13	435.89	457.69	480.57	504.60	529.83	556.32	584.14	613.34	644.01	676.21	710.02	745.52	782.80	821.94	863.03	906.19	951.50	999.07	
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35	
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.60	20.48	21.39	22.35	23.36	24.42	25.54	26.71	27.93	29.22	30.58	32.00	33.49	35.06	36.70	38.28	40.12	42.05	44.07	46.20	48.51	50.85	53.30	55.87	58.57	
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>153.15</b>	<b>154.37</b>	<b>155.73</b>	<b>157.22</b>	<b>158.87</b>	<b>160.66</b>	<b>162.61</b>	<b>164.73</b>	<b>167.02</b>	<b>169.48</b>	<b>172.14</b>	<b>174.99</b>	<b>178.04</b>	<b>181.30</b>	<b>184.78</b>	<b>177.53</b>	<b>183.51</b>	<b>189.74</b>	<b>196.22</b>	<b>202.98</b>	<b>216.16</b>	<b>223.49</b>	<b>231.13</b>	<b>239.09</b>	<b>247.38</b>	

Levilled tariff corresponding to Useful life																											
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Per unit Variable Cost	Rs/kWh	<b>7.20</b>	4.62	4.85	5.09	5.35	5.61	5.90	6.19	6.50	6.83	7.17	7.52	7.90	8.30	8.71	9.15	9.60	10.08	10.59	11.12	11.67	12.26	12.87	13.51	14.19	14.90
O&M expn	Rs/kWh	<b>1.27</b>	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	<b>0.28</b>	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh	<b>0.22</b>	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	<b>0.44</b>	0.29	0.31	0.32	0.33	0.35	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.79	0.83	0.87
RoE	Rs/kWh	<b>0.34</b>	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
<b>Total COG</b>	<b>Rs/kWh</b>	<b>9.75</b>	<b>6.90</b>	<b>7.15</b>	<b>7.42</b>	<b>7.69</b>	<b>7.98</b>	<b>8.29</b>	<b>8.62</b>	<b>8.96</b>	<b>9.32</b>	<b>9.69</b>	<b>10.09</b>	<b>10.51</b>	<b>10.95</b>	<b>11.41</b>	<b>11.90</b>	<b>12.25</b>	<b>12.82</b>	<b>13.42</b>	<b>14.04</b>	<b>14.70</b>	<b>15.48</b>	<b>16.20</b>	<b>16.96</b>	<b>17.75</b>	<b>18.59</b>

Variable Cost for FY 2020-21	4.62	Rs/kWh
Levilled Tariff (Fixed)	2.55	Rs/kWh
<b>Levilled Tariff -FY 2020-21</b>	<b>7.17</b>	<b>Rs/kWh</b>

### Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levilled	5.54	Rs/kWh
Electricity Generation (Levilled)	6.41	Rs/kWh
<b>Levilled benefit</b>	<b>0.69</b>	<b>Rs/kWh</b>

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Uttar Pradesh Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3384.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		315.18	330.94	347.49	364.86	383.11	402.26	422.37	443.49	465.67	488.95	513.40	539.07	566.02	594.32	624.04	655.24	688.00	722.40	758.52	796.45	836.27	878.08	921.99	968.09	1016.49
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.88	20.77	21.70	22.68	23.70	24.78	25.91	27.10	28.35	29.66	31.03	32.48	34.00	35.59	37.26	38.86	40.73	42.69	44.75	46.91	49.26	51.63	54.12	56.73	59.48
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>153.43</b>	<b>154.66</b>	<b>156.04</b>	<b>157.55</b>	<b>159.21</b>	<b>161.02</b>	<b>162.99</b>	<b>165.12</b>	<b>167.43</b>	<b>169.92</b>	<b>172.59</b>	<b>175.47</b>	<b>178.54</b>	<b>181.83</b>	<b>185.33</b>	<b>189.11</b>	<b>193.14</b>	<b>197.43</b>	<b>201.99</b>	<b>206.83</b>	<b>211.93</b>	<b>217.29</b>	<b>222.92</b>	<b>228.83</b>	<b>234.99</b>

Levilled tariff corresponding to Useful life																											
Per Unit Cost of Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Per unit Variable Cost	Rs/kWh	7.32	4.70	4.94	5.18	5.44	5.71	6.00	6.30	6.61	6.94	7.29	7.66	8.04	8.44	8.86	9.31	9.77	10.26	10.77	11.31	11.88	12.47	13.09	13.75	14.44	15.16
O&M expn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.44	0.30	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.81	0.85	0.89
ROE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
<b>Total COG</b>	<b>Rs/kWh</b>	<b>9.88</b>	<b>6.99</b>	<b>7.24</b>	<b>7.51</b>	<b>7.79</b>	<b>8.09</b>	<b>8.40</b>	<b>8.73</b>	<b>9.08</b>	<b>9.44</b>	<b>9.83</b>	<b>10.23</b>	<b>10.66</b>	<b>11.10</b>	<b>11.57</b>	<b>12.07</b>	<b>12.43</b>	<b>13.01</b>	<b>13.61</b>	<b>14.25</b>	<b>14.91</b>	<b>15.70</b>	<b>16.44</b>	<b>17.21</b>	<b>18.01</b>	<b>18.86</b>

