

CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 2/SM/2021 (Suo-Motu)

Coram:

- 1. Shri P.K. Pujari, Chairperson**
- 2. Shri I.S. Jha, Member**
- 3. Shri Arun Goyal, Member**
- 4. Shri Pravas Kumar Singh, Member**

Date: 31st March, 2021

IN THE MATTER OF

Determination of levellised generic tariff for FY 2021-22 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 has notified the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 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 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 second year of the control period (i.e. FY 2021-22) .

5. For this purpose, the Commission issued a Public Notice on 18.02.2021 along with a proposal for “Determination of levellised tariff tariff for FY 2021-22 under Regulation 8 of the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 and invited comments/ suggestions/ objections from the stakeholders. The last date for submission of comments/ suggestions/ objections was 05.03.2021. One stakeholder (North Bihar Power Distribution Co. Ltd) requested for extension of time for submission of comments. In view of the fact that adequate time of about 15 days has been provided for this purpose and also the fact that the order needs to be issued before 31.03.2021, any extension of time will not be appropriate.

6. In response to this public notice, written comments/ suggestions/ objections were received from Venika Hydro Projects Ltd.

7. The Commission has considered the comments/ suggestions/ objections of the stakeholders and the analyses/ decisions of the Commission thereon are as dealt with in relevant paragraphs of this order.

8. Capital cost of Small Hydro Projects (SHP)

Commission's Proposal

8.1 As regards the Capital Cost of Small Hydro Projects, Regulation 27 of the RE Tariff Regulations specifies as under:

"27. Capital Cost

(1) The normative capital cost for small hydro projects during the first year of control period i.e. financial year 2020-21 shall be as follows:

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

(2) The capital cost for small hydro projects as specified for first year of the Control Period shall remain valid for the entire duration of the Control Period unless reviewed earlier by the Commission."

Comments Received

8.2 Venika Hydro Projects Pvt Ltd has submitted that due to increase in cost of cement, steel and fuel, the construction cost for other States in the category of 5 MW to 25 MW will exceed Rs. 1100 lakhs/MW. Therefore, it has requested to reconsider the capital cost of Rs 1100 lakhs/MW for this category.

Analysis and Decision

8.3 The capital cost for small hydro projects considered for generic tariff

determination is as per the provisions of the RE Tariff Regulations. Any change in the Capital Cost is outside the scope of the present exercise of determination of levellised generic tariff. In view of the above, the Commission has decided to continue with the Capital Cost as per the proposal dated 18.02.2021.

9. Return on Equity

Commission's Proposal

9.1 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.”

Comments Received

9.2 Venika Hydro Projects Pvt Ltd has submitted that the normative Return on Equity should be at least 16% as per standard business practices.

Analysis and Decision

9.3 The Return on Equity considered for generic tariff determination is as per the provisions of 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 decided to continue with the rate of return on equity as per the proposal dated 18.02.2021.

10. Loan Tenure

Commission's Proposal

10.1 As regards loan tenure, Clause (1) of Regulation 14 of the RE Tariff Regulations specifies as under:

“(1) Loan Tenure

For determination of generic tariff and project specific tariff, loan tenure of 15 years shall be considered.”

Comments Received

10.2 Venika Hydro Projects Pvt Ltd has requested to consider the loan repayment tenure of 20 years.

Analysis and Decision

10.3 The Loan Tenure considered for generic tariff determination is as per the provisions of the RE Tariff Regulations. Any change in the tenure of the loan is outside the scope of the present exercise of determination of levellised generic tariff. In view of the above, the Commission has decided to continue with the loan tenure as per the proposal dated 18.02.2021.

11. Interest on Loan

Commission's Proposal

11.1 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.”*

11.2 Accordingly, the Commission has considered the rate of interest of 9 % for determination generic tariff for RE projects for FY 2021-22.

Comments Received

11.3 Venika Hydro Projects Pvt Ltd has suggested to consider the rate of interest as per interest rates stipulated by Indian Renewable Energy Development Agency (IREDA) as 10.45%.

Analysis and Decision

11.4 The Rate of Interest considered for generic tariff determination is as per the provisions of 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 decided to continue with the rate of interest per the proposal dated 18.02.2021.

12. Operation and Maintenance (O&M) Expenses

Commission's Proposal

12.1 Regulation 19 of the RE Tariff Regulations specifies 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."*

12.2 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 Projects (SHP):** Regulation 30 of the 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 2021-22:

Region	Project Size	O&M Expenses FY 2020-21 (Rs Lakh/MW)	O&M Expenses FY 2021-22 (Rs Lakh/MW)
Himachal Pradesh, Uttarakhand, WestBengal, Union Territory of Jammu and Kashmir, Union	Below 5 MW	41.78	43.38
	5 MW to 25 MW	31.34	32.54

Territory of Ladakh and North Eastern States			
Other States	Below 5 MW	33.66	34.95
	5 MW to 25 MW	24.37	25.31

- (b) **Biomass power projects with rankine cycle technology:** 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) is Rs. 46.42 lakh per MW which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for Biomass-based projects as Rs 48.20 lakhs per MW for FY 2021-22.
- (c) **Non-Fossil Fuel based Cogeneration Projects:** As per Regulation 45 of RE Tariff Regulations, the normative O&M expenses for non-fossil fuel based co-generation projects for the first year of the Control Period (FY 2020-21) is Rs. 24.52 lakh per MW which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for non-fossil fuel based co-generation projects as Rs 25.46 lakhs per MW for FY 2021-22.
- (d) **Biomass Gasifier based power projects:** As per Regulation 54 of the RE Tariff Regulations, normative O&M expenses for Biomass Gasifier based power projects is Rs. 61.31 lakh/MW for the first year of Control Period (FY 2020-21) which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for Biomass Gasifier based power projects as Rs 63.66 lakh per MW for FY 2021-22.
- (e) **Biogas based power projects:** As per Regulation 59 of the RE Tariff Regulations, normative O&M expenses for such projects is Rs. 61.31 lakh/MW for the first year of Control Period (FY 2020-21) which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified O&M expense norm for

such projects as Rs 63.66 lakh per MW for FY 2021-22.

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

Comments Received

12.4 Venika Hydro Projects Pvt Ltd. has suggested to consider O&M cost escalation at 10% per annum.

Commission's Proposal

12.5 The O&M expenses and the escalation rate for O&M expenses considered for generic tariff determination are as per provisions of 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 has decided to apply the normative O&M Expenses and escalation rate for O&M expenses as specified in RE Tariff Regulations for different RE technologies.

13. 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 2021-22 as enclosed in Annexure – I to this Order.

Sd/-
[Pravas Kumar Singh]
Member

Sd/-
[Arun Goyal]
MEMBER

Sd/-
[Indu Shekhar Jha]
MEMBER

Sd/-
[P.K. Pujari]
CHAIRPERSON

New Delhi, 31.03.2021



ANNEXURE 1

LEVELLISED GENERIC TARIFF FOR VARIOUS RENEWABLE ENERGY TECHNOLOGIES FOR FY 2021-22

1. The levellised generic tariffs for Small Hydro Projects, Biomass Power Projects with Rankine Cycle Technology, Non-fossil Fuel-based Co-generation Projects, Biomass Gasifier based Power Projects and Biogas based Power Projects, for FY 2021-22 are discussed in following paragraphs.

2. For RE projects covered under Regulation 7 of the RE Tariff Regulations, the Commission is required to determine project specific tariff. A separate petition is required to be filed by the person seeking tariff 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, as under:

Renewable Energy Projects	Years
Small HydroProjects	40
Biomass power project with Rankine Cycle technology	25
Non-fossil Fuel-based Co-generation Projects	25
Biomass Gasifierbased Power Projects	25
Biogasbased Power Projects	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 proviso to this Regulation 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 by the Commission vide order 13/SM/2020

dated 21st July 2020, is applicable for RE projects commissioned during first year of the control period. The tariff to be determined via this order is for the second year of the control period, which shall be applicable for the Projects commissioned during the period from April 1, 2021 till March 31, 2022.

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 projects, biomass gasifier based power projects and biogas based power projects, 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.

F. Discount Factor

9. Regulation 10(2) of the RE Tariff Regulations specifies methodology to calculate discount factor for the purpose of levellised tariff computation as under:

“10. Tariff Design

... ..

(2) For the purpose of levellised 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). 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%. 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%¹. Accordingly, the discount factor derived by this method for all technologies is 8.30%.

$$(Discount\ Factor = \{(9\% \times 0.70) \times (1 - 34.94\%)\} + (14.0\% \times 0.30)) = 8.30\%$$

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 the RE Tariff Regulations, applicable for the second year of control

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

period i.e. FY 2021-22, for various RE technologies viz. Small Hydro Projects, Biomass Power Projects based on Rankine Cycle Technology, Non-Fossil Fuel based Cogeneration Projects, Biomass Gasifier based power projects and Biogas based power projects. The capital cost of RE projects is discussed as under:

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. Normative capital cost for small hydro projects for FY 2021-22 in accordance to Regulation 27(1) of the RE Tariff Regulations as under:

Region	Projects Size	Capital Cost (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	1100
	5 MW to 25 MW	1100
Other States	Below 5 MW	780
	5 MW to 25 MW	900

Capital cost of Biomass Power Projects based on Rankine Cycle Technology

16. Regulation 31 of the RE Tariff Regulations has specified the normative capital cost for Biomass based Power Projects for FY 2021-22 as under:

Biomass Rankine Cycle Projects	Capital Cost (Rs lakh/ MW)
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, for a project to qualify as non-fossil based co-generation project, it 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. Regulation 39 of the RE Tariff Regulations has specified normative capital cost for the Non-Fossil Fuel Based Cogeneration Projects as Rs.492 lakh/MW for FY 2021-22.

Capital cost of Biomass Gasifier Power Projects

19. Regulation 50 of the RE Tariff Regulations has specified the normative capital cost for Biomass Gasifier power projects as Rs. 593 lakh/MW for FY 2021-22. 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 2021-22.

Capital cost of Biogas based Power Projects

20. Regulation 56 of the RE Tariff Regulations has specified the normative capital cost for Biogas based power projects as Rs. 1186 lakh/MW for FY 2021-22. 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 2021-22.

21. The capital cost for FY 2021-22 in respect of various renewable energy power generating stations is summarized as following:

Renewable Energy Projects	Net Capital Cost Norm for FY 2021-22
Small Hydro Projects	
Himachal Pradesh, Uttarakhand, WestBengal, Union Territory of Jammu andKashmir, Union Territory of Ladakh andNorth Eastern States (Below 5 MW)	Rs.1100 lakh/MW
Himachal Pradesh, Uttarakhand, WestBengal, Union Territory of Jammu andKashmir, Union Territory of Ladakh andNorth Eastern States (5 MW to 25 MW)	Rs. 1100 lakh / MW
Other States (Below 5 MW)	Rs. 780 lakh / MW
Other States (5 MW to 25 MW)	Rs. 900 lakh / MW
Biomass Power Projects Based on Rankine Cycle Technology	
Project [other than rice straw and Juliflora (plantation) based project] with water cooled condenser	Rs. 559 lakh / MW
Project [other than rice straw and Juliflora (plantation) based project] with air cooled condenser	Rs. 600 lakh / MW
Rice straw and Juliflora (plantation) based project with water cooled condenser	Rs. 611 lakh / MW
Rice straw and Juliflora (plantation) based project with air cooled condenser	Rs. 652 lakh / MW
Non-fossil fuel co-generation Projects	Rs. 492 lakh / MW
Biomass Gasifier based Power Projects	Rs. 443 lakh / MW
Biogas based Power Projects	Rs. 886 lakh / MW

H. Debt-Equity Ratio

22. Clause (1) of Regulation 13 of the RE Tariff Regulations specifies debt-equity ratio of 70:30 for determination of generic tariff.

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:

Renewable Energy Projects	Debt Amount (Rs. Lakh)	Equity Amount (Rs. Lakh)	Net Capital Cost (Rs. Lakh)
Small Hydro Projects			
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
Biomass Power Projects Based on Rankine Cycle Technology			
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
Non-fossil fuel based co-generation projects	344.40	147.60	492.00
Biomass Gasifier based Power Projects	310.10	132.90	443.00
Biogas based Power Projects	620.20	265.80	886.00

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% have 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 REprojects, 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:

Effective Date	One (1) Year Tenor MCLR rates²
10.07.2020 to 09.08.2020	7%
10.08.2020 to 09.09.2020	7%
10.09.2020 to 09.10.2020	7%
10.10.2020 to 09.11.2020	7%
10.11.2020 to 09.12.2020	7%
10.12.2020 to 09.01.2021	7%
Avg. for last Available 6 months	7%

28. Accordingly, interest rate for loan component is determined as 9%.

K. Depreciation

29. Regulation 15 of the RE Tariff Regulations specifies for computation of

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

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 16th year onwards is to be spread over the balance useful life of the RE project as under:

Details	Small Hydro Projects	Biomass Power Projects Based on Rankine Cycle Technology	Non-fossil fuel based co-generation projects	Biomass Gasifier based Power Projects	Biogas based Power Projects
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 th 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 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.”

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 projects with rankine cycle technology, non-fossil fuel based cogeneration projects, biomass gasifier based power projects and biogas based power projects) 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 10.50%).

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

Details	Small Hydro Projects	Biomass Power Projects Based on Rankine Cycle Technology, Non-fossil fuel based co-generation projects, Biomass Gasifier based Power Projects and Biogasbased Power Projects.
(a) For Fixed Charge		

Details	Small Hydro Projects	Biomass Power Projects Based on Rankine Cycle Technology, Non-fossil fuel based co-generation projects, Biomass Gasifier based Power Projects and Biogasbased Power Projects.
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		
Biomass/Bagasse Stock (Months)	-	4 month
(c) Rate of Interest (%)	10.50%	10.50%

M. Operation and Maintenance Expenses

35. Regulation 19 of the RE Tariff Regulations specifies 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:

(a) **Small Hydro Projects (SHP):** Regulation 30 of the 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 2021-22:

Region	Project	O&M	O&M
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	Size	Expenses FY 2020-21 (Rs Lakh/ MW)	Expenses FY 2021- 22 (Rs Lakh/MW)
Himachal Pradesh, Uttarakhand, WestBengal, Union Territory of Jammu andKashmir, Union Territory of Ladakh andNorth Eastern States	Below 5 MW	41.78	43.38
	5 MW to 25 MW	31.34	32.54
Other States	Below 5 MW	33.66	34.95
	5 MW to 25 MW	24.37	25.31

- (b) **Biomass power projects with rankine cycle technology:** 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) is Rs. 46.42 lakh per MW which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for Biomass-based projects as Rs 48.20 lakhs per MW for FY 2021-22.
- (c) **Non-Fossil Fuel based Cogeneration Projects:** As per Regulation 45 of RE Tariff Regulations, the normative O&M expenses for non-fossil fuel based co-generation projects for the first year of the Control Period (FY 2020-21) isRs. 24.52 lakh per MW which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for non-fossil fuel based co-generation projects as Rs 25.46 lakhs per MW for FY 2021-22.
- (d) **Biomass Gasifier based power projects:** As per Regulation 54 of the RE Tariff Regulations, normative O&M expenses for Biomass Gasifier based power projects isRs. 61.31 lakh/MW for the first year of Control Period (FY 2020-21) which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified

O&M cost norm for Biomass Gasifier based power projects as Rs 63.66 lakh per MW for FY 2021-22.

(e) **Biogas based power projects:** As per Regulation 59 of the RE Tariff Regulations, normative O&M expenses for such projects is Rs. 61.31 lakh/MW for the first year of Control Period (FY2020-21) which shall be escalated at the rate of 3.84% per annum over the tariff period. Accordingly, the Commission has specified O&M expense norm for such projects as Rs 63.66 lakh per MW for FY 2021-22.

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 extracted 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 Projects as per the details given in the table below:

Small Hydro Projects	CUF (%)
Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States.	45%
Other States	30%

40. Further, the Commission has considered the Plant Load Factor (PLF) for biomass power projects with rankine cycle technology, biomass gasifier based power projects and biogas based power projects as specified in Regulations 32, 51 and 57 respectively of the RE Tariff Regulations, which are given in the following table:

Renewable Energy Projects	PLF (%)
Biomass power projects with rankine cycle technology	80%

Renewable Energy Projects	PLF (%)
Biomass gasifier based power projects	85%
Biogas based power projects	90%

41. Further, as regards Non-fossil Fuel based Co-generation projects, the Commission has considered State-wise PLF as specified in Regulation 40 of the RE Tariff Regulations, which is given in the following table:

States	PLF (%)
Uttar Pradesh & Andhra Pradesh	45%
Tamil Nadu & Maharashtra	60%
Other States	53%

O. Auxiliary Consumption

42. The Commission has considered the auxiliary consumption as specified in Regulations 29, 33, 41, 52 and 58 of the RE Tariff Regulations, which is shown in the following Table:

Renewable Energy Projects	Auxiliary Consumption (%)
(i) Small Hydro Projects	1.00%
(ii) Biomass Power Projects with rankine cycle technology	
a) Using Water Cooled Condenser	10.00%
b) Using Air Cooled Condenser	12.00%
(iii) Non-Fossil fuel based co-generation projects	8.50%
(iv) Biomass Gasifier based power projects	10.00%
(v) Biogas based power projects	12.00%

P. Station Heat Rate

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

Renewable Energy Projects	SHR (kcal/Kwh)
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Biomass power projects with rankine cycle technology	(a) 4200: For projects using travelling grate boilers (b) 4125: For Projects using AFBC boilers
Non-Fossil fuel based cogeneration projects	3600

Q. Fuel Parameters

(a) Fuel Mix

44. 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 projects.

45. 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 projects.

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

(b) Calorific Value

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

48. 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 the RE Tariff Regulations, and for the use of biomass fuels other than bagasse, the calorific value as specified in above paragraph shall be applicable.

(c) Fuel Cost

49. The Commission, as per Regulation 38 of the RE Tariff Regulations, has specified the Biomass fuel price for second year of the Control Period (i.e. FY 2021-22) in the table below. The fuel prices have been derived by escalating the notified prices of first year of control period by 5%. For each subsequent year of the Tariff Period, a normative escalation factor of 5% per annum shall be applicable, unless reviewed and ordered otherwise by the Commission.