Variable Cost for FY 2020-21	4.70	Rs/kWh
Levilled Tariff (Fixed)	2.56	Rs/kWh
<b>Levilled Tariff -FY 2020-21</b>	<b>7.26</b>	<b>Rs/kWh</b>

Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levilled	5.54	Rs/kWh
Electricity Generation (Levilled)	6.41	Rs/kWh
<b>Levilled benefit</b>	<b>0.09</b>	<b>Rs/kWh</b>

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4I Other States
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
MAT Rate	%		17.47%		
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	61.31	
		O&M expenses p.a	Rs. Lakh	61.31	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	15.00%	
		Receivables	Days	1.5	
		Biomass Stock	Months	4	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Fuel Price	Rs./T	3557.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

**CERC RE Tariff Order FY 2020-21**

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		331.29	347.86	365.25	383.51	402.69	422.83	443.97	466.16	489.47	513.95	539.64	566.63	594.96	624.71	655.94	688.74	723.17	759.33	797.30	837.16	879.02	922.97	969.12	1017.58	1068.46
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		20.72	21.65	22.62	23.65	24.72	25.85	27.03	28.28	29.59	30.96	32.40	33.91	35.50	37.17	38.92	40.60	42.56	44.61	46.76	49.02	51.48	53.96	56.57	59.31	62.18
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>154.26</b>	<b>155.54</b>	<b>156.96</b>	<b>158.52</b>	<b>160.22</b>	<b>162.09</b>	<b>164.11</b>	<b>166.30</b>	<b>168.67</b>	<b>171.22</b>	<b>173.96</b>	<b>176.90</b>	<b>180.04</b>	<b>183.40</b>	<b>186.99</b>	<b>179.85</b>	<b>185.95</b>	<b>192.30</b>	<b>198.91</b>	<b>205.80</b>	<b>219.13</b>	<b>226.61</b>	<b>234.40</b>	<b>242.52</b>	<b>250.99</b>

Per Unit Cost of Generation		Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Per unit Variable Cost	Rs/kWh	7.70	4.94	5.19	5.45	5.72	6.00	6.31	6.62	6.95	7.30	7.66	8.05	8.45	8.87	9.32	9.78	10.27	10.78	11.32	11.89	12.48	13.11	13.76	14.45	15.17	15.93
O&M expn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.61	0.63	0.67	0.70	0.73	0.77	0.80	0.84	0.88	0.93
RoE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
<b>Total COG</b>	<b>Rs/kWh</b>	<b>10.27</b>	<b>7.24</b>	<b>7.51</b>	<b>7.79</b>	<b>8.08</b>	<b>8.39</b>	<b>8.72</b>	<b>9.07</b>	<b>9.43</b>	<b>9.81</b>	<b>10.22</b>	<b>10.64</b>	<b>11.09</b>	<b>11.56</b>	<b>12.05</b>	<b>12.57</b>	<b>12.95</b>	<b>13.56</b>	<b>14.19</b>	<b>14.86</b>	<b>15.55</b>	<b>16.38</b>	<b>17.14</b>	<b>17.95</b>	<b>18.79</b>	<b>19.68</b>

Variable Cost for FY 2020-21	4.94	Rs/kWh
Levelised Tariff (Fixed)	2.58	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>7.52</b>	<b>Rs/kWh</b>

**Determination of AD for Biomass Gasifier based Power Project**

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levelised	5.54	Rs/kWh
Electricity Generation (Levelised)	6.41	Rs/kWh
<b>Levelised benefit</b>	<b>0.09</b>	<b>Rs/kWh</b>

CERC RE Tariff Order FY 2020-21

Assumption for Biogas based Project Parameters					Annexure 5A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	12%
			Plant Load Factor	%	90%
			Useful Life	Years	25.00
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	1,186.00
			Capital Cost	Rs. Lakh	1,186.00
			Capital Subsidy	Rs. Lakh	300.00
			Net Capital Cost	Rs. Lakh	886.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25.00
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	620.20
			Total Equity Amount	Rs. Lakh	265.80
			Loan Amount	Rs. Lakh	620.20
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	265.80
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
		Depreciation	MAT Rate	%	17.47%
			Depreciation Rate for 1st 15 years	%	4.67%
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	61.31
O&M expenses p.a			Rs. Lakh	61.31	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a		Month	1
		Maintenance Spares	% of O&M exepenses	%	15%
		Receivables		Days	45
		Interest on Working Capital		% per annum	11.17%
6	Fuel Related Assumptions	Biogas	Fuel Price	Rs./T	1422.00
			Specific Fuel Consumption	kg/kWh	3.00
			Substrates price escalation factor	%	5%
7	Generation and Sale of Power	Number of Hours		Hours	8,766.00

### CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biogas Based Power Project																									
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Generation	MU		6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94

  

Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		336.56	353.39	371.06	389.61	409.09	429.55	451.03	473.58	497.26	522.12	548.22	575.63	604.42	634.64	666.37	699.69	734.67	771.41	809.98	850.47	893.00	937.65	984.53	1,033.76	1,085.45

  

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35
Interest on term loan	Rs Lakh		58.00	54.00	50.00	46.00	42.00	38.00	34.00	30.00	26.00	22.00	18.00	14.00	10.00	6.00	2.00	-	-	-	-	-	-	-	-	-	-
Interest on working Capital	Rs Lakh		22.02	22.93	23.89	24.90	25.96	27.08	28.25	29.49	30.79	32.15	33.58	35.09	36.67	38.34	40.08	41.61	43.60	45.68	47.87	50.16	52.73	55.25	57.90	60.68	63.59
Return on Equity	Rs Lakh		45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09
<b>Total Fixed Cost</b>	<b>Rs Lakh</b>		<b>227.77</b>	<b>227.03</b>	<b>226.43</b>	<b>225.98</b>	<b>225.68</b>	<b>225.53</b>	<b>225.54</b>	<b>225.73</b>	<b>226.08</b>	<b>226.63</b>	<b>227.36</b>	<b>228.30</b>	<b>229.44</b>	<b>230.80</b>	<b>232.38</b>	<b>212.27</b>	<b>218.39</b>	<b>224.77</b>	<b>231.42</b>	<b>238.35</b>	<b>257.84</b>	<b>265.36</b>	<b>273.19</b>	<b>281.35</b>	<b>289.86</b>

**Levelised tariff corresponding to Useful life**

Per Unit Cost of Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Per unit Variable Cost	Rs/kWh		4.85	5.09	5.34	5.61	5.89	6.19	6.50	6.82	7.16	7.52	7.90	8.29	8.71	9.14	9.60	10.08	10.58	11.11	11.67	12.25	12.86	13.51	14.18	14.89	15.63
O&M expn	Rs/kWh	<b>1.23</b>	0.88	0.92	0.95	0.99	1.03	1.07	1.11	1.15	1.19	1.24	1.29	1.34	1.39	1.44	1.50	1.55	1.61	1.67	1.74	1.81	1.88	1.95	2.02	2.10	2.18
Depreciation	Rs/kWh	<b>0.53</b>	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Int. on term loan	Rs/kWh	<b>0.42</b>	0.84	0.78	0.72	0.66	0.60	0.55	0.49	0.43	0.37	0.32	0.26	0.20	0.14	0.09	0.03	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	<b>0.47</b>	0.32	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.72	0.76	0.80	0.83	0.87	0.92
RoE	Rs/kWh	<b>0.66</b>	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
<b>Total COG</b>	<b>Rs/kWh</b>	<b>3.31</b>	<b>8.13</b>	<b>8.36</b>	<b>8.61</b>	<b>8.87</b>	<b>9.14</b>	<b>9.44</b>	<b>9.75</b>	<b>10.07</b>	<b>10.42</b>	<b>10.78</b>	<b>11.17</b>	<b>11.58</b>	<b>12.01</b>	<b>12.47</b>	<b>12.95</b>	<b>13.14</b>	<b>13.73</b>	<b>14.35</b>	<b>15.00</b>	<b>15.68</b>	<b>16.58</b>	<b>17.33</b>	<b>18.12</b>	<b>18.94</b>	<b>19.81</b>

Variable Cost for FY 2020-21	4.85	Rs/kWh
Levelised Tariff (Fixed)	3.31	Rs/kWh
<b>Levelised Tariff -FY 2020-21</b>	<b>8.16</b>	<b>Rs/kWh</b>

**Determination of AD for Biogas based Power Project**

Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	886.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	23.39	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	25.52	-	-	-	-	-	-	-

**Accelerated Depreciation**

Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depreciation	Rs Lakh	265.80	310.10	124.04	74.42	44.65	26.79	16.08	9.65	5.79	3.47	2.08	1.25	0.75	0.45	0.27	0.16	0.10	0.06	0.03	0.02	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	242.41	263.32	77.26	27.64	- 2.13	- 19.99	- 30.71	- 37.14	- 40.99	- 43.31	- 44.70	- 45.53	- 46.03	- 46.33	- 46.51	- 46.62	- 46.68	- 25.46	0.03	0.02	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	84.71	92.01	27.00	9.66	- 0.74	- 6.98	- 10.73	- 12.98	- 14.32	- 15.13	- 15.62	- 15.91	- 16.08	- 16.19	- 16.25	- 16.29	- 16.31	- 8.90	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.47	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94
Per unit benefit	Rs/Unit	2.44	1.33	0.39	0.14	- 0.01	- 0.10	- 0.15	- 0.19	- 0.21	- 0.22	- 0.22	- 0.22	- 0.23	- 0.23	- 0.23	- 0.23	- 0.23	- 0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levelised	11.09	Rs/kWh
Electricity Generation (Levelised)	6.64	Rs/kWh
<b>Levelised benefit</b>	<b>0.17</b>	<b>Rs/kWh</b>