States	Biomass Price for FY 2020-21 (Rs/ MT)	Biomass Price for FY 2021-22 (Rs/ MT)
Andhra Pradesh	3,326	3492.3
Haryana	3,786	3975.3
Maharashtra	3,872	4065.6
Punjab	3,960	4158
Rajasthan	3,305	3470.25
Tamil Nadu	3,272	3435.6
Telangana	3,326	3492.3
Uttar Pradesh	3,384	3553.2
Other States	3,557	3734.85

50. The Commission, as per Regulation 44(1) of the RE Tariff Regulations, has specified the Bagasse fuel price during second year of the Control Period (i.e. FY 2021-22) in the following table. The fuel prices have been derived by escalating the notified prices of first year of control period by 5%. For each subsequent year of the Tariff Period, a normative escalation factor of 5% per annum shall be applicable, unless reviewed and ordered otherwise by the Commission.

States	Bagasse Price for FY 2020-21 (Rs/ MT)	Bagasse Price for FY 2021-22 (Rs/ MT)
Andhra Pradesh	1878	1971.9
Haryana	2671	2804.55
Maharashtra	2632	2763.6
Punjab	2351	2468.55
Tamil Nadu	2023	2124.15
Telangana	1877	1970.85
Uttar Pradesh	2095	2199.75
Other States	2274	2387.7

51. As per Regulation 55 of the RE Tariff Regulations, the biomass fuel price for Biomass gasifier based power projects applicable for FY 2021-22 shall be the same as for biomass power projects based on Rankine cycle technology, as determined in accordance with Regulation 38 of the RE Tariff Regulations and specified in Clause 49 of this Order.

52. 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. For each subsequent year of the Tariff Period, a normative escalation factor of 5% per annum shall be applicable, unless reviewed and ordered otherwise by the Commission. For second year of the Control Period (FY 2021-22), the Commission specified the feed stock price for Biogas based power projects as Rs 1493.10/MT (5% escalation over last year price).

R. Subsidy or Incentives by State/Central Government

53. 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"

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

55. In terms of the above regulation, for the projects availing the benefit of accelerated depreciation, 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, 1961 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, 1961.

56. 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 levellised 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 the Income Tax Act, 1961.

57. In the light of the discussions in the preceding paragraphs, the generic tariffs of different RE projects for the financial year 2021-22 have been arrived as follows:

GENERIC TARIFF FOR RE TECHNOLOGIES FOR FY 2021-22

58. The generic tariff for RE technologies computed for FY 2021-22 is shown in the subsequent tables:

Particulars	Levellised Total Tariff (FY 2021-22) (Rs/kWh)
Small Hydro Projects	
Himachal Pradesh, Uttarakhand, West Bengal, North Eastern States and Union Territories of Jammu and Kashmir & Ladakh. (Below 5 MW)	5.15
Himachal Pradesh, Uttarakhand, West Bengal, North Eastern States and Union Territories of Jammu and Kashmir & Ladakh. (5 MW to 25 MW)	4.70
Others States (Below 5 MW)	5.74
Others States (5 MW to 25 MW)	5.68

CERC RE Tariff Order for FY 2021-22

State	Levelling Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of AD (if availed)	Net levellised tariff (upon adjusting for ADBenefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine cycle technology [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and travelling grate boiler					
AP	2.62	5.26	7.88	0.11	7.77
Haryana	2.68	5.98	8.66	0.11	8.55
Maharashtra	2.69	6.12	8.81	0.11	8.7
Punjab	2.7	6.26	8.96	0.11	8.85
Rajasthan	2.62	5.22	7.85	0.11	7.73
Tamil Nadu	2.62	5.17	7.79	0.11	7.68
Telangana	2.62	5.26	7.88	0.11	7.77
UP	2.63	5.35	7.98	0.11	7.87
Others	2.65	5.62	8.27	0.11	8.16

State	Levelling Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine Cycle Technology [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and travelling grate boiler					
AP	2.77	5.38	8.14	0.12	8.02
Haryana	2.82	6.12	8.94	0.12	8.82
Maharashtra	2.84	6.26	9.09	0.12	8.97
Punjab	2.85	6.4	9.25	0.12	9.13
Rajasthan	2.77	5.34	8.11	0.12	7.99
Tamil Nadu	2.76	5.29	8.05	0.12	7.93
Telangana	2.77	5.38	8.14	0.12	8.02
UP	2.77	5.47	8.25	0.12	8.12
Others	2.8	5.75	8.55	0.12	8.42

CERC RE Tariff Order for FY 2021-22

State	Levellised Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and travelling grate boiler					
AP	2.73	5.26	7.99	0.12	7.86
Haryana	2.78	5.98	8.77	0.12	8.65
Maharashtra	2.79	6.12	8.91	0.12	8.79
Punjab	2.8	6.26	9.06	0.12	8.94
Rajasthan	2.73	5.22	7.95	0.12	7.83
Tamil Nadu	2.72	5.17	7.89	0.12	7.77
Telangana	2.73	5.26	7.99	0.12	7.86
UP	2.74	5.35	8.08	0.12	7.96
Others	2.76	5.62	8.38	0.12	8.26

State	Levellised Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and travelling grate boiler					
AP	2.87	5.38	8.25	0.13	8.12
Haryana	2.93	6.12	9.05	0.13	8.92
Maharashtra	2.94	6.26	9.2	0.13	9.07
Punjab	2.95	6.4	9.35	0.13	9.22
Rajasthan	2.87	5.34	8.21	0.13	8.08
Tamil Nadu	2.87	5.29	8.16	0.13	8.02
Telangana	2.87	5.38	8.25	0.13	8.12
UP	2.88	5.47	8.35	0.13	8.22
Others	2.9	5.75	8.65	0.13	8.52

CERC RE Tariff Order for FY 2021-22

State	Levelling Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine Cycle Technology [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and AFBC boiler					
AP	2.62	5.16	7.78	0.11	7.67
Haryana	2.67	5.88	8.55	0.11	8.44
Maharashtra	2.68	6.01	8.69	0.11	8.58
Punjab	2.69	6.15	8.84	0.11	8.73
Rajasthan	2.61	5.13	7.75	0.11	7.63
Tamil Nadu	2.61	5.08	7.69	0.11	7.58
Telangana	2.62	5.16	7.78	0.11	7.67
UP	2.62	5.25	7.88	0.11	7.77
Others	2.64	5.52	8.17	0.11	8.06

State	Levelling Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine Cycle Technology [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and AFBC boiler					
AP	2.76	5.28	8.04	0.12	7.92
Haryana	2.82	6.01	8.83	0.12	8.7
Maharashtra	2.83	6.15	8.97	0.12	8.85
Punjab	2.84	6.29	9.12	0.12	9
Rajasthan	2.76	5.25	8.01	0.12	7.88
Tamil Nadu	2.75	5.19	7.95	0.12	7.83
Telangana	2.76	5.28	8.04	0.12	7.92
UP	2.77	5.37	8.14	0.12	8.02
Others	2.79	5.65	8.44	0.12	8.31

CERC RE Tariff Order for FY 2021-22

State	Levelling Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levelling tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and AFBC boiler					
AP	2.72	5.16	7.88	0.12	7.76
Haryana	2.78	5.88	8.65	0.12	8.53
Maharashtra	2.79	6.01	8.8	0.12	8.67
Punjab	2.8	6.15	8.94	0.12	8.82
Rajasthan	2.72	5.13	7.85	0.12	7.73
Tamil Nadu	2.71	5.08	7.79	0.12	7.67
Telangana	2.72	5.16	7.88	0.12	7.76
UP	2.73	5.25	7.98	0.12	7.86
Others	2.75	5.52	8.27	0.12	8.15

State	Levelling Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levelling tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and AFBC boiler					
AP	2.87	5.28	8.15	0.13	8.01
Haryana	2.92	6.01	8.93	0.13	8.8
Maharashtra	2.93	6.15	9.08	0.13	8.95
Punjab	2.94	6.29	9.23	0.13	9.1
Rajasthan	2.86	5.25	8.11	0.13	7.98
Tamil Nadu	2.86	5.19	8.05	0.13	7.92
Telangana	2.87	5.28	8.15	0.13	8.01
UP	2.87	5.37	8.25	0.13	8.11
Others	2.89	5.65	8.54	0.13	8.41

State	Levelling Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levelling tariff (upon adjusting for AD Benefit) (if availed)
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CERC RE Tariff Order for FY 2021-22

	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Bagasse Based Co-generation Project					
AP	2.91	3.45	6.36	0.16	6.2
Haryana	2.63	4.9	7.53	0.14	7.39
Maharashtra	2.36	4.83	7.19	0.12	7.07
Punjab	2.58	4.32	6.9	0.14	6.76
Tamil Nadu	2.27	3.71	5.99	0.12	5.86
Telangana	2.51	3.45	5.96	0.14	5.82
UP	2.94	3.85	6.79	0.16	6.63
Others	2.57	4.18	6.74	0.14	6.61

State	Levellised Fixed Cost	Variable Cost (FY 2021-22)	Applicable Tariff Rates (FY 2021-22)	Benefit of Accelerated Depreciation (if availed)	Net levellised tariff (upon adjusting for AD Benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Gasifier based Power Project					
AP	2.58	4.85	7.43	0.08	7.35
Haryana	2.63	5.52	8.15	0.08	8.07
Maharashtra	2.64	5.65	8.29	0.08	8.21
Punjab	2.65	5.78	8.43	0.08	8.34
Rajasthan	2.58	4.82	7.4	0.08	7.32
Tamil Nadu	2.58	4.77	7.35	0.08	7.26
Telangana	2.58	4.85	7.43	0.08	7.35
UP	2.59	4.94	7.52	0.08	7.44
Others	2.61	5.19	7.79	0.08	7.71
Biogas based power project					
Biogas	3.32	5.09	8.41	0.16	8.25

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

SI.No.	Renewable Energy Projects	Annexure
A	Small Hydro Projects	
	<i>Projects Less than 5 MW for HP, Uttarakhand, West Bengal, Jammu and Kashmir, Ladakh and NE States</i>	Annexure 1A
	<i>Projects between 5 MW and 25 MW for HP, Uttarakhand, West Bengal, Jammu and Kashmir, Ladakh and NE States</i>	Annexure 1B
	<i>Projects less than 5 MW for other States</i>	Annexure 1C

Sl.No.	Renewable Energy Projects	Annexure
	<i>Projects between 5 MW and 25 MW for other states</i>	<i>Annexure 1D</i>
B.1	Biomass Power Projects based on Rankine Cycle Technology [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate	
	<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	Biomass Power Projects based on Rankine Cycle Technology [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate boiler	
	<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.3	Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler	
	<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	Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate boiler	
	<i>Andhra Pradesh</i>	<i>Annexure 2.4A</i>
	<i>Haryana</i>	<i>Annexure 2.4B</i>

Sl.No.	Renewable Energy Projects	Annexure
	<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	Biomass Power Projects based on Rankine Cycle Technology [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler	
	<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	Biomass Power Projects based on Rankine Cycle Technology [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC	
	<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	Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler	
	<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>

Sl.No.	Renewable Energy Projects	Annexure
B.8	Biomass Power Projects based on Rankine Cycle Technology [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC boiler	
	<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	Non-Fossil Fuel Based Cogeneration Projects	
	<i>Andhra Pradesh</i>	<i>Annexure 3A</i>
	<i>Haryana</i>	<i>Annexure 3B</i>
	<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>
D	Biomass Gasifier based Power Projects	
	<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>
E	Biogasbased Power Projects	<i>Annexure 5A</i>



SHP- Himachal Pradesh, Uttarakhand, WB, UT of J&K, Ladakh, North Eastern States - <=5MW					Annexure-1A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	45%
			Auxiliary Consumption	%	1.00%
			Useful Life	Years	40
02	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	1100.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	770.00
			Total Equity Amount	Rs Lakh	330.00
03	Sources of Fund	Debt Component	Loan Amount	Rs Lakh	770.00
			Moratorium Period	years	0
			Repayment Period	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	330.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate		8.30%
04	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	0.80%
	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M expenses)	15.00%
			Receivables for Debtors	Months	1.5
Interest On Working Capital			%	10.50%	
05	Operation & Maintenance	O&M Cost of power plant	Rs Lakh	43.38	
		Total O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Small Hydro Projects : Determination of Tariff Component

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			
O&M Expenses	Rs Lakh		43.38	45.05	46.78	48.58	50.44	52.38	54.39	56.48	58.65	60.90	63.24	65.67	68.19	70.81	73.53	76.35	79.28	82.33	85.49	88.77	92.18	95.72	99.39	103.21	107.17	111.29	115.56	120.00	124.61	129.39	134.36	139.52	144.88	150.44	156.22	162.22	168.45	174.91	181.63	188.61			
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		66.99	62.37	57.75	53.13	48.51	43.89	39.27	34.65	30.03	25.41	20.79	16.17	11.55	6.93	2.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest on working Capital	Rs Lakh		3.97	3.97	3.98	3.99	4.00	4.01	4.02	4.04	4.06	4.09	4.11	4.15	4.18	4.22	4.26	3.77	3.88	4.00	4.12	4.25	4.58	4.71	4.85	5.00	5.15	5.30	5.47	5.64	5.81	5.99	6.18	6.38	6.59	6.80	7.02	7.25	7.48	7.73	7.99	8.25			
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	
Total Fixed Cost	Rs Lakh		221.66	218.71	215.82	213.01	210.26	207.59	205.00	202.48	200.05	197.71	195.46	193.30	191.23	189.27	187.41	144.90	147.95	151.11	154.39	157.80	176.57	180.24	184.06	188.02	192.14	196.41	200.85	205.45	210.24	215.20	220.36	225.72	231.28	237.05	243.05	249.28	255.75	262.46	269.43	276.67			
Per unit Fixed Cost	Rs/kWh		5.68	5.60	5.53	5.45	5.38	5.32	5.25	5.18	5.12	5.06	5.00	4.95	4.90	4.85	4.80	3.71	3.79	3.87	3.95	4.04	4.52	4.62	4.71	4.81	4.92	5.03	5.14	5.26	5.38	5.51	5.64	5.78	5.92	6.07	6.22	6.38	6.55	6.72	6.90	7.08			

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	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
O&M expn	Rs/kWh	1.76	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	1.96	2.03	2.11	2.19	2.27	2.36	2.45	2.55	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	4.48	4.65	4.83	
Depreciation	Rs/kWh	1.02	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	0.77	1.72	1.60	1.48	1.36	1.24	1.12	1.01	0.89	0.77	0.65	0.53	0.41	0.30	0.18	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	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.11	0.11	0.12	0.12	0.12	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.18	0.19	0.19	0.20	0.20	0.20	0.20	0.21	
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
Total COG	Rs/kWh	5.15	5.68	5.60	5.53	5.45	5.38	5.32	5.25	5.18	5.12	5.06	5.00	4.95	4.90	4.85	4.80	3.71	3.79	3.87	3.95	4.04	4.52	4.62	4.71	4.81	4.92	5.03	5.14	5.26	5.38	5.51	5.64	5.78	5.92	6.07	6.22	6.38	6.55	6.72	6.90	7.08	

Levillised

Discount Factor		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.05	0.04				
Fixed Cost	5.15																																												
Levillised Tariff	5.15	Rs/Unit																																											

SHP- Himachal Pradesh, Uttarakhand, WB, UT of J&K, Ladakh, North Eastern States - >5MW upto 25 MW					Annexure-1B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	45%
			Auxiliary Consumption	%	1.00%
			Useful Life	Years	40
02	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	1100.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
		Total Debt Amount	Rs Lakh	770.00	
		Total Equity Amount	Rs Lakh	330.00	
03	Sources of Fund	Debt Component	Loan Amount	Rs Lakh	770.00
			Moratorium Period	years	0
			Repayment Period	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	330.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate		8.30%
04	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	0.80%
	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M expenses)	15.00%
			Receivables for Debtors	Months	1.5
Interest On Working Capital			%	10.50%	
05	Operation & Maintenance	O&M Cost of power plant	Rs Lakh	32.54	
		Total O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy	Total No .Of Hours		Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Small Hydro Projects : Determination of Tariff Component

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			
O&M Expenses	Rs Lakh		32.54	33.79	35.09	36.44	37.84	39.29	40.80	42.37	43.99	45.68	47.44	49.26	51.15	53.11	55.15	57.27	59.47	61.75	64.13	66.59	69.14	71.80	74.56	77.42	80.39	83.48	86.69	90.01	93.47	97.06	100.79	104.66	108.68	112.85	117.18	121.68	126.35	131.21	136.25	141.48			
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		66.99	62.37	57.75	53.13	48.51	43.89	39.27	34.65	30.03	25.41	20.79	16.17	11.55	6.93	2.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest on working Capital	Rs Lakh		3.56	3.55	3.53	3.52	3.51	3.51	3.50	3.50	3.50	3.51	3.51	3.52	3.53	3.54	3.56	3.05	3.13	3.22	3.31	3.40	3.70	3.80	3.90	4.01	4.13	4.24	4.37	4.49	4.63	4.76	4.90	5.05	5.20	5.36	5.53	5.70	5.88	6.06	6.26	6.46			
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	
Total Fixed Cost	Rs Lakh		210.41	207.02	203.69	200.41	197.18	194.00	190.89	187.83	184.84	181.91	179.05	176.26	173.54	170.90	168.34	125.10	127.38	129.75	132.21	134.77	152.66	155.41	158.28	161.25	164.33	167.54	170.87	174.32	177.91	181.64	185.51	189.52	193.70	198.03	202.53	207.20	212.05	217.09	222.32	227.75			
Per unit Fixed Cost	Rs/kWh		5.39	5.30	5.22	5.13	5.05	4.97	4.89	4.81	4.73	4.66	4.58	4.51	4.44	4.38	4.31	3.20	3.26	3.32	3.39	3.45	3.91	3.98	4.05	4.13	4.21	4.29	4.38	4.46	4.56	4.65	4.75	4.85	4.96	5.07	5.19	5.31	5.43	5.56	5.69	5.83			

Levelling 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		
O&M expn	Rs/kWh	1.32	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	1.71	1.77	1.84	1.91	1.98	2.06	2.14	2.22	2.30	2.39	2.49	2.58	2.68	2.78	2.89	3.00	3.12	3.24	3.36	3.49	3.62	
Depreciation	Rs/kWh	1.02	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	0.77	1.72	1.60	1.48	1.36	1.24	1.12	1.01	0.89	0.77	0.65	0.53	0.41	0.30	0.18	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	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.16	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	1.82	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
Total COG	Rs/kWh	4.70	5.39	5.30	5.22	5.13	5.05	4.97	4.89	4.81	4.73	4.66	4.58	4.51	4.44	4.38	4.31	3.20	3.26	3.32	3.39	3.45	3.91	3.98	4.05	4.13	4.21	4.29	4.38	4.46	4.56	4.65	4.75	4.85	4.96	5.07	5.19	5.31	5.43	5.56	5.69	5.83	

Levelling

Discount Factor		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.05	0.04
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Fixed Cost 4.70

Levelling Tariff	4.70	Rs/Unit
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CERC RE Tariff Order FY 2020-21

SHP- Other States - <=5MW					Annexure-1C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	30%
			Auxiliary Consumption	%	1.00%
			Useful Life	Years	40
02	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	780.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
		Total Debt Amount	Rs Lakh	546.00	
		Total Equity Amount	Rs Lakh	234.00	
03	Sources of Fund	Debt Component	Loan Amount	Rs Lakh	546.00
			Moratorium Period	years	0
			Repayment Period	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	234.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate		8.30%
04	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	0.80%
	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M expenses)	15.00%
Receivables for Debtors			Months	1.5	
Interest On Working Capital			%	10.50%	
05	Operation & Maintenance	O&M Cost of power plant	Rs Lakh	34.95	
		Total O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Small Hydro Projects : Determination of Tariff Component

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		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	2.60		
Fixed Cost	Unit	Year→																																												
O&M Expenses	Rs Lakh		34.95	36.29	37.69	39.14	40.64	42.20	43.82	45.50	47.25	49.06	50.95	52.90	54.94	57.05	59.24	61.51	63.87	66.33	68.87	71.52	74.26	77.11	80.08	83.15	86.34	89.66	93.10	96.68	100.39	104.24	108.25	112.40	116.72	121.20	125.86	130.69	135.71	140.92	146.33	151.95				
Depreciation	Rs Lakh		36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	36.40	
Interest on term loan	Rs Lakh		47.50	44.23	40.95	37.67	34.40	31.12	27.85	24.57	21.29	18.02	14.74	11.47	8.19	4.91	1.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest on working Capital	Rs Lakh		2.98	2.98	2.99	3.01	3.02	3.03	3.05	3.07	3.10	3.12	3.15	3.18	3.22	3.25	3.29	2.96	3.05	3.14	3.24	3.34	3.58	3.69	3.81	3.92	4.04	4.17	4.30	4.44	4.58	4.73	4.88	5.04	5.20	5.37	5.55	5.74	5.93	6.13	6.33	6.55				
Return on Equity	Rs Lakh		39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	39.70	
Total Fixed Cost	Rs Lakh		161.53	159.60	157.73	155.91	154.15	152.45	150.81	149.24	147.74	146.30	144.94	143.65	142.44	141.31	140.26	110.40	112.85	115.40	118.04	120.79	134.44	137.40	140.48	143.67	146.99	150.43	154.00	157.71	161.57	165.57	169.72	174.04	178.52	183.17	188.00	193.02	198.23	203.64	209.26	215.09				
Per unit Fixed Cost	Rs/kWh		6.20	6.13	6.06	5.99	5.92	5.86	5.79	5.73	5.67	5.62	5.57	5.52	5.47	5.43	5.39	4.24	4.33	4.43	4.53	4.64	5.16	5.28	5.40	5.52	5.65	5.78	5.92	6.06	6.21	6.36	6.52	6.68	6.86	7.04	7.22	7.41	7.61	7.82	8.04	8.26				

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	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
O&M expn	Rs/kWh	2.12	1.34	1.39	1.45	1.50	1.56	1.62	1.68	1.75	1.81	1.88	1.96	2.03	2.11	2.19	2.28	2.36	2.45	2.55	2.65	2.75	2.85	2.96	3.08	3.19	3.32	3.44	3.58	3.71	3.86	4.00	4.16	4.32	4.48	4.66	4.83	5.02	5.21	5.41	5.62	5.84		
Depreciation	Rs/kWh	1.08	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Int. on term loan	Rs/kWh	0.82	1.82	1.70	1.57	1.45	1.32	1.20	1.07	0.94	0.82	0.69	0.57	0.44	0.31	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	0.13	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.11	0.12	0.12	0.12	0.12	0.13	0.14	0.15	0.15	0.16	0.16	0.17	0.17	0.18	0.18	0.19	0.19	0.20	0.21	0.21	0.22	0.23	0.24	0.24	0.24	0.25		
RoE	Rs/kWh	1.59	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	
Total COG	Rs/kWh	5.74	6.20	6.13	6.06	5.99	5.92	5.86	5.79	5.73	5.67	5.62	5.57	5.52	5.47	5.43	5.39	4.24	4.33	4.43	4.53	4.64	5.16	5.28	5.40	5.52	5.65	5.78	5.92	6.06	6.21	6.36	6.52	6.68	6.86	7.04	7.22	7.41	7.61	7.82	8.04	8.26		

Levillised

Discount Factor		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.05	0.04
Fixed Cost		5.74																																							
Levillised Tariff	5.74	Rs/Unit																																							

SHP- Other States - >5MW upto 25 MW					Annexure-1D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	30%
			Auxiliary Consumption	%	1.00%
			Useful Life	Years	40
02	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	900.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
		Total Debt Amount	Rs Lakh	630.00	
		Total Equity Amount	Rs Lakh	270.00	
03	Sources of Fund	Debt Component	Loan Amount	Rs Lakh	630.00
			Moratorium Period	years	0
			Repayment Period	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	270.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate		8.30%
04	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	0.80%
	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M expenses)	15.00%
			Receivables for Debtors	Months	1.5
05	Operation & Maintenance		Interest On Working Capital	%	10.50%
			O&M Cost of power plant	Rs Lakh	25.31
			Total O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Small Hydro Projects of Capacity -- Determination of Tariff Component

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-->																																												
O&M Expenses	Rs Lakh		25.31	26.28	27.29	28.33	29.42	30.55	31.73	32.94	34.21	35.52	36.89	38.30	39.77	41.30	42.89	44.53	46.24	48.02	49.86	51.78	53.77	55.83	57.98	60.20	62.51	64.91	67.41	69.99	72.68	75.47	78.37	81.38	84.51	87.75	91.12	94.62	98.25	102.03	105.94	110.01				
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		54.81	51.03	47.25	43.47	39.69	35.91	32.13	28.35	24.57	20.79	17.01	13.23	9.45	5.67	1.89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Interest on working Capital	Rs Lakh		2.86	2.85	2.84	2.83	2.82	2.81	2.80	2.80	2.80	2.80	2.80	2.80	2.81	2.82	2.83	2.84	2.87	2.92	2.99	3.08	3.16	3.25	3.34	3.44	3.54	3.64	3.75	3.86	3.97	4.09	4.21	4.34	4.48	4.61	4.76	4.91	5.06							
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	
Total Fixed Cost	Rs Lakh		170.78	167.96	165.18	162.43	159.73	157.08	154.46	151.90	149.38	146.91	144.50	142.14	139.84	137.59	135.41	99.94	101.71	103.56	105.47	107.46	121.99	124.13	126.36	128.67	131.07	133.56	136.15	138.84	141.63	144.52	147.53	150.66	153.90	157.27	160.77	164.40	168.17	172.09	176.16	180.38				
Per unit Fixed Cost	Rs/kWh		6.56	6.45	6.34	6.24	6.14	6.03	5.93	5.83	5.74	5.64	5.55	5.46	5.37	5.28	5.20	3.84	3.91	3.98	4.05	4.13	4.69	4.77	4.85	4.94	5.03	5.13	5.23	5.33	5.44	5.55	5.67	5.79	5.91	6.04	6.18	6.31	6.46	6.61	6.77	6.93				
Levillised tariff corresponding to Useful life																																														
Per Unit Cost of Generation	Unit																																													
O&M expn	Rs/kWh	1.54	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	1.92	1.99	2.07	2.14	2.23	2.31	2.40	2.49	2.59	2.69	2.79	2.90	3.01	3.13	3.25	3.37	3.50	3.63	3.77	3.92	4.07	4.23				
Depreciation	Rs/kWh	1.25	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	0.28		
Int. on term loan	Rs/kWh	0.95	2.11	1.96	1.81	1.67	1.52	1.38	1.23	1.09	0.94	0.80	0.65	0.51	0.36	0.22	0.07	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	
Int. on working capital	Rs/kWh	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	0.11	0.11	0.09	0.09	0.10	0.10	0.10	0.11	0.12	0.12	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	0.18	0.19	0.19				
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	2.23		
Total COG	Rs/kWh	5.68	6.56	6.45	6.34	6.24	6.14	6.03	5.93	5.83	5.74	5.64	5.55	5.46	5.37	5.28	5.20	3.84	3.91	3.98	4.05	4.13	4.69	4.77	4.85	4.94	5.03	5.13	5.23	5.33	5.44	5.55	5.67	5.79	5.91	6.04	6.18	6.31	6.46	6.61	6.77	6.93				
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.05	0.04				
Fixed Cost			5.68																																											
Levillised Tariff	Rs/Unit		5.68																																											

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate- Andhra Pradesh					Annexure-2.1A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,019.16	1,070.12
Per unit Variable Cost	Rs/kWh		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	16.96
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		19.20	20.04	20.94	21.87	22.86	23.89	24.98	26.12	27.32	28.58	29.90	31.29	32.75	34.28	35.89	37.40	39.21	41.10	43.09	45.18	47.47	49.76	52.17	54.70	57.35
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		155.98	156.33	156.79	157.38	158.09	158.93	159.90	161.01	162.28	163.69	165.26	167.00	168.92	171.01	173.29	161.86	166.92	172.20	177.70	183.43	197.15	203.38	209.87	216.64	223.70
Per unit Fixed Cost	Rs/kWh	2.62	2.47	2.48	2.48	2.49	2.50	2.52	2.53	2.55	2.57	2.59	2.62	2.65	2.68	2.71	2.75	2.56	2.64	2.73	2.82	2.91	3.12	3.22	3.33	3.43	3.54

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	8.25	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	16.96
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.68	0.72	0.75	0.79	0.83	0.87	0.91
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	10.87	7.73	8.00	8.28	8.58	8.89	9.23	9.58	9.95	10.34	10.75	11.18	11.64	12.12	12.62	13.15	13.49	14.12	14.78	15.47	16.19	17.07	17.87	18.70	19.58	20.50
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.26																										
Levilled Tariff (Fixed)	2.62																										
Levilled Tariff	7.88	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levilled	6.74																									
Electricity Generation (Levilled)	6.04																									
Levilled benefit	0.11	Rs/Unit																								

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate- Haryana					Annexure-2.1B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3975.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,002.16	1,052.26	1,104.88	1,160.12	1,218.13	
Per unit Variable Cost	Rs/kWh		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	19.30	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		21.43	22.39	23.40	24.46	25.58	26.75	27.98	29.27	30.63	32.05	33.55	35.12	36.77	38.50	40.32	42.25	44.29	46.43	48.67	51.01	53.45	56.00	58.72	61.57	64.57	
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	
Total Fixed Cost	Rs Lakh		158.22	158.68	159.26	159.97	160.81	161.78	162.90	164.16	165.58	167.16	168.91	170.83	172.93	175.23	177.72	180.41	183.29	186.37	189.65	193.14	196.84	200.75	204.88	209.24	213.83	
Per unit Fixed Cost	Rs/kWh		2.68	2.51	2.51	2.52	2.53	2.55	2.56	2.58	2.60	2.62	2.65	2.68	2.71	2.74	2.78	2.82	2.84	2.72	2.81	2.90	3.00	3.22	3.32	3.43	3.54	

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		9.39	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	19.30
O&M expn	Rs/kWh		1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh		0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh		0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	
Int. on working capital	Rs/kWh		0.51	0.34	0.35	0.37	0.39	0.41	0.42	0.44	0.46	0.49	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	0.93	0.98	1.02
RoE	Rs/kWh		0.46	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
Total COG	Rs/kWh		12.07	8.49	8.80	9.12	9.46	9.82	10.20	10.60	11.02	11.47	11.93	12.42	12.94	13.49	14.06	14.66	15.08	15.79	16.53	17.30	18.12	19.10	19.99	20.93	21.92	22.96
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Variable Cost			5.98																									
Levelised Tariff (Fixed)			2.68																									
Levelised Tariff	Rs/Unit		8.66																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	6.31
Per unit benefit	Rs/Unit	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levelised		6.74																									
Electricity Generation (Levelised)		6.04																									
Levelised benefit	Rs/Unit	0.11																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate- Maharashtra					Annexure-2.1C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4065.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,024.92	1,076.17	1,129.97	1,186.47	1,245.80
Per unit Variable Cost	Rs/kWh		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	19.74
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		21.85	22.83	23.87	24.95	26.09	27.28	28.54	29.86	31.24	32.70	34.23	35.83	37.52	39.29	41.15	42.92	45.00	47.19	49.48	51.89	54.51	57.16	59.94	62.86	65.92
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		158.63	159.12	159.72	160.45	161.32	162.32	163.46	164.75	166.20	167.81	169.59	171.55	173.69	176.02	178.55	167.38	172.72	178.29	184.09	190.14	204.20	210.78	217.64	224.80	232.26
Per unit Fixed Cost	Rs/kWh	2.69	2.51	2.52	2.53	2.54	2.56	2.57	2.59	2.61	2.63	2.66	2.69	2.72	2.75	2.79	2.83	2.65	2.74	2.82	2.92	3.01	3.24	3.34	3.45	3.56	3.68

Levelling 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	9.60	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	19.74
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
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	0.75	0.78	0.82	0.86	0.91	0.95	1.00	1.04
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	12.29	8.63	8.95	9.28	9.63	10.00	10.38	10.79	11.22	11.68	12.15	12.66	13.19	13.74	14.33	14.95	15.38	16.10	16.85	17.65	18.48	19.47	20.39	21.35	22.36	23.42
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.12																									
Levelling Tariff (Fixed)		2.69																									
Levelling Tariff	Rs/Unit	8.81																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levellised		6.74																								
Electricity Generation (Levelling)		6.04																								
Levelling benefit	Rs/Unit	0.11																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Gate- Punjab					Annexure-2.1D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4158
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,048.21	1,100.62	1,155.65	1,213.44	1,274.11
Per unit Variable Cost	Rs/kWh		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	20.19
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		22.28	23.28	24.34	25.44	26.61	27.83	29.11	30.46	31.88	33.36	34.93	36.57	38.29	40.10	42.00	43.81	45.94	48.17	50.51	52.97	55.65	58.36	61.19	64.17	67.30
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		159.06	159.57	160.20	160.95	161.84	162.86	164.03	165.35	166.83	168.47	170.29	172.28	174.45	176.83	179.40	182.27	185.45	188.94	192.75	196.89	201.37	206.20	211.39	216.94	222.86
Per unit Fixed Cost	Rs/kWh	2.70	2.52	2.53	2.54	2.55	2.56	2.58	2.60	2.62	2.64	2.67	2.70	2.73	2.76	2.80	2.84	2.87	2.91	2.94	2.98	3.03	3.07	3.11	3.16	3.21	3.26

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	9.82	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	20.19
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
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	0.64	0.67	0.69	0.73	0.76	0.80	0.84	0.88	0.92	0.97	1.02	1.07
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	12.52	8.78	9.10	9.44	9.80	10.17	10.57	10.99	11.43	11.89	12.38	12.89	13.44	14.00	14.60	15.24	15.68	16.41	17.19	18.00	18.85	19.86	20.80	21.78	22.81	23.89
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.26																									
Levillised Tariff (Fixed)		2.70																									
Levillised Tariff	Rs/Unit	8.96																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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%
Book Depreciation	Rs Lakh	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		6.74																								
Electricity Generation (Levillised)		6.04																								
Levillised benefit	Rs/Unit	0.11																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate-Rajasthan					Annexure-2.1E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,012.73	1,063.37	
Per unit Variable Cost	Rs/kWh		5.22	5.49	5.76	6.05	6.35	6.67	7.00	7.35	7.72	8.10	8.51	8.93	9.38	9.85	10.34	10.86	11.40	11.97	12.57	13.20	13.86	14.55	15.28	16.05	16.85	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		19.09	19.94	20.82	21.76	22.73	23.76	24.84	25.98	27.17	28.42	29.73	31.12	32.57	34.09	35.69	37.19	38.98	40.87	42.84	44.92	47.19	49.48	51.87	54.39	57.02	
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	
Total Fixed Cost	Rs Lakh		155.88	156.22	156.68	157.26	157.96	158.80	159.76	160.87	162.12	163.53	165.10	166.83	168.73	170.82	173.09	161.64	166.70	171.96	177.45	183.17	196.88	203.09	209.57	216.33	223.37	
Per unit Fixed Cost	Rs/kWh		2.62	2.47	2.48	2.48	2.49	2.50	2.52	2.53	2.55	2.57	2.59	2.62	2.64	2.67	2.71	2.74	2.56	2.64	2.72	2.81	2.90	3.12	3.22	3.32	3.43	3.54

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	8.19	5.22	5.49	5.76	6.05	6.35	6.67	7.00	7.35	7.72	8.10	8.51	8.93	9.38	9.85	10.34	10.86	11.40	11.97	12.57	13.20	13.86	14.55	15.28	16.05	16.85
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	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	0.65	0.68	0.71	0.75	0.78	0.82	0.86	0.90
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	10.82	7.69	7.96	8.24	8.54	8.85	9.18	9.53	9.90	10.29	10.70	11.13	11.58	12.06	12.56	13.09	13.42	14.04	14.70	15.38	16.10	16.98	17.77	18.60	19.47	20.39
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.22																									
Levillised Tariff (Fixed)		2.62																									
Levillised Tariff	Rs/Unit	7.85																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		6.74																								
Electricity Generation (Levillised)		6.04																								
Levillised benefit	Rs/Unit	0.11																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate- Tamil Nadu					Annexure-2.1F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3435.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy	Total No .Of Hours	Hrs	8766.00	

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		326.42	342.74	359.88	377.88	396.77	416.61	437.44	459.31	482.28	506.39	531.71	558.30	586.21	615.52	646.30	678.61	712.54	748.17	785.58	824.86	866.10	909.40	954.87	1,002.62	1,052.75
Per unit Variable Cost	Rs/kWh		5.17	5.43	5.70	5.99	6.29	6.60	6.93	7.28	7.64	8.02	8.42	8.85	9.29	9.75	10.24	10.75	11.29	11.85	12.45	13.07	13.72	14.41	15.13	15.89	16.68
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		18.93	19.77	20.65	21.57	22.54	23.56	24.63	25.75	26.93	28.17	29.47	30.84	32.28	33.79	35.37	36.85	38.63	40.50	42.46	44.51	46.77	49.03	51.40	53.89	56.51
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		155.71	156.05	156.51	157.08	157.77	158.59	159.55	160.65	161.89	163.28	164.84	166.55	168.44	170.51	172.77	161.31	166.35	171.60	177.07	182.77	196.45	202.65	209.10	215.83	222.85
Per unit Fixed Cost	Rs/kWh		2.62	2.47	2.48	2.49	2.50	2.51	2.53	2.55	2.56	2.59	2.61	2.64	2.67	2.70	2.74	2.56	2.64	2.72	2.81	2.90	3.11	3.21	3.31	3.42	3.53

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	8.11	5.17	5.43	5.70	5.99	6.29	6.60	6.93	7.28	7.64	8.02	8.42	8.85	9.29	9.75	10.24	10.75	11.29	11.85	12.45	13.07	13.72	14.41	15.13	15.89	16.68
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.33	0.34	0.36	0.37	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	0.85	0.90
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	10.73	7.64	7.90	8.18	8.48	8.79	9.11	9.46	9.82	10.21	10.61	11.04	11.48	11.96	12.45	12.98	13.31	13.93	14.57	15.25	15.96	16.84	17.62	18.44	19.31	20.21
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.17																										
Levilled Tariff (Fixed)	2.62																										
Levilled Tariff	7.79	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levilled	6.74																									
Electricity Generation (Levilled)	6.04																									
Levilled benefit	0.11	Rs/Unit																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Gate- Telangana					Annexure-2.1G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			O&M Expenses	Rs Lakh	48.20
05	Operation & Maintenance	O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,019.16	1,070.12
Per unit Variable Cost	Rs/kWh		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	16.96
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		19.20	20.04	20.94	21.87	22.86	23.89	24.98	26.12	27.32	28.58	29.90	31.29	32.75	34.28	35.89	37.40	39.21	41.10	43.09	45.18	47.47	49.76	52.17	54.70	57.35
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		155.98	156.33	156.79	157.38	158.09	158.93	159.90	161.01	162.28	163.69	165.26	167.00	168.92	171.01	173.29	161.86	166.92	172.20	177.70	183.43	197.15	203.38	209.87	216.64	223.70
Per unit Fixed Cost	Rs/kWh	2.62	2.47	2.48	2.48	2.49	2.50	2.52	2.53	2.55	2.57	2.59	2.62	2.65	2.68	2.71	2.75	2.56	2.64	2.73	2.82	2.91	3.12	3.22	3.33	3.43	3.54

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	
Per unit Variable Cost	Rs/kWh	8.25	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	16.96
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.68	0.72	0.75	0.79	0.83	0.87	0.91
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	10.87	7.73	8.00	8.28	8.58	8.89	9.23	9.58	9.95	10.34	10.75	11.18	11.64	12.12	12.62	13.15	13.49	14.12	14.78	15.47	16.19	17.07	17.87	18.70	19.58	20.50
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.26																										
Levelised Tariff (Fixed)	2.62																										
Levelised Tariff	7.88	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levelised	6.74																									
Electricity Generation (Levelised)	6.04																									
Levelised benefit	0.11	Rs/Unit																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate- Uttar Pradesh					Annexure-2.1H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3553.2
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			Interest On Working Capital	%	10.50%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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																										
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		337.60	354.48	372.20	390.81	410.35	430.87	452.41	475.03	498.78	523.72	549.91	577.41	606.28	636.59	668.42	701.84	736.93	773.78	812.47	853.09	895.75	940.53	987.56	1,036.94	1,088.78
Per unit Variable Cost	Rs/kWh		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	10.59	11.12	11.68	12.26	12.87	13.52	14.19	14.90	15.65	16.43	17.25
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		19.48	20.34	21.25	22.20	23.20	24.25	25.36	26.52	27.74	29.02	30.36	31.77	33.26	34.81	36.45	37.99	39.82	41.75	43.77	45.89	48.21	50.55	53.00	55.57	58.26
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		156.26	156.63	157.11	157.71	158.43	159.29	160.28	161.41	162.69	164.13	165.72	167.49	169.42	171.54	173.85	162.44	167.54	172.84	178.38	184.14	197.90	204.16	210.70	217.51	224.61
Per unit Fixed Cost	Rs/kWh	2.63	2.48	2.48	2.49	2.50	2.51	2.52	2.54	2.56	2.58	2.60	2.63	2.65	2.68	2.72	2.75	2.57	2.65	2.74	2.83	2.92	3.14	3.23	3.34	3.45	3.56

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	8.39	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	10.59	11.12	11.68	12.26	12.87	13.52	14.19	14.90	15.65	16.43	17.25
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88	0.92
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	11.02	7.82	8.10	8.39	8.69	9.01	9.35	9.71	10.08	10.48	10.90	11.34	11.80	12.29	12.80	13.34	13.69	14.33	15.00	15.70	16.43	17.33	18.14	18.99	19.88	20.81
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.35																										
Levillised Tariff (Fixed)	2.63																										
Levillised Tariff	7.98	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	559.00																										
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	0.00	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	6.31
Per unit benefit	Rs/Unit	1.69	0.92	0.27	0.10	-0.01	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	6.74																										
Electricity Generation (Levellised)	6.04																										
Levellised benefit	0.11	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate- Other States					Annexure-2.11
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			Interest On Working Capital	%	10.50%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		354.86	372.60	391.23	410.79	431.33	452.90	475.54	499.32	524.28	550.50	578.02	606.92	637.27	669.13	702.59	737.72	774.61	813.34	854.00	896.70	941.54	988.62	1,038.05	1,089.95	1,144.45
Per unit Variable Cost	Rs/kWh		5.62	5.90	6.20	6.51	6.83	7.18	7.53	7.91	8.31	8.72	9.16	9.62	10.10	10.60	11.13	11.69	12.27	12.89	13.53	14.21	14.92	15.66	16.45	17.27	18.13
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		20.32	21.22	22.18	23.17	24.22	25.33	26.48	27.70	28.98	30.32	31.73	33.21	34.77	36.40	38.12	39.74	41.66	43.68	45.79	48.02	50.45	52.89	55.46	58.15	60.98
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		157.10	157.51	158.03	158.68	159.45	160.36	161.41	162.60	163.94	165.43	167.09	168.92	170.93	173.13	175.52	164.19	169.37	174.77	180.40	186.27	200.13	206.51	213.16	220.09	227.32
Per unit Fixed Cost	Rs/kWh	2.65	2.49	2.50	2.50	2.51	2.53	2.54	2.56	2.58	2.60	2.62	2.65	2.68	2.71	2.74	2.78	2.60	2.68	2.77	2.86	2.95	3.17	3.27	3.38	3.49	3.60

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	8.82	5.62	5.90	6.20	6.51	6.83	7.18	7.53	7.91	8.31	8.72	9.16	9.62	10.10	10.60	11.13	11.69	12.27	12.89	13.53	14.21	14.92	15.66	16.45	17.27	18.13
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.49	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88	0.92	0.97
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	11.47	8.11	8.40	8.70	9.02	9.36	9.72	10.09	10.49	10.90	11.34	11.81	12.29	12.81	13.34	13.91	14.29	14.96	15.66	16.39	17.16	18.09	18.94	19.82	20.76	21.73
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.62																									
Levillised Tariff (Fixed)		2.65																									
Levillised Tariff	Rs/Unit	8.28																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		6.74																								
Electricity Generation (Levillised)		6.04																								
Levillised benefit	Rs/Unit	0.11																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Andhra Pradesh					Annexure-2.2A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,019.16	1,070.12
Per unit Variable Cost	Rs/kWh		5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		19.28	20.13	21.02	21.95	22.93	23.97	25.05	26.19	27.39	28.64	29.96	31.35	32.81	34.34	35.95	37.44	39.24	41.14	43.13	45.21	47.51	49.81	52.22	54.75	57.40
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
Total Fixed Cost	Rs Lakh		162.56	162.74	163.03	163.44	163.97	164.64	165.44	166.38	167.46	168.70	170.10	171.67	173.41	175.32	177.43	184.80	189.87	195.14	200.64	206.38	212.33	218.59	225.15	232.01	239.18
Per unit Fixed Cost	Rs/kWh	2.77	2.63	2.64	2.64	2.65	2.66	2.67	2.68	2.70	2.71	2.73	2.76	2.78	2.81	2.84	2.88	2.97	3.07	3.18	3.30	3.43	3.57	3.72	3.88	4.05	4.23

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	8.43	5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34
O&M expn	Rs/kWh	1.09	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	1.93
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	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.49	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	0.93
RoE	Rs/kWh	0.51	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
Total COG	Rs/kWh	11.20	8.01	8.28	8.57	8.87	9.19	9.53	9.89	10.26	10.66	11.07	11.51	11.98	12.47	12.98	13.52	13.85	14.49	15.16	15.87	16.61	17.52	18.33	19.19	20.08	21.02
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.38																										
Levillised Tariff (Fixed)	2.77																										
Levillised Tariff	8.14	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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%
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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.00%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.12	Rs/Unit																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Haryana					Annexure-2.2B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3975.3
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,002.16	1,052.26	1,104.88	1,160.12	1,218.13
Per unit Variable Cost	Rs/kWh		6.12	6.43	6.75	7.09	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	19.74
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		21.52	22.48	23.49	24.54	25.66	26.82	28.05	29.34	30.69	32.12	33.61	35.18	36.83	38.56	40.38	42.09	44.13	46.27	48.51	50.87	53.45	56.04	58.76	61.62	64.62
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
Total Fixed Cost	Rs Lakh		164.80	165.09	165.50	166.03	166.69	167.49	168.44	169.53	170.77	172.17	173.75	175.49	177.42	179.54	181.86	184.45	187.25	190.27	193.53	197.03	200.80	204.83	209.13	213.70	218.54
Per unit Fixed Cost	Rs/kWh		2.82	2.67	2.68	2.68	2.69	2.70	2.71	2.73	2.75	2.77	2.79	2.82	2.84	2.88	2.91	2.95	2.95	2.83	2.92	3.01	3.11	3.35	3.45	3.56	3.68

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	9.60	6.12	6.43	6.75	7.09	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	19.74
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.53	0.35	0.36	0.38	0.40	0.42	0.43	0.45	0.48	0.50	0.52	0.54	0.57	0.60	0.62	0.65	0.68	0.72	0.75	0.79	0.82	0.87	0.91	0.95	1.00	1.05
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	12.42	8.79	9.10	9.43	9.78	10.14	10.53	10.93	11.36	11.81	12.28	12.78	13.31	13.87	14.45	15.06	15.47	16.19	16.95	17.74	18.58	19.59	20.50	21.47	22.48	23.54
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.12																									
Levillised Tariff (Fixed)		2.82																									
Levillised Tariff	Rs/Unit	8.95																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																								
Book Depreciation rate		5.28%																								
Tax Depreciation rate		40%																								
Additional Depreciation		20%																								
Income Tax (MAT)		17.472%																								
Income Tax (Normal Rates)		34.944%																								
Capital Cost		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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		7.24																								
Electricity Generation (Levillised)		5.91																								
Levillised benefit	Rs/Unit	0.12																								

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Maharashtra					Annexure-2.2C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4065.6
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			Interest On Working Capital	%	10.50%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy	Total No .Of Hours	Hrs	8766.00	

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Punjab					Annexure-2.2D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4158.00
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

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Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,048.21	1,100.62	1,155.65	1,213.44	1,274.11
Per unit Variable Cost	Rs/kWh		6.40	6.72	7.06	7.41	7.78	8.17	8.58	9.01	9.46	9.93	10.43	10.95	11.50	12.07	12.67	13.31	13.97	14.67	15.41	16.18	16.99	17.83	18.73	19.66	20.65
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		22.37	23.37	24.42	25.52	26.68	27.90	29.18	30.53	31.94	33.43	34.99	36.63	38.35	40.16	42.05	43.85	45.98	48.21	50.55	53.01	55.70	58.40	61.24	64.22	67.35
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
Total Fixed Cost	Rs Lakh		165.64	165.98	166.43	167.01	167.72	168.57	169.57	170.72	172.02	173.49	175.13	176.94	178.94	181.14	183.54	171.21	176.60	182.21	188.07	194.17	208.85	215.48	222.41	229.63	237.16
Per unit Fixed Cost	Rs/kWh	2.85	2.68	2.69	2.70	2.71	2.72	2.73	2.75	2.77	2.79	2.81	2.84	2.87	2.90	2.94	2.97	2.77	2.86	2.95	3.05	3.15	3.38	3.49	3.60	3.72	3.84

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	10.04	6.40	6.72	7.06	7.41	7.78	8.17	8.58	9.01	9.46	9.93	10.43	10.95	11.50	12.07	12.67	13.31	13.97	14.67	15.41	16.18	16.99	17.83	18.73	19.66	20.65
O&M expn	Rs/kWh	1.09	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	1.93
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	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.55	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	0.75	0.78	0.82	0.86	0.90	0.95	0.99	1.04	1.09
RoE	Rs/kWh	0.51	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
Total COG	Rs/kWh	12.89	9.09	9.41	9.75	10.12	10.50	10.90	11.33	11.77	12.25	12.74	13.27	13.82	14.40	15.01	15.65	16.08	16.84	17.63	18.45	19.32	20.37	21.33	22.33	23.38	24.49
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.40																									
Levilled Tariff (Fixed)		2.85																									
Levilled Tariff	Rs/Unit	9.25																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Deprn.	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Rajasthan					Annexure-2.2E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,012.73	1,063.37
Per unit Variable Cost	Rs/kWh		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	17.23
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		19.18	20.02	20.91	21.83	22.81	23.84	24.91	26.05	27.24	28.49	29.80	31.18	32.63	34.15	35.74	37.23	39.02	40.91	42.88	44.96	47.24	49.52	51.92	54.43	57.07
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
Total Fixed Cost	Rs Lakh		162.46	162.63	162.92	163.32	163.85	164.51	165.30	166.23	167.31	168.54	169.93	171.49	173.22	175.13	177.23	164.59	169.64	174.91	180.40	186.12	200.39	206.61	213.09	219.84	226.88
Per unit Fixed Cost	Rs/kWh	2.77	2.63	2.64	2.64	2.65	2.66	2.67	2.68	2.69	2.71	2.73	2.75	2.78	2.81	2.84	2.87	2.87	2.87	2.83	2.92	3.02	3.25	3.35	3.45	3.56	3.68

Levelling 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	8.38	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	17.23
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	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	0.60	0.63	0.66	0.69	0.73	0.77	0.80	0.84	0.88	0.92
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.15	7.98	8.25	8.53	8.83	9.15	9.48	9.84	10.21	10.60	11.02	11.46	11.92	12.40	12.91	13.45	13.77	14.41	15.08	15.78	16.52	17.42	18.23	19.08	19.97	20.91
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.34																									
Levilled Tariff (Fixed)		2.77																									
Levilled Tariff	Rs/Unit	8.11																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																								
Book Depreciation rate		5.28%																								
Tax Depreciation rate		40%																								
Additional Depreciation		20%																								
Income Tax (MAT)		17.472%																								
Income Tax (Normal Rates)		34.944%																								
Capital Cost		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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.00%	35.00%	21.00%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levilled		7.24																								
Electricity Generation (Levilled)		5.91																								
Levilled benefit	Rs/Unit	0.12																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Tamil Nadu					Annexure-2.2F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3435.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		326.42	342.74	359.88	377.88	396.77	416.61	437.44	459.31	482.28	506.39	531.71	558.30	586.21	615.52	646.30	678.61	712.54	748.17	785.58	824.86	866.10	909.40	954.87	1,002.62	1,052.75
Per unit Variable Cost	Rs/kWh		5.29	5.55	5.83	6.12	6.43	6.75	7.09	7.44	7.81	8.21	8.62	9.05	9.50	9.97	10.47	11.00	11.55	12.12	12.73	13.37	14.03	14.74	15.47	16.25	17.06
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		19.02	19.85	20.73	21.65	22.62	23.63	24.70	25.82	27.00	28.24	29.54	30.90	32.34	33.84	35.43	36.89	38.67	40.54	42.50	44.55	46.81	49.08	51.45	53.94	56.55
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	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		162.30	162.46	162.74	163.14	163.65	164.30	165.08	166.01	167.07	168.29	169.67	171.22	172.93	174.83	176.91	184.26	189.29	194.54	199.97	206.16	212.62	219.35	226.36	233.66	241.25
Per unit Fixed Cost	Rs/kWh	2.76	2.63	2.63	2.64	2.64	2.65	2.66	2.68	2.69	2.71	2.73	2.75	2.77	2.80	2.83	2.87	2.66	2.74	2.83	2.92	3.01	3.24	3.34	3.45	3.55	3.67

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	8.30	5.29	5.55	5.83	6.12	6.43	6.75	7.09	7.44	7.81	8.21	8.62	9.05	9.50	9.97	10.47	11.00	11.55	12.12	12.73	13.37	14.03	14.74	15.47	16.25	17.06
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.80	0.83	0.87	0.92
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.06	7.92	8.19	8.47	8.77	9.08	9.41	9.76	10.13	10.52	10.93	11.37	11.82	12.30	12.81	13.34	13.66	14.29	14.95	15.65	16.38	17.27	18.08	18.92	19.80	20.73
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.29																										
Levillised Tariff (Fixed)	2.76																										
Levillised Tariff	8.05	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	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	-27.78	-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	1.88	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.98	0.89	0.82	0.78	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levellised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.12	Rs/Unit																								

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Telangana					Annexure-2.2G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3492.3
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			Interest On Working Capital	%	10.50%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,019.16	1,070.12
Per unit Variable Cost	Rs/kWh		5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		19.28	20.13	21.02	21.95	22.93	23.97	25.05	26.19	27.39	28.64	29.96	31.35	32.81	34.34	35.95	37.44	39.24	41.14	43.13	45.21	47.51	49.81	52.22	54.75	57.40
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
Total Fixed Cost	Rs Lakh		162.56	162.74	163.03	163.44	163.97	164.64	165.44	166.38	167.46	168.70	170.10	171.67	173.41	175.32	177.43	164.80	169.87	175.14	180.64	186.38	200.66	206.89	213.39	220.15	227.21
Per unit Fixed Cost	Rs/kWh	2.77	2.63	2.64	2.64	2.65	2.66	2.67	2.68	2.70	2.71	2.73	2.76	2.78	2.81	2.84	2.88	2.67	2.75	2.84	2.93	3.02	3.25	3.35	3.46	3.57	3.68

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	8.43	5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.49	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	0.93
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.20	8.01	8.28	8.57	8.87	9.19	9.53	9.89	10.26	10.66	11.07	11.51	11.98	12.47	12.98	13.52	13.85	14.49	15.16	15.87	16.61	17.52	18.33	19.19	20.08	21.02
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.38																										
Levillised Tariff (Fixed)	2.77																										
Levillised Tariff	8.14	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	0.01	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.12	Rs/Unit																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Uttar Pradesh					Annexure-2.2H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3553.2
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy	Total No .Of Hours	Hrs	8766.00	

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		337.60	354.48	372.20	390.81	410.35	430.87	452.41	475.03	498.78	523.72	549.91	577.41	606.28	636.59	668.42	701.84	736.93	773.78	812.47	853.09	895.75	940.53	987.56	1,036.94	1,088.78
Per unit Variable Cost	Rs/kWh		5.47	5.74	6.03	6.33	6.65	6.98	7.33	7.70	8.08	8.49	8.91	9.36	9.82	10.32	10.83	11.37	11.94	12.54	13.17	13.82	14.51	15.24	16.00	16.80	17.64
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		19.57	20.43	21.33	22.28	23.28	24.33	25.43	26.59	27.80	29.08	30.42	31.83	33.32	34.87	36.51	38.03	39.86	41.79	43.81	45.93	48.26	50.59	53.04	55.61	58.31
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
Total Fixed Cost	Rs Lakh		162.84	163.03	163.34	163.77	164.32	165.00	165.82	166.77	167.88	169.14	170.56	172.15	173.91	175.86	177.99	180.39	183.04	185.93	189.17	192.76	196.71	201.04	205.76	210.88	216.41
Per unit Fixed Cost	Rs/kWh	2.78	2.64	2.64	2.65	2.65	2.66	2.67	2.69	2.70	2.72	2.74	2.76	2.79	2.82	2.85	2.88	2.92	2.96	3.00	3.04	3.08	3.12	3.16	3.20	3.24	3.28

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	8.58	5.47	5.74	6.03	6.33	6.65	6.98	7.33	7.70	8.08	8.49	8.91	9.36	9.82	10.32	10.83	11.37	11.94	12.54	13.17	13.82	14.51	15.24	16.00	16.80	17.64
O&M expn	Rs/kWh	1.09	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	1.93
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	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.48	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	0.59	0.62	0.65	0.68	0.71	0.74	0.78	0.82	0.86	0.90	0.94
RoE	Rs/kWh	0.51	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
Total COG	Rs/kWh	11.36	8.11	8.39	8.68	8.99	9.31	9.66	10.02	10.40	10.80	11.23	11.67	12.15	12.64	13.16	13.72	14.05	14.70	15.39	16.10	16.86	17.78	18.61	19.47	20.38	21.34
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.47																										
Levillised Tariff (Fixed)	2.78																										
Levillised Tariff	8.25	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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%
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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.12	Rs/Unit																								

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Other States					Annexure-2.2I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy	Total No .Of Hours	Hrs	8766.00	

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		354.86	372.60	391.23	410.79	431.33	452.90	475.54	499.32	524.28	550.50	578.02	606.92	637.27	669.13	702.59	737.72	774.61	813.34	854.00	896.70	941.54	988.62	1,038.05	1,089.95	1,144.45	
Per unit Variable Cost	Rs/kWh		5.75	6.04	6.34	6.66	6.99	7.34	7.71	8.09	8.50	8.92	9.37	9.83	10.33	10.84	11.38	11.95	12.55	13.18	13.84	14.53	15.26	16.02	16.82	17.66	18.54	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		20.41	21.31	22.26	23.25	24.30	25.40	26.56	27.77	29.05	30.39	31.80	33.27	34.83	36.46	38.17	39.97	41.70	43.72	45.83	48.05	50.49	52.94	55.51	58.20	61.02	
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	38.74	38.74	38.74	38.74	38.74	
Total Fixed Cost	Rs Lakh		163.68	163.92	164.27	164.74	165.34	166.07	166.94	167.96	169.12	170.45	171.93	173.59	175.42	177.44	179.66	167.14	172.32	177.72	183.35	189.22	203.64	210.02	216.67	223.61	230.83	
Per unit Fixed Cost	Rs/kWh		2.80	2.65	2.66	2.66	2.67	2.68	2.69	2.71	2.72	2.74	2.76	2.79	2.81	2.84	2.88	2.91	2.71	2.79	2.88	2.97	3.07	3.30	3.40	3.51	3.62	3.74

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	9.02	5.75	6.04	6.34	6.66	6.99	7.34	7.71	8.09	8.50	8.92	9.37	9.83	10.33	10.84	11.38	11.95	12.55	13.18	13.84	14.53	15.26	16.02	16.82	17.66	18.54
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.50	0.33	0.35	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.64	0.68	0.71	0.74	0.78	0.82	0.86	0.90	0.94	0.99
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.82	8.40	8.69	9.00	9.33	9.67	10.03	10.41	10.81	11.24	11.68	12.15	12.65	13.17	13.72	14.30	14.66	15.34	16.06	16.81	17.60	18.56	19.42	20.33	21.29	22.29
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.75																									
Levillised Tariff (Fixed)		2.80																									
Levillised Tariff	Rs/Unit	8.55																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	0.01	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		7.24																								
Electricity Generation (Levillised)		5.91																								
Levillised benefit	Rs/Unit	0.12																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler - Andhra Pradesh					Annexure-2.3A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,019.16	1,070.12
Per unit Variable Cost	Rs/kWh		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	16.96
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.31	20.15	21.04	21.97	22.96	23.99	25.07	26.21	27.41	28.66	29.98	31.37	32.82	34.35	35.96	37.45	39.25	41.15	43.14	45.22	47.52	49.82	52.23	54.76	57.41
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
Total Fixed Cost	Rs Lakh		164.33	164.46	164.70	165.07	165.55	166.17	166.92	167.82	168.85	170.05	171.40	172.92	174.61	176.48	178.54	165.59	170.66	175.93	181.43	187.17	201.61	207.83	214.33	221.10	228.15
Per unit Fixed Cost	Rs/kWh	2.73	2.60	2.61	2.61	2.62	2.62	2.63	2.64	2.66	2.68	2.69	2.72	2.74	2.77	2.80	2.83	2.62	2.70	2.79	2.87	2.97	3.19	3.29	3.40	3.50	3.61

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	8.25	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	16.96
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.33	0.35	0.36	0.38	0.40	0.42	0.43	0.45	0.48	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.72	0.75	0.79	0.83	0.87	0.91
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
Total COG	Rs/kWh	10.97	7.86	8.13	8.41	8.70	9.01	9.34	9.69	10.06	10.44	10.85	11.28	11.73	12.21	12.71	13.24	13.55	14.18	14.84	15.53	16.25	17.14	17.94	18.77	19.65	20.57
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.26																									
Levillised Tariff (Fixed)		2.73																									
Levillised Tariff	7.99	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Deprn.	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	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised		7.37																									
Electricity Generation (Levillised)		6.04																									
Levillised benefit	0.12	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler - Haryana					Annexure-2.3B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3975.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,002.16	1,052.26	#####	1,160.12	1,218.13	
Per unit Variable Cost	Rs/kWh		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	19.30	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		21.54	22.50	23.51	24.56	25.68	26.84	28.07	29.36	30.71	32.13	33.63	35.20	36.84	38.57	40.39	42.10	44.14	46.28	48.52	50.88	53.46	56.06	58.78	61.63	64.63	
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	
Total Fixed Cost	Rs Lakh		166.56	166.81	167.17	167.66	168.27	169.03	169.92	170.96	172.16	173.52	175.04	176.75	178.63	180.70	182.97	170.24	175.54	181.06	186.82	192.82	207.54	214.07	220.87	227.97	235.37	
Per unit Fixed Cost	Rs/kWh		2.78	2.64	2.64	2.65	2.66	2.67	2.68	2.69	2.71	2.73	2.75	2.77	2.80	2.83	2.86	2.90	2.70	2.78	2.87	2.96	3.06	3.29	3.39	3.50	3.61	3.73

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	9.39	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	19.30
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.51	0.34	0.36	0.37	0.39	0.41	0.43	0.44	0.47	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.81	0.85	0.89	0.93	0.98	1.02
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
Total COG	Rs/kWh	12.17	8.62	8.93	9.25	9.58	9.94	10.32	10.71	11.13	11.57	12.03	12.52	13.04	13.58	14.15	14.75	15.14	15.84	16.58	17.36	18.18	19.17	20.06	21.01	21.99	23.03
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.98																									
Levillised Tariff (Fixed)		2.78																									
Levillised Tariff	Rs/Unit	8.77																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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%	2.88%	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	32.26	17.60	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	0.01	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	0.01	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.37																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	Rs/Unit	0.12																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler - Maharashtra					Annexure-2.3C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4065.6
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,024.92	1,076.17	1,129.97	1,186.47	1,245.80
Per unit Variable Cost	Rs/kWh		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	19.74
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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	22.94	23.97	25.05	26.18	27.38	28.63	29.95	31.33	32.78	34.31	35.91	37.60	39.36	41.22	42.97	45.05	47.24	49.53	51.94	54.57	57.22	60.00	62.92	65.98
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
Total Fixed Cost	Rs Lakh		166.98	167.25	167.63	168.14	168.78	169.56	170.48	171.55	172.78	174.17	175.73	177.46	179.38	181.49	183.80	171.11	176.45	182.02	187.83	193.88	208.65	215.23	222.10	229.26	236.72
Per unit Fixed Cost	Rs/kWh	2.79	2.65	2.65	2.66	2.66	2.67	2.69	2.70	2.72	2.74	2.76	2.78	2.81	2.84	2.88	2.91	2.71	2.80	2.88	2.98	3.07	3.31	3.41	3.52	3.63	3.75

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	9.60	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	19.74
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
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	0.60	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86	0.91	0.95	1.00	1.05
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
Total COG	Rs/kWh	12.39	8.77	9.08	9.40	9.75	10.11	10.50	10.90	11.33	11.78	12.25	12.75	13.28	13.83	14.42	15.03	15.43	16.16	16.91	17.71	18.54	19.54	20.46	21.42	22.43	23.49
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.12																									
Levillised Tariff (Fixed)		2.79																									
Levillised Tariff	Rs/Unit	8.91																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.01	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	-11.25	-11.25	-6.13	0.01	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	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.37																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	Rs/Unit	0.12																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler - Punjab					Annexure-2.3D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4158.00
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,048.21	1,100.62	1,155.65	1,213.44	1,274.11	
Per unit Variable Cost	Rs/kWh		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	20.19	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		22.39	23.39	24.44	25.54	26.70	27.92	29.20	30.55	31.96	33.45	35.01	36.64	38.36	40.17	42.07	43.86	45.99	48.22	50.56	53.02	55.71	58.41	61.25	64.23	67.36	
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	
Total Fixed Cost	Rs Lakh		167.41	167.70	168.10	168.64	169.30	170.11	171.06	172.16	173.41	174.83	176.42	178.19	180.15	182.30	184.65	172.00	177.39	183.00	188.86	194.96	209.79	216.43	223.35	230.57	238.10	
Per unit Fixed Cost	Rs/kWh	2.80	2.65	2.66	2.66	2.67	2.68	2.70	2.71	2.73	2.75	2.77	2.80	2.82	2.85	2.89	2.93	2.73	2.81	2.90	2.99	3.09	3.32	3.43	3.54	3.65	3.77	

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	9.82	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	20.19
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.54	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	0.64	0.67	0.69	0.73	0.76	0.80	0.84	0.88	0.93	0.97	1.02	1.07
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
Total COG	Rs/kWh	12.62	8.91	9.23	9.56	9.92	10.29	10.68	11.10	11.54	12.00	12.48	12.99	13.53	14.10	14.69	15.32	15.74	16.47	17.25	18.06	18.91	19.93	20.87	21.85	22.88	23.96
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.26																									
Levillised Tariff (Fixed)		2.80																									
Levillised Tariff	Rs/Unit	9.06																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.37																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	Rs/Unit	0.12																								

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler - Rajasthan					Annexure-2.3E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,012.73	1,063.37
Per unit Variable Cost	Rs/kWh		5.22	5.49	5.76	6.05	6.35	6.67	7.00	7.35	7.72	8.10	8.51	8.93	9.38	9.85	10.34	10.86	11.40	11.97	12.57	13.20	13.86	14.55	15.28	16.05	16.85
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.20	20.04	20.93	21.86	22.83	23.86	24.93	26.07	27.25	28.50	29.82	31.19	32.64	34.16	35.76	37.24	39.03	40.92	42.89	44.97	47.25	49.54	51.93	54.44	57.08
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
Total Fixed Cost	Rs Lakh		164.22	164.35	164.59	164.95	165.43	166.04	166.79	167.67	168.70	169.89	171.23	172.74	174.43	176.29	178.34	180.58	183.03	185.70	188.61	191.78	195.23	198.99	203.07	207.50	212.30
Per unit Fixed Cost	Rs/kWh		2.73	2.60	2.60	2.61	2.61	2.62	2.63	2.64	2.66	2.67	2.69	2.71	2.74	2.76	2.79	2.83	2.82	2.70	2.78	2.87	2.96	3.19	3.29	3.39	3.50

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	8.19	5.22	5.49	5.76	6.05	6.35	6.67	7.00	7.35	7.72	8.10	8.51	8.93	9.38	9.85	10.34	10.86	11.40	11.97	12.57	13.20	13.86	14.55	15.28	16.05	16.85
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.30	0.32	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	0.75	0.78	0.82	0.86	0.90
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
Total COG	Rs/kWh	10.92	7.83	8.09	8.37	8.66	8.97	9.30	9.64	10.01	10.39	10.80	11.22	11.67	12.15	12.64	13.17	13.48	14.10	14.76	15.44	16.16	17.05	17.84	18.67	19.54	20.46
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.22																										
Levillised Tariff (Fixed)	2.73																										
Levillised Tariff	7.95	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depn.	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	-26.61	-28.27	-29.87	-30.82	-31.40	-31.74	-31.95	-32.07	-32.15	-32.19	-32.19	-32.19	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	-11.25	-11.25	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	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	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.37																										
Electricity Generation (Levillised)	6.04																										
Levillised benefit	0.12	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler – Tamil Nadu					Annexure-2.3F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3435.6
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		326.42	342.74	359.88	377.88	396.77	416.61	437.44	459.31	482.28	506.39	531.71	558.30	586.21	615.52	646.30	678.61	712.54	748.17	785.58	824.86	866.10	909.40	954.87	1,002.62	1,052.75	
Per unit Variable Cost	Rs/kWh		5.17	5.43	5.70	5.99	6.29	6.60	6.93	7.28	7.64	8.02	8.42	8.85	9.29	9.75	10.24	10.75	11.29	11.85	12.45	13.07	13.72	14.41	15.13	15.89	16.68	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.04	19.88	20.75	21.67	22.64	23.65	24.72	25.84	27.02	28.25	29.55	30.92	32.35	33.86	35.44	36.90	38.68	40.55	42.51	44.56	46.83	49.09	51.46	53.95	56.56	
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	
Total Fixed Cost	Rs Lakh		164.06	164.18	164.41	164.76	165.23	165.83	166.57	167.45	168.47	169.64	170.97	172.47	174.14	175.99	178.02	180.05	182.08	184.11	186.14	188.17	190.20	192.23	194.26	196.29	198.32	
Per unit Fixed Cost	Rs/kWh	2.72	2.60	2.60	2.60	2.61	2.62	2.63	2.64	2.65	2.67	2.69	2.71	2.73	2.76	2.79	2.82	2.81	2.89	2.98	3.08	3.18	3.28	3.38	3.49	3.60		

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	8.11	5.17	5.43	5.70	5.99	6.29	6.60	6.93	7.28	7.64	8.02	8.42	8.85	9.29	9.75	10.24	10.75	11.29	11.85	12.45	13.07	13.72	14.41	15.13	15.89	16.68
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.33	0.34	0.36	0.37	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	0.82	0.85	0.90
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
Total COG	Rs/kWh	10.83	7.77	8.03	8.31	8.60	8.90	9.23	9.57	9.93	10.31	10.71	11.13	11.58	12.05	12.54	13.06	13.37	13.98	14.63	15.31	16.02	16.91	17.69	18.51	19.38	20.28
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.17																										
Levillised Tariff (Fixed)	2.72																										
Levillised Tariff	7.89	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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	32.26	17.60	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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depn.	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	0.01	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	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	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.37																										
Electricity Generation (Levillised)	6.04																										
Levillised benefit	0.12	Rs/Unit																									

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler – Telangana					Annexure-2.3G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
		04	Fuel Related Assumptions	Heat Rate	After stabilization period
During stabilization period	Kcal/kWh				4200.00
Biomass	Base Price			Rs/T	3492.3
	GCV-Biomass			Kcal/kg	3100.00
	Biomass Price Escalation Factor			%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,019.16	1,070.12	
Per unit Variable Cost	Rs/kWh		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	16.96	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.31	20.15	21.04	21.97	22.96	23.99	25.07	26.21	27.41	28.66	29.98	31.37	32.82	34.35	35.96	37.45	39.25	41.15	43.14	45.22	47.52	49.82	52.23	54.76	57.41	
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	
Total Fixed Cost	Rs Lakh		164.33	164.46	164.70	165.07	165.55	166.17	166.92	167.82	168.85	170.05	171.40	172.92	174.61	176.48	178.54	180.89	183.54	186.49	189.74	193.29	197.14	201.29	205.74	210.49	215.54	
Per unit Fixed Cost	Rs/kWh		2.73	2.60	2.61	2.61	2.62	2.62	2.63	2.64	2.66	2.68	2.69	2.72	2.74	2.77	2.80	2.83	2.86	2.90	2.94	2.97	3.01	3.05	3.09	3.13	3.17	

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	8.25	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	16.96
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.33	0.35	0.36	0.38	0.40	0.42	0.43	0.45	0.48	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.72	0.75	0.79	0.83	0.87	0.91
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
Total COG	Rs/kWh	10.97	7.86	8.13	8.41	8.70	9.01	9.34	9.69	10.06	10.44	10.85	11.28	11.73	12.21	12.71	13.24	13.85	14.48	15.13	15.84	16.57	17.34	18.14	18.97	19.85	20.77
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.26																									
Levillised Tariff (Fixed)		2.73																									
Levillised Tariff	Rs/Unit	7.99																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	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	32.26	32.26	32.26	32.26	32.26	32.26	32.26
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15

Tax Benefit Levillised	7.37
Electricity Generation (Levillised)	6.04

Levillised benefit	0.12	Rs/Unit
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CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler – Uttar Pradesh					Annexure-2.3H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3553.2
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		337.60	354.48	372.20	390.81	410.35	430.87	452.41	475.03	498.78	523.72	549.91	577.41	606.28	636.59	668.42	701.84	736.93	773.78	812.47	853.09	895.75	940.53	987.56	1,036.94	1,088.78
Per unit Variable Cost	Rs/kWh		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	10.59	11.12	11.68	12.26	12.87	13.52	14.19	14.90	15.65	16.43	17.25
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.59	20.45	21.35	22.30	23.30	24.35	25.45	26.61	27.82	29.10	30.44	31.85	33.33	34.89	36.52	38.04	39.87	41.80	43.82	45.94	48.27	50.61	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
Total Fixed Cost	Rs Lakh		164.61	164.75	165.01	165.39	165.90	166.53	167.30	168.21	169.27	170.49	171.86	173.40	175.12	177.01	179.10	181.38	183.85	186.52	189.39	192.47	195.76	199.27	203.00	206.95	211.12
Per unit Fixed Cost	Rs/kWh		2.74	2.61	2.61	2.61	2.62	2.63	2.64	2.65	2.67	2.68	2.70	2.72	2.75	2.77	2.80	2.84	2.89	2.94	2.99	3.04	3.09	3.14	3.19	3.24	3.29

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	8.39	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	10.59	11.12	11.68	12.26	12.87	13.52	14.19	14.90	15.65	16.43	17.25
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	0.32	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	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88	0.92
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
Total COG	Rs/kWh	11.13	7.96	8.23	8.51	8.81	9.13	9.47	9.82	10.19	10.58	11.00	11.44	11.90	12.38	12.89	13.43	13.97	14.53	15.06	15.76	16.49	17.40	18.21	19.06	19.95	20.88
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.35																									
Levillised Tariff (Fixed)		2.74																									
Levillised Tariff	Rs/Unit	8.08																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.01	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	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.37																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	Rs/Unit	0.12																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Grate boiler – Other States					Annexure-2.3I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		354.86	372.60	391.23	410.79	431.33	452.90	475.54	499.32	524.28	550.50	578.02	606.92	637.27	669.13	702.59	737.72	774.61	813.34	854.00	896.70	941.54	988.62	1,038.05	1,089.95	1,144.45
Per unit Variable Cost	Rs/kWh		5.62	5.90	6.20	6.51	6.83	7.18	7.53	7.91	8.31	8.72	9.16	9.62	10.10	10.60	11.13	11.69	12.27	12.89	13.53	14.21	14.92	15.66	16.45	17.27	18.13
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		20.43	21.33	22.28	23.28	24.32	25.42	26.58	27.79	29.07	30.41	31.81	33.29	34.84	36.47	38.19	39.99	41.71	43.73	45.84	48.06	50.51	52.95	55.52	58.21	61.04
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
Total Fixed Cost	Rs Lakh		165.45	165.64	165.94	166.37	166.92	167.60	168.43	169.40	170.52	171.79	173.23	174.84	176.63	178.60	180.77	183.11	185.71	188.58	191.73	195.18	199.04	203.32	208.04	213.22	218.87
Per unit Fixed Cost	Rs/kWh		2.76	2.62	2.62	2.63	2.64	2.64	2.66	2.67	2.68	2.70	2.72	2.74	2.77	2.80	2.83	2.86	2.86	2.87	2.88	2.92	3.01	3.24	3.34	3.45	3.67

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	8.82	5.62	5.90	6.20	6.51	6.83	7.18	7.53	7.91	8.31	8.72	9.16	9.62	10.10	10.60	11.13	11.69	12.27	12.89	13.53	14.21	14.92	15.66	16.45	17.27	18.13
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.19
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.49	0.32	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	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88	0.92	0.97
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
Total COG	Rs/kWh	11.58	8.24	8.53	8.83	9.14	9.48	9.83	10.20	10.60	11.01	11.44	11.90	12.39	12.90	13.43	14.00	14.35	15.02	15.71	16.45	17.22	18.16	19.01	19.89	20.83	21.80
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.62																									
Levillised Tariff (Fixed)		2.76																									
Levillised Tariff	Rs/Unit	8.38																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Deprn.	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	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.37																										
Electricity Generation (Levillised)	6.04																										
Levillised benefit	Rs/Unit	0.12																									

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Andhra Pradesh					Annexure-2.4A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,019.16	1,070.12	
Per unit Variable Cost	Rs/kWh		5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.39	20.24	21.12	22.05	23.03	24.06	25.14	26.28	27.47	28.73	30.05	31.43	32.88	34.41	36.02	37.49	39.29	41.19	43.18	45.26	47.57	49.87	52.28	54.80	57.46	
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	
Total Fixed Cost	Rs Lakh		170.91	170.87	170.94	171.12	171.44	171.88	172.46	173.18	174.04	175.06	176.24	177.58	179.10	180.80	182.68	168.54	173.60	178.88	184.38	190.11	205.12	211.35	217.84	224.61	231.67	
Per unit Fixed Cost	Rs/kWh		2.87	2.77	2.77	2.77	2.77	2.78	2.79	2.79	2.81	2.82	2.84	2.86	2.88	2.90	2.93	2.96	2.73	2.81	2.90	2.99	3.08	3.32	3.42	3.53	3.64	3.75

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	8.43	5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34
O&M expn	Rs/kWh	1.09	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	1.93
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	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	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	0.93
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	11.31	8.15	8.41	8.70	9.00	9.31	9.65	10.00	10.37	10.76	11.18	11.61	12.07	12.56	13.07	13.61	13.91	14.55	15.22	15.93	16.67	17.59	18.40	19.26	20.15	21.09
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.38																									
Levillised Tariff (Fixed)		2.87																									
Levillised Tariff	Rs/Unit	8.25																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	652.00																									
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	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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.86																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	Rs/Unit	0.13																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Haryana					Annexure-2.4B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3975.3
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,002.16	1,052.26	1,104.88	1,160.12	1,218.13	
Per unit Variable Cost	Rs/kWh		6.12	6.43	6.75	7.09	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	19.74	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		21.63	22.59	23.59	24.64	25.75	26.92	28.14	29.43	30.78	32.20	33.69	35.26	36.90	38.63	40.45	42.14	44.18	46.32	48.56	50.92	53.51	56.10	58.82	61.68	64.67	
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	
Total Fixed Cost	Rs Lakh		173.15	173.22	173.40	173.72	174.16	174.74	175.46	176.33	177.35	178.53	179.88	181.41	183.12	185.02	187.11	173.19	178.49	184.01	189.76	195.77	211.06	217.58	224.39	231.48	238.88	
Per unit Fixed Cost	Rs/kWh		2.93	2.81	2.81	2.81	2.81	2.82	2.83	2.84	2.86	2.87	2.89	2.91	2.94	2.97	3.00	3.03	2.81	2.89	2.98	3.07	3.17	3.42	3.53	3.64	3.75	3.87

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	9.60	6.12	6.43	6.75	7.09	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	19.74
O&M expn	Rs/kWh	1.09	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	1.93
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	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.53	0.35	0.37	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	0.68	0.72	0.75	0.79	0.83	0.87	0.91	0.95	1.00	1.05
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	12.53	8.93	9.23	9.56	9.90	10.26	10.64	11.04	11.47	11.92	12.39	12.88	13.41	13.96	14.54	15.15	15.53	16.25	17.01	17.80	18.64	19.66	20.58	21.54	22.55	23.61
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.12																									
Levillised Tariff (Fixed)		2.93																									
Levillised Tariff	Rs/Unit	9.05																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	652.00																									
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%
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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	196.60	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levellised		7.86																								
Electricity Generation (Levillised)		5.91																								
Levillised benefit	Rs/Unit	0.13																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Maharashtra					Annexure-2.4C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4065.6
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,024.92	1,076.17	1,129.97	1,186.47	1,245.80	
Per unit Variable Cost	Rs/kWh		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	20.19	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		22.05	23.02	24.05	25.13	26.26	27.45	28.70	30.02	31.40	32.85	34.37	35.97	37.65	39.42	41.27	43.01	45.09	47.28	49.57	51.98	54.62	57.27	60.05	62.96	66.02	
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	
Total Fixed Cost	Rs Lakh		173.57	173.65	173.86	174.20	174.67	175.27	176.02	176.91	177.97	179.18	180.56	182.12	183.87	185.81	187.94	194.06	179.40	184.97	190.77	196.82	212.17	218.75	225.61	232.77	240.23	
Per unit Fixed Cost	Rs/kWh		2.94	2.81	2.81	2.82	2.82	2.83	2.84	2.85	2.87	2.88	2.90	2.93	2.95	2.98	3.01	3.05	2.82	2.91	3.00	3.09	3.19	3.44	3.54	3.66	3.77	3.89

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	9.82	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	20.19
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.54	0.36	0.37	0.39	0.41	0.43	0.44	0.47	0.49	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	1.07
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	12.76	9.07	9.39	9.72	10.07	10.44	10.83	11.24	11.67	12.13	12.61	13.12	13.66	14.22	14.81	15.44	15.83	16.57	17.34	18.16	19.01	20.05	20.98	21.97	23.00	24.08
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	6.26																										
Levillised Tariff (Fixed)	2.94																										
Levillised Tariff	9.20	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	652.00																										
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	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	34.43	18.78	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.00%	21.00%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.02	0.01	0.01	0.00	0.00	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	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	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	7.86																										
Electricity Generation (Levillised)	5.91																										
Levillised benefit	0.13	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Punjab					Annexure-2.4D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	4158.00
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,048.21	1,100.62	1,155.65	1,213.44	1,274.11	
Per unit Variable Cost	Rs/kWh		6.40	6.72	7.06	7.41	7.78	8.17	8.58	9.01	9.46	9.93	10.43	10.95	11.50	12.07	12.67	13.31	13.97	14.67	15.41	16.18	16.99	17.83	18.73	19.66	20.65	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		22.48	23.47	24.52	25.62	26.78	28.00	29.28	30.62	32.03	33.51	35.07	36.70	38.42	40.23	42.12	43.90	46.03	48.26	50.60	53.06	55.75	58.46	61.30	64.28	67.41	
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	
Total Fixed Cost	Rs Lakh		173.99	174.10	174.34	174.70	175.19	175.82	176.59	177.52	178.60	179.84	181.26	182.86	184.64	186.61	188.79	174.95	180.33	185.95	191.80	197.91	213.30	219.94	226.86	234.08	241.61	
Per unit Fixed Cost	Rs/kWh		2.95	2.82	2.82	2.82	2.83	2.84	2.85	2.86	2.88	2.89	2.91	2.94	2.96	2.99	3.02	3.06	2.83	2.92	3.01	3.11	3.21	3.46	3.56	3.68	3.79	3.92

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	10.04	6.40	6.72	7.06	7.41	7.78	8.17	8.58	9.01	9.46	9.93	10.43	10.95	11.50	12.07	12.67	13.31	13.97	14.67	15.41	16.18	16.99	17.83	18.73	19.66	20.65
O&M expn	Rs/kWh	1.09	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	1.93
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	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.55	0.36	0.38	0.40	0.42	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86	0.90	0.95	0.99	1.04	1.09
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	0.54
Total COG	Rs/kWh	12.99	9.22	9.54	9.88	10.24	10.62	11.02	11.44	11.88	12.35	12.85	13.36	13.91	14.49	15.10	15.73	16.14	16.90	17.69	18.51	19.38	20.44	21.40	22.40	23.46	24.56
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.40																									
Levillised Tariff (Fixed)		2.95																									
Levillised Tariff	Rs/Unit	9.35																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	652.00																										
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	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	34.43	18.78	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	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	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	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	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.86																										
Electricity Generation (Levillised)	5.91																										
Levillised benefit	Rs/Unit	0.13																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Rajasthan					Annexure-2.4E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,012.73	1,063.37	
Per unit Variable Cost	Rs/kWh		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	17.23	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.29	20.13	21.01	21.94	22.91	23.93	25.01	26.14	27.32	28.57	29.88	31.25	32.70	34.22	35.81	37.28	39.07	40.95	42.93	45.00	47.30	49.58	51.98	54.49	57.13	
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	
Total Fixed Cost	Rs Lakh		170.81	170.76	170.82	171.01	171.31	171.75	172.32	173.03	173.89	174.90	176.07	177.41	178.92	180.60	182.48	184.38	186.32	188.38	190.54	192.81	195.18	197.65	200.22	202.89	205.66	
Per unit Fixed Cost	Rs/kWh		2.87	2.77	2.77	2.77	2.77	2.78	2.78	2.79	2.80	2.82	2.83	2.85	2.87	2.90	2.93	2.96	2.93	2.81	2.89	2.98	3.08	3.32	3.42	3.53	3.63	3.75

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	8.38	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	17.23
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	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	0.70	0.73	0.77	0.80	0.84	0.88	0.93
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	0.54
Total COG	Rs/kWh	11.25	8.11	8.38	8.66	8.96	9.27	9.60	9.95	10.32	10.71	11.12	11.56	12.01	12.49	13.00	13.54	13.83	14.47	15.14	15.84	16.58	17.50	18.30	19.15	20.04	20.98
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.34																									
Levillised Tariff (Fixed)		2.87																									
Levillised Tariff	Rs/Unit	8.21																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	652.00																										
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	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	34.43	18.78	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	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	0.01	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	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	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.86																										
Electricity Generation (Levillised)	5.91																										
Levillised benefit	Rs/Unit	0.13																									

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Tamil Nadu					Annexure-2.4F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3435.6
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		326.42	342.74	359.88	377.88	396.77	416.61	437.44	459.31	482.28	506.39	531.71	558.30	586.21	615.52	646.30	678.61	712.54	748.17	785.58	824.86	866.10	909.40	954.87	1,002.62	1,052.75
Per unit Variable Cost	Rs/kWh		5.29	5.55	5.83	6.12	6.43	6.75	7.09	7.44	7.81	8.21	8.62	9.05	9.50	9.97	10.47	11.00	11.55	12.12	12.73	13.37	14.03	14.74	15.47	16.25	17.06
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.13	19.96	20.83	21.75	22.71	23.73	24.79	25.91	27.09	28.32	29.62	30.98	32.41	33.92	35.50	36.94	38.72	40.59	42.54	44.60	46.87	49.13	51.51	54.00	56.61
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
Total Fixed Cost	Rs Lakh		170.65	170.59	170.65	170.82	171.12	171.55	172.11	172.81	173.65	174.65	175.81	177.13	178.63	180.30	182.16	167.99	173.03	178.28	183.75	189.45	204.42	210.62	217.07	223.80	230.82
Per unit Fixed Cost	Rs/kWh		2.87	2.77	2.76	2.77	2.77	2.78	2.79	2.80	2.81	2.83	2.85	2.87	2.89	2.92	2.95	2.72	2.80	2.89	2.98	3.07	3.31	3.41	3.52	3.63	3.74

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	8.30	5.29	5.55	5.83	6.12	6.43	6.75	7.09	7.44	7.81	8.21	8.62	9.05	9.50	9.97	10.47	11.00	11.55	12.12	12.73	13.37	14.03	14.74	15.47	16.25	17.06	
O&M expn	Rs/kWh	1.09	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	1.93	
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	0.21	
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-	
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.53	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	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	0.68	0.68	0.68	0.68	
Total COG	Rs/kWh	11.16	8.05	8.32	8.60	8.89	9.20	9.53	9.88	10.24	10.63	11.04	11.46	11.92	12.39	12.90	13.42	13.72	14.35	15.01	15.71	16.44	17.35	18.15	18.99	19.87	20.80	
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Variable Cost		5.29																										
Levillised Tariff (Fixed)		2.87																										
Levillised Tariff	Rs/Unit	8.16																										

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																											
Book Depreciation rate	5.28%																											
Tax Depreciation rate	40%																											
Additional Depreciation	20%																											
Income Tax (MAT)	17.472%																											
Income Tax (Normal Rates)	34.944%																											
Capital Cost	652.00																											
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	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	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	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	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	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	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	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15		
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15		
Tax Benefit Levillised	7.86																											
Electricity Generation (Levillised)	5.91																											
Levillised benefit	Rs/Unit	0.13																										

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Telangana					Annexure-2.4G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3492.3
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

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Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,019.16	1,070.12	
Per unit Variable Cost	Rs/kWh		5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.39	20.24	21.12	22.05	23.03	24.06	25.14	26.28	27.47	28.73	30.05	31.43	32.88	34.41	36.02	37.49	39.29	41.19	43.18	45.26	47.57	49.87	52.28	54.80	57.46	
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	
Total Fixed Cost	Rs Lakh		170.91	170.87	170.94	171.12	171.44	171.88	172.46	173.18	174.04	175.06	176.24	177.58	179.10	180.80	182.68	184.74	186.98	189.40	192.00	194.78	197.74	200.88	204.18	207.63	211.24	
Per unit Fixed Cost	Rs/kWh	2.87	2.77	2.77	2.77	2.77	2.78	2.79	2.79	2.81	2.82	2.84	2.86	2.88	2.90	2.93	2.96	2.97	2.99	3.08	3.32	3.42	3.53	3.64	3.75			

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	8.43	5.38	5.65	5.93	6.22	6.54	6.86	7.21	7.57	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.32	12.94	13.59	14.27	14.98	15.73	16.51	17.34
O&M expn	Rs/kWh	1.09	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	1.93
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	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	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	0.93
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	11.31	8.15	8.41	8.70	9.00	9.31	9.65	10.00	10.37	10.76	11.18	11.61	12.07	12.56	13.07	13.61	13.91	14.55	15.22	15.93	16.67	17.59	18.40	19.26	20.15	21.09
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.38																									
Levillised Tariff (Fixed)		2.87																									
Levillised Tariff	Rs/Unit	8.25																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	652.00

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	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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	195.60	228.20	91.28	54.77	32.86	19.72	11.83	7.10	4.26	2.96	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		7.86																								
Electricity Generation (Levillised)		5.91																								
Levillised benefit	Rs/Unit	0.13																								

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Uttar Pradesh					Annexure-2.4H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3553.2
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		337.60	354.48	372.20	390.81	410.35	430.87	452.41	475.03	498.78	523.72	549.91	577.41	606.28	636.59	668.42	701.84	736.93	773.78	812.47	853.09	895.75	940.53	987.56	1,036.94	1,088.78	
Per unit Variable Cost	Rs/kWh		5.47	5.74	6.03	6.33	6.65	6.98	7.33	7.70	8.08	8.49	8.91	9.36	9.82	10.32	10.83	11.37	11.94	12.54	13.17	13.82	14.51	15.24	16.00	16.80	17.64	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.67	20.53	21.43	22.38	23.38	24.42	25.52	26.68	27.89	29.17	30.50	31.91	33.39	34.94	36.57	38.07	39.91	41.84	43.86	45.98	48.32	50.65	53.10	55.67	58.37	
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	
Total Fixed Cost	Rs Lakh		171.19	171.16	171.25	171.45	171.78	172.24	172.84	173.57	174.46	175.50	176.70	178.06	179.61	181.33	183.24	169.12	174.22	179.52	185.06	190.83	205.87	212.13	218.67	225.48	232.58	
Per unit Fixed Cost	Rs/kWh		2.88	2.77	2.77	2.77	2.78	2.78	2.79	2.80	2.81	2.83	2.84	2.86	2.89	2.91	2.94	2.97	2.74	2.82	2.91	3.00	3.09	3.34	3.44	3.54	3.65	3.77

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	8.58	5.47	5.74	6.03	6.33	6.65	6.98	7.33	7.70	8.08	8.49	8.91	9.36	9.82	10.32	10.83	11.37	11.94	12.54	13.17	13.82	14.51	15.24	16.00	16.80	17.64
O&M expn	Rs/kWh	1.09	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	1.93
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	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.48	0.32	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	0.75	0.78	0.82	0.86	0.90	0.95
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	11.46	8.24	8.52	8.81	9.11	9.43	9.77	10.13	10.51	10.91	11.33	11.77	12.24	12.73	13.25	13.80	14.11	14.76	15.45	16.16	16.92	17.85	18.68	19.55	20.46	21.41
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost			5.47																								
Levillised Tariff (Fixed)			2.88																								
Levillised Tariff	Rs/Unit		8.35																								

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	652.00

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	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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised			7.86																							
Electricity Generation (Levillised)			5.91																							
Levillised benefit	Rs/Unit		0.13																							

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Grate- Other States					Annexure-2.4I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4200.00
			During stabilization period	Kcal/kWh	4200.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		354.86	372.60	391.23	410.79	431.33	452.90	475.54	499.32	524.28	550.50	578.02	606.92	637.27	669.13	702.59	737.72	774.61	813.34	854.00	896.70	941.54	988.62	1,038.05	1,089.95	1,144.45	
Per unit Variable Cost	Rs/kWh		5.75	6.04	6.34	6.66	6.99	7.34	7.71	8.09	8.50	8.92	9.37	9.83	10.33	10.84	11.38	11.95	12.55	13.18	13.84	14.53	15.26	16.02	16.82	17.66	18.54	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		20.52	21.42	22.36	23.35	24.40	25.50	26.65	27.86	29.13	30.47	31.88	33.35	34.90	36.53	38.24	39.92	41.75	43.76	45.88	48.10	50.55	53.00	55.56	58.26	61.08	
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	
Total Fixed Cost	Rs Lakh		172.03	172.05	172.17	172.43	172.80	173.32	173.96	174.76	175.70	176.80	178.07	179.50	181.12	182.92	184.91	170.87	176.05	181.45	187.08	192.95	208.10	214.48	221.13	228.06	235.29	
Per unit Fixed Cost	Rs/kWh		2.90	2.79	2.79	2.79	2.79	2.80	2.81	2.82	2.83	2.85	2.86	2.89	2.91	2.93	2.96	3.00	2.77	2.85	2.94	3.03	3.13	3.37	3.48	3.58	3.70	3.81

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	9.02	5.75	6.04	6.34	6.66	6.99	7.34	7.71	8.09	8.50	8.92	9.37	9.83	10.33	10.84	11.38	11.95	12.55	13.18	13.84	14.53	15.26	16.02	16.82	17.66	18.54
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
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	0.99
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	0.54
Total COG	Rs/kWh	11.92	8.54	8.83	9.13	9.45	9.79	10.15	10.52	10.92	11.34	11.79	12.25	12.74	13.26	13.81	14.38	14.72	15.40	16.12	16.87	17.66	18.63	19.50	20.40	21.36	22.36
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.75																									
Levillised Tariff (Fixed)		2.90																									
Levillised Tariff	Rs/Unit	8.65																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	652.00																									
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	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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		7.86																								
Electricity Generation (Levillised)		5.91																								
Levillised benefit	Rs/Unit	0.13																								

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Andhra Pradesh					Annexure-2.5A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			Interest On Working Capital	%	10.50%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01	
Per unit Variable Cost	Rs/kWh		5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		18.91	19.74	20.62	21.54	22.51	23.52	24.59	25.71	26.89	28.13	29.43	30.80	32.23	33.74	35.32	36.80	38.58	40.44	42.39	44.45	46.70	48.96	51.33	53.81	56.42	
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	
Total Fixed Cost	Rs Lakh		155.69	156.03	156.48	157.05	157.74	158.56	159.51	160.61	161.85	163.24	164.79	166.51	168.40	170.47	172.72	161.26	166.29	171.54	177.00	182.70	196.38	202.57	209.03	215.75	222.77	
Per unit Fixed Cost	Rs/kWh	2.62	2.47	2.47	2.48	2.49	2.50	2.51	2.53	2.54	2.56	2.59	2.61	2.64	2.67	2.70	2.74	2.55	2.63	2.72	2.80	2.89	3.11	3.21	3.31	3.42	3.53	

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	8.10	5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.74	0.78	0.81	0.85	0.89
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	10.72	7.63	7.89	8.17	8.47	8.78	9.10	9.45	9.81	10.19	10.60	11.02	11.47	11.94	12.44	12.96	13.29	13.91	14.55	15.23	15.94	16.81	17.59	18.42	19.28	20.18
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.16																									
Levillised Tariff (Fixed)		2.62																									
Levillised Tariff	Rs/Unit	7.78																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	559.00																										
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depn.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	6.31
Per unit benefit	Rs/Unit	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	6.74																										
Electricity Generation (Levillised)	6.04																										
Levillised benefit	Rs/Unit	0.11																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Haryana					Annexure-2.5B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3975.3
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		370.96	389.50	408.98	429.43	450.90	473.45	497.12	521.97	548.07	575.48	604.25	634.46	666.19	699.49	734.47	771.19	809.75	850.24	892.75	937.39	984.26	1,033.47	1,085.15	1,139.40	1,196.37	
Per unit Variable Cost	Rs/kWh		5.88	6.17	6.48	6.80	7.14	7.50	7.88	8.27	8.68	9.12	9.57	10.05	10.56	11.08	11.64	12.22	12.83	13.47	14.14	14.85	15.59	16.37	17.19	18.05	18.96	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		21.11	22.05	23.04	24.08	25.18	26.33	27.54	28.81	30.14	31.54	33.01	34.56	36.18	37.88	39.67	41.37	43.37	45.48	47.68	50.00	52.53	55.08	57.76	60.56	63.51	
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	
Total Fixed Cost	Rs Lakh		157.89	158.33	158.90	159.59	160.41	161.36	162.46	163.70	165.10	166.65	168.37	170.27	172.34	174.61	177.07	165.83	171.09	176.57	182.29	188.26	202.21	208.70	215.46	222.50	229.85	
Per unit Fixed Cost	Rs/kWh		2.67	2.50	2.51	2.52	2.53	2.54	2.56	2.57	2.59	2.62	2.64	2.67	2.70	2.73	2.77	2.81	2.63	2.71	2.80	2.89	2.98	3.20	3.31	3.41	3.53	3.64

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	
Per unit Variable Cost	Rs/kWh	9.22	5.88	6.17	6.48	6.80	7.14	7.50	7.88	8.27	8.68	9.12	9.57	10.05	10.56	11.08	11.64	12.22	12.83	13.47	14.14	14.85	15.59	16.37	17.19	18.05	18.96
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.50	0.33	0.35	0.37	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	0.92	0.96	1.01
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	11.89	8.38	8.68	9.00	9.33	9.69	10.06	10.45	10.86	11.30	11.76	12.24	12.75	13.29	13.85	14.44	14.85	15.54	16.27	17.03	17.83	18.80	19.68	20.61	21.58	22.60
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.88																									
Levelised Tariff (Fixed)		2.67																									
Levelised Tariff	Rs/Unit	8.55																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	559.00																										
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levelised	6.74																										
Electricity Generation (Levelised)	6.04																										
Levelised benefit	Rs/Unit	0.11																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Maharashtra					Annexure-2.5C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4065.6
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		379.38	398.35	418.27	439.18	461.14	484.20	508.41	533.83	560.52	588.55	617.98	648.87	681.32	715.38	751.15	788.71	828.15	869.55	913.03	958.68	1,006.62	1,056.95	1,109.80	1,165.29	1,223.55
Per unit Variable Cost	Rs/kWh		6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.32	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		21.52	22.48	23.49	24.56	25.68	26.85	28.09	29.38	30.75	32.18	33.68	35.26	36.92	38.66	40.49	42.22	44.27	46.42	48.67	51.04	53.62	56.23	58.96	61.83	64.83
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		158.30	158.76	159.35	160.07	160.91	161.89	163.01	164.28	165.70	167.29	169.04	170.97	173.08	175.38	177.89	180.68	183.78	187.15	190.81	194.78	199.07	203.69	208.66	213.97	219.64
Per unit Fixed Cost	Rs/kWh	2.68	2.51	2.52	2.52	2.54	2.55	2.56	2.58	2.60	2.63	2.65	2.68	2.71	2.74	2.78	2.82	2.86	2.91	2.96	3.01	3.07	3.13	3.19	3.25	3.31	3.36

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	9.43	6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.32	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.52	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.74	0.77	0.81	0.85	0.89	0.93	0.98	1.03
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	12.11	8.52	8.83	9.15	9.49	9.86	10.24	10.64	11.06	11.51	11.98	12.47	12.99	13.54	14.11	14.72	15.14	15.85	16.59	17.37	18.19	19.17	20.07	21.02	22.01	23.05
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.01																									
Levillised Tariff (Fixed)		2.68																									
Levillised Tariff	Rs/Unit	8.69																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	6.74																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	Rs/Unit	0.11																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Punjab					Annexure-2.5D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4158
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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-->																									
Biomass Cost	Rs. Lakh		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	1,029.49	1,080.97	1,135.02	1,191.77	1,251.36
Per unit Variable Cost	Rs/kWh		6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
Fixed Cost	Unit	Year-->																									
O&M Expenses	Rs Lakh		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		21.94	22.92	23.96	25.05	26.19	27.39	28.65	29.98	31.37	32.83	34.37	35.98	37.67	39.45	41.32	43.10	45.19	47.38	49.68	52.10	54.74	57.40	60.19	63.12	66.19
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		158.72	159.21	159.82	160.55	161.42	162.42	163.57	164.87	166.32	167.94	169.73	171.69	173.84	176.18	178.72	181.45	184.29	187.24	190.30	193.47	196.75	200.14	203.64	207.25	210.97
Per unit Fixed Cost	Rs/kWh	2.69	2.51	2.52	2.53	2.54	2.56	2.57	2.59	2.61	2.64	2.66	2.69	2.72	2.75	2.79	2.83	2.85	2.87	2.92	2.96	3.02	3.08	3.14	3.21	3.28	3.36

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	9.64	6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.53	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	1.05
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	12.34	8.66	8.98	9.31	9.66	10.03	10.42	10.83	11.26	11.72	12.20	12.70	13.23	13.79	14.38	15.00	15.64	16.31	16.99	17.71	18.45	19.25	20.11	21.02	21.98	23.00
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	6.15																										
Levillised Tariff (Fixed)	2.69																										
Levillised Tariff	8.84	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	559.00																										
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	Rs Lakh	167.70	195.85	78.26	48.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	0.00	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	6.31
Per unit benefit	Rs/Unit	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	6.74																										
Electricity Generation (Levillised)	6.04																										
Levillised benefit	0.11	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Rajasthan					Annexure-2.5E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			Interest On Working Capital	%	10.50%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		323.83	340.02	357.02	374.87	393.62	413.30	433.96	455.66	478.44	502.36	527.48	553.86	581.55	610.63	641.16	673.22	706.88	742.22	779.33	818.30	859.21	902.17	947.28	994.65	1,044.38	
Per unit Variable Cost	Rs/kWh		5.13	5.39	5.66	5.94	6.24	6.55	6.88	7.22	7.58	7.96	8.36	8.78	9.21	9.67	10.16	10.67	11.20	11.76	12.35	12.97	13.61	14.29	15.01	15.76	16.55	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		18.81	19.64	20.51	21.42	22.38	23.40	24.46	25.57	26.74	27.97	29.27	30.62	32.05	33.55	35.12	36.59	38.36	40.21	42.15	44.19	46.43	48.68	51.03	53.50	56.10	
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	
Total Fixed Cost	Rs Lakh		155.59	155.92	156.37	156.93	157.62	158.43	159.38	160.47	161.70	163.09	164.63	166.34	168.22	170.28	172.52	161.05	166.07	171.31	176.76	182.45	196.12	202.29	208.73	215.45	222.44	
Per unit Fixed Cost	Rs/kWh		2.62	2.47	2.47	2.48	2.49	2.50	2.51	2.53	2.54	2.56	2.58	2.61	2.64	2.67	2.70	2.73	2.55	2.63	2.71	2.80	2.89	3.11	3.21	3.31	3.41	3.52

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	8.05	5.13	5.39	5.66	5.94	6.24	6.55	6.88	7.22	7.58	7.96	8.36	8.78	9.21	9.67	10.16	10.67	11.20	11.76	12.35	12.97	13.61	14.29	15.01	15.76	16.55
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.32	0.34	0.35	0.37	0.39	0.41	0.42	0.44	0.46	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.74	0.77	0.81	0.85	0.89
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	10.66	7.60	7.86	8.13	8.43	8.73	9.06	9.40	9.76	10.14	10.54	10.97	11.41	11.88	12.37	12.89	13.22	13.83	14.47	15.15	15.86	16.72	17.50	18.32	19.17	20.07
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.13																										
Levillised Tariff (Fixed)	2.62																										
Levillised Tariff	7.75	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																								
Book Depreciation rate		5.28%																								
Tax Depreciation rate		40%																								
Additional Depreciation		20%																								
Income Tax (MAT)		17.472%																								
Income Tax (Normal Rates)		34.944%																								
Capital Cost		559.00																								
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		6.74																								
Electricity Generation (Levillised)		6.04																								
Levillised benefit	0.11	Rs/Unit																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Tamil Nadu					Annexure-2.5F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3435.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		320.59	336.62	353.46	371.13	389.68	409.17	429.63	451.11	473.66	497.35	522.21	548.33	575.74	604.53	634.76	666.49	699.82	734.81	771.55	810.13	850.63	893.16	937.82	984.71	1,033.95
Per unit Variable Cost	Rs/kWh		5.08	5.33	5.60	5.88	6.17	6.48	6.81	7.15	7.50	7.88	8.27	8.69	9.12	9.58	10.06	10.56	11.09	11.64	12.22	12.84	13.48	14.15	14.86	15.60	16.38
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		18.65	19.47	20.33	21.24	22.19	23.19	24.25	25.35	26.51	27.73	29.01	30.36	31.77	33.25	34.81	36.26	38.01	39.85	41.77	43.79	46.01	48.24	50.57	53.02	55.59
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		155.43	155.75	156.19	156.75	157.42	158.23	159.17	160.25	161.47	162.84	164.37	166.07	167.93	169.98	172.21	174.62	177.23	180.04	183.06	186.29	189.74	193.50	197.58	201.99	206.74
Per unit Fixed Cost	Rs/kWh		2.61	2.46	2.47	2.47	2.48	2.49	2.51	2.52	2.54	2.56	2.58	2.60	2.63	2.66	2.69	2.73	2.75	2.83	2.91	2.99	3.08	3.17	3.26	3.35	3.44

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	7.97	5.08	5.33	5.60	5.88	6.17	6.48	6.81	7.15	7.50	7.88	8.27	8.69	9.12	9.58	10.06	10.56	11.09	11.64	12.22	12.84	13.48	14.15	14.86	15.60	16.38
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.44	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	0.53	0.55	0.57	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	10.58	7.54	7.80	8.07	8.36	8.67	8.99	9.33	9.69	10.06	10.46	10.88	11.32	11.78	12.27	12.79	13.11	13.71	14.35	15.02	15.72	16.58	17.35	18.16	19.01	19.90
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.08																									
Levillised Tariff (Fixed)		2.61																									
Levillised Tariff	Rs/Unit	7.69																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	6.74																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	Rs/Unit	0.11																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Telangana					Annexure-2.5G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01	
Per unit Variable Cost	Rs/kWh		5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		18.91	19.74	20.62	21.54	22.51	23.52	24.59	25.71	26.89	28.13	29.43	30.80	32.23	33.74	35.32	36.80	38.58	40.44	42.39	44.45	46.70	48.96	51.33	53.81	56.42	
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	
Total Fixed Cost	Rs Lakh		155.69	156.03	156.48	157.05	157.74	158.56	159.51	160.61	161.85	163.24	164.79	166.51	168.40	170.47	172.72	161.26	166.29	171.54	177.00	182.70	196.38	202.57	209.03	215.75	222.77	
Per unit Fixed Cost	Rs/kWh	2.62	2.47	2.47	2.48	2.49	2.50	2.51	2.53	2.54	2.56	2.59	2.61	2.64	2.67	2.70	2.74	2.55	2.63	2.72	2.80	2.89	3.11	3.21	3.31	3.42	3.53	

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	8.10	5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.74	0.78	0.81	0.85	0.89
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	10.72	7.63	7.89	8.17	8.47	8.78	9.10	9.45	9.81	10.19	10.60	11.02	11.47	11.94	12.44	12.96	13.29	13.91	14.55	15.23	15.94	16.81	17.59	18.42	19.28	20.18
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.16																										
Levillised Tariff (Fixed)	2.62																										
Levillised Tariff	7.78	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.00%	35.00%	21.00%	12.60%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	6.74																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	0.11	Rs/Unit																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Uttar Pradesh					Annexure-2.5H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3553.20
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		331.57	348.15	365.55	383.83	403.02	423.17	444.33	466.55	489.88	514.37	540.09	567.09	595.45	625.22	656.48	689.31	723.77	759.96	797.96	837.86	879.75	923.74	969.92	1,018.42	1,069.34	
Per unit Variable Cost	Rs/kWh		5.25	5.52	5.79	6.08	6.39	6.70	7.04	7.39	7.76	8.15	8.56	8.99	9.43	9.91	10.40	10.92	11.47	12.04	12.64	13.28	13.94	14.64	15.37	16.14	16.94	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		19.18	20.03	20.92	21.86	22.84	23.88	24.96	26.10	27.30	28.56	29.88	31.27	32.73	34.26	35.87	37.38	39.18	41.07	43.06	45.15	47.43	49.73	52.14	54.66	57.31	
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	36.09	36.09	36.09	36.09	
Total Fixed Cost	Rs Lakh		155.97	156.32	156.78	157.37	158.07	158.91	159.88	161.00	162.26	163.67	165.24	166.98	168.89	170.99	173.27	161.83	166.89	172.17	177.67	183.40	197.12	203.35	209.84	216.60	223.66	
Per unit Fixed Cost	Rs/kWh		2.62	2.47	2.48	2.48	2.49	2.50	2.52	2.53	2.55	2.57	2.59	2.62	2.65	2.68	2.71	2.75	2.56	2.64	2.73	2.82	2.91	3.12	3.22	3.32	3.43	3.54

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	8.24	5.25	5.52	5.79	6.08	6.39	6.70	7.04	7.39	7.76	8.15	8.56	8.99	9.43	9.91	10.40	10.92	11.47	12.04	12.64	13.28	13.94	14.64	15.37	16.14	16.94
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.68	0.72	0.75	0.79	0.83	0.87	0.91
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	10.86	7.72	7.99	8.28	8.57	8.89	9.22	9.57	9.94	10.33	10.74	11.18	11.63	12.11	12.62	13.15	13.49	14.11	14.77	15.46	16.18	17.06	17.86	18.69	19.57	20.49
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.25																									
Levilled Tariff (Fixed)		2.62																									
Levilled Tariff	Rs/Unit	7.88																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	559.00																									
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levilled	6.74																									
Electricity Generation (Levilled)	6.04																									
Levilled benefit	Rs/Unit	0.11																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Other States					Annexure-2.5I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,019.51	1,070.49	1,124.01
Per unit Variable Cost	Rs/kWh		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	12.66	13.29	13.95	14.65	15.38	16.15	16.96	17.81
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		20.01	20.90	21.83	22.82	23.85	24.93	26.07	27.27	28.52	29.84	31.23	32.68	34.21	35.82	37.51	39.09	40.98	42.97	45.05	47.23	49.63	52.03	54.56	57.20	59.98
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45
Total Fixed Cost	Rs Lakh		156.79	157.18	157.69	158.32	159.08	159.97	160.99	162.16	163.48	164.95	166.59	168.40	170.38	172.55	174.91	163.55	168.70	174.06	179.66	185.49	199.31	205.65	212.26	219.14	226.33
Per unit Fixed Cost	Rs/kWh		2.65	2.48	2.49	2.50	2.51	2.52	2.53	2.55	2.57	2.59	2.61	2.64	2.67	2.70	2.73	2.77	2.59	2.67	2.76	2.85	2.94	3.16	3.26	3.36	3.47

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	8.66	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	12.66	13.29	13.95	14.65	15.38	16.15	16.96	17.81
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.48	0.32	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	0.75	0.79	0.82	0.86	0.91	0.95
RoE	Rs/kWh	0.46	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
Total COG	Rs/kWh	11.31	8.01	8.29	8.59	8.90	9.23	9.58	9.95	10.34	10.75	11.18	11.63	12.11	12.62	13.15	13.70	14.07	14.73	15.41	16.14	16.89	17.81	18.64	19.52	20.43	21.39
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.52																										
Levilled Tariff (Fixed)	2.65																										
Levilled Tariff	8.17	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	559.00																										
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	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depn.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	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	6.31
Per unit benefit	Rs/Unit	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levilled	6.74																										
Electricity Generation (Levilled)	6.04																										
Levilled benefit	0.11	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Andhra Pradesh					Annexure-2.6A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01	
Per unit Variable Cost	Rs/kWh		5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.99	19.83	20.70	21.62	22.58	23.60	24.66	25.78	26.96	28.20	29.49	30.86	32.29	33.79	35.37	36.84	38.61	40.48	42.43	44.48	46.75	49.00	51.37	53.86	56.47	
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	
Total Fixed Cost	Rs Lakh		162.27	162.43	162.71	163.10	163.62	164.27	165.05	165.97	167.04	168.25	169.63	171.17	172.89	174.78	176.86	164.20	169.23	174.48	179.95	185.65	199.90	206.09	212.54	219.27	226.28	
Per unit Fixed Cost	Rs/kWh		2.76	2.63	2.63	2.64	2.64	2.65	2.66	2.67	2.69	2.71	2.73	2.75	2.77	2.80	2.83	2.87	2.66	2.74	2.83	2.92	3.01	3.24	3.34	3.44	3.55	3.67

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	8.28	5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03
O&M expn	Rs/kWh	1.09	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	1.93
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	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.79	0.83	0.87	0.92
RoE	Rs/kWh	0.51	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
Total COG	Rs/kWh	11.04	7.91	8.18	8.46	8.76	9.07	9.40	9.75	10.12	10.51	10.92	11.35	11.81	12.28	12.79	13.32	13.64	14.27	14.93	15.62	16.35	17.25	18.05	18.89	19.77	20.70
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.28																									
Levillised Tariff (Fixed)		2.76																									
Levillised Tariff		8.04	Rs/Unit																								

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	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%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	
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	
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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised		7.24																									
Electricity Generation (Levillised)		5.91																									
Levillised benefit		0.12	Rs/Unit																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Haryana					Annexure-2.6B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3975.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		370.96	389.50	408.98	429.43	450.90	473.45	497.12	521.97	548.07	575.48	604.25	634.46	666.19	699.49	734.47	771.19	809.75	850.24	892.75	937.39	984.26	1,033.47	1,085.15	1,139.40	1,196.37
Per unit Variable Cost	Rs/kWh		6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.33	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		21.19	22.13	23.12	24.16	25.26	26.40	27.61	28.88	30.21	31.61	33.07	34.62	36.24	37.94	39.73	41.41	43.41	45.51	47.72	50.04	52.58	55.13	57.80	60.61	63.56
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
Total Fixed Cost	Rs Lakh		164.47	164.74	165.13	165.65	166.29	167.07	168.00	169.06	170.28	171.66	173.21	174.93	176.83	178.92	181.21	168.77	174.03	179.52	185.24	191.20	205.73	212.21	218.97	226.02	233.37
Per unit Fixed Cost	Rs/kWh	2.82	2.67	2.67	2.68	2.68	2.69	2.71	2.72	2.74	2.76	2.78	2.81	2.83	2.87	2.90	2.94	2.73	2.82	2.91	3.00	3.10	3.33	3.44	3.55	3.66	3.78

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	9.43	6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.33	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.52	0.34	0.36	0.37	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	0.70	0.74	0.77	0.81	0.85	0.89	0.94	0.98	1.03
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	12.25	8.68	8.98	9.30	9.64	10.00	10.38	10.78	11.20	11.64	12.11	12.60	13.12	13.66	14.23	14.84	15.23	15.94	16.69	17.47	18.29	19.28	20.19	21.13	22.13	23.17
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	6.01																										
Levillised Tariff (Fixed)	2.82																										
Levillised Tariff	8.83	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	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
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	-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	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.24																										
Electricity Generation (Levillised)	5.91																										
Levillised benefit	0.12	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Maharashtra					Annexure-2.6C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4065.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		379.38	398.35	418.27	439.18	461.14	484.20	508.41	533.83	560.52	588.55	617.98	648.87	681.32	715.38	751.15	788.71	828.15	869.55	913.03	958.68	1,006.62	1,056.95	1,109.80	1,165.29	1,223.55
Per unit Variable Cost	Rs/kWh		6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		21.60	22.56	23.58	24.64	25.75	26.93	28.16	29.45	30.81	32.24	33.74	35.32	36.98	38.71	40.54	42.46	44.41	46.46	48.71	51.08	53.67	56.27	59.00	61.87	64.88
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	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		164.88	165.17	165.59	166.12	166.79	167.60	168.55	169.64	170.89	172.30	173.88	175.63	177.57	179.70	182.03	184.62	187.43	190.46	193.73	197.24	201.02	205.07	209.39	213.97	218.82
Per unit Fixed Cost	Rs/kWh	2.83	2.67	2.68	2.68	2.69	2.70	2.72	2.73	2.75	2.77	2.79	2.82	2.85	2.88	2.91	2.95	2.75	2.83	2.92	3.02	3.12	3.35	3.46	3.57	3.68	3.80
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
Per unit Variable Cost	Rs/kWh	9.64	6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
O&M expn	Rs/kWh	1.09	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	1.93
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	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.53	0.35	0.37	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	0.68	0.72	0.75	0.79	0.83	0.87	0.91	0.96	1.00	1.05
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	12.47	8.82	9.13	9.46	9.81	10.18	10.56	10.97	11.40	11.85	12.33	12.83	13.36	13.92	14.50	15.12	15.53	16.25	17.01	17.81	18.65	19.66	20.58	21.55	22.57	23.63
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.15																									
Levelised Tariff (Fixed)		2.83																									
Levelised Tariff	Rs/Unit	8.97																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.00%	35.00%	21.00%	12.60%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depn.	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	0.01	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	0.01	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	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	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	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levelised	7.24																										
Electricity Generation (Levelised)	5.91																										
Levelised benefit	Rs/Unit	0.12																									

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Punjab					Annexure-2.6D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4158
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
			O&M Expenses	Rs Lakh	48.20
05	Operation & Maintenance	O & M Expenses Escalation	%	3.84%	
		06	Generation & Sale of Energy	Total No .Of Hours	Hrs

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Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,029.49	1,080.97	1,135.02	1,191.77	1,251.36
Per unit Variable Cost	Rs/kWh		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	20.28
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		22.02	23.01	24.04	25.13	26.27	27.46	28.72	30.05	31.44	32.90	34.43	36.04	37.73	39.51	41.37	43.14	45.23	47.42	49.72	52.14	54.78	57.44	60.23	63.16	66.24
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	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		165.30	165.62	166.05	166.61	167.30	168.14	169.11	170.23	171.51	172.95	174.57	176.35	178.33	180.49	182.86	170.50	175.85	181.42	187.24	193.30	207.93	214.53	221.40	228.57	236.05
Per unit Fixed Cost	Rs/kWh	2.84	2.68	2.68	2.69	2.70	2.71	2.72	2.74	2.76	2.78	2.80	2.83	2.86	2.89	2.92	2.96	2.76	2.85	2.94	3.03	3.13	3.37	3.48	3.59	3.70	3.82

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	
Per unit Variable Cost	Rs/kWh	9.86	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	20.28
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.54	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.81	0.84	0.89	0.93	0.98	1.02	1.07
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	12.70	8.97	9.29	9.62	9.98	10.35	10.75	11.17	11.61	12.07	12.56	13.07	13.61	14.18	14.78	15.41	15.83	16.57	17.35	18.17	19.02	20.05	20.99	21.98	23.02	24.10
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.29																									
Levelised Tariff (Fixed)		2.84																									
Levelised Tariff	Rs/Unit	9.12																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	0.01	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	0.01	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levelised		7.24																								
Electricity Generation (Levelised)		5.91																								
Levelised benefit	Rs/Unit	0.12																								

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Rajasthan					Annexure-2.6E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		323.83	340.02	357.02	374.87	393.62	413.30	433.96	455.66	478.44	502.36	527.48	553.86	581.55	610.63	641.16	673.22	706.88	742.22	779.33	818.30	859.21	902.17	947.28	994.65	1,044.38	
Per unit Variable Cost	Rs/kWh		5.25	5.51	5.79	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91	11.45	12.03	12.63	13.26	13.92	14.62	15.35	16.12	16.92	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.89	19.72	20.59	21.50	22.46	23.47	24.53	25.64	26.81	28.04	29.33	30.69	32.11	33.61	35.18	36.83	38.39	40.25	42.19	44.23	46.48	48.72	51.08	53.55	56.14	
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	
Total Fixed Cost	Rs Lakh		162.17	162.33	162.60	162.99	163.50	164.14	164.92	165.83	166.89	168.10	169.47	171.00	172.71	174.59	176.66	163.99	169.02	174.25	179.71	185.39	199.63	205.81	212.25	218.96	225.95	
Per unit Fixed Cost	Rs/kWh		2.76	2.63	2.63	2.63	2.64	2.65	2.66	2.67	2.69	2.70	2.72	2.75	2.77	2.80	2.83	2.86	2.66	2.74	2.82	2.91	3.00	3.23	3.33	3.44	3.55	3.66

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	8.23	5.25	5.51	5.79	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91	11.45	12.03	12.63	13.26	13.92	14.62	15.35	16.12	16.92
O&M expn	Rs/kWh	1.09	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	1.93
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	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.33	0.35	0.36	0.38	0.40	0.42	0.43	0.45	0.48	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.72	0.75	0.79	0.83	0.87	0.91
RoE	Rs/kWh	0.51	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
Total COG	Rs/kWh	10.99	7.88	8.14	8.42	8.72	9.03	9.36	9.70	10.07	10.46	10.86	11.29	11.75	12.22	12.72	13.25	13.57	14.19	14.85	15.54	16.26	17.16	17.95	18.79	19.67	20.58
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.25																										
Levillised Tariff (Fixed)	2.76																										
Levillised Tariff	8.01	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.12	Rs/Unit																								

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Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Tamil Nadu					Annexure-2.6F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3435.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		320.59	336.62	353.46	371.13	389.68	409.17	429.63	451.11	473.66	497.35	522.21	548.33	575.74	604.53	634.76	666.49	699.82	734.81	771.55	810.13	850.63	893.16	937.82	984.71	1,033.95	
Per unit Variable Cost	Rs/kWh		5.19	5.45	5.73	6.01	6.31	6.63	6.96	7.31	7.68	8.06	8.46	8.89	9.33	9.80	10.29	10.80	11.34	11.91	12.50	13.13	13.78	14.47	15.20	15.96	16.75	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.74	19.55	20.42	21.32	22.27	23.27	24.32	25.42	26.58	27.80	29.07	30.42	31.83	33.31	34.86	36.30	37.85	39.39	40.92	42.54	44.21	45.93	47.70	49.52	51.39	
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	
Total Fixed Cost	Rs Lakh		162.01	162.16	162.43	162.81	163.31	163.94	164.70	165.61	166.65	167.85	169.21	170.73	172.42	174.29	176.35	163.66	168.67	173.89	179.33	184.99	199.21	205.37	211.79	218.47	225.45	
Per unit Fixed Cost	Rs/kWh		2.75	2.63	2.63	2.63	2.64	2.65	2.66	2.67	2.68	2.70	2.72	2.74	2.77	2.79	2.82	2.86	2.85	2.73	2.82	2.91	3.00	3.23	3.33	3.43	3.54	3.65

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	8.15	5.19	5.45	5.73	6.01	6.31	6.63	6.96	7.31	7.68	8.06	8.46	8.89	9.33	9.80	10.29	10.80	11.34	11.91	12.50	13.13	13.78	14.47	15.20	15.96	16.75
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86	0.90
RoE	Rs/kWh	0.51	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
Total COG	Rs/kWh	10.90	7.82	8.08	8.36	8.65	8.96	9.29	9.63	9.99	10.38	10.78	11.20	11.65	12.12	12.62	13.14	13.45	14.07	14.72	15.41	16.13	17.01	17.80	18.63	19.50	20.41
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.19																									
Levillised Tariff (Fixed)		2.75																									
Levillised Tariff	Rs/Unit	7.95																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	Rs/Unit	0.12																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Telangana					Annexure-2.6G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy	Total No .Of Hours	Hrs	8766.00	

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01	
Per unit Variable Cost	Rs/kWh		5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.99	19.83	20.70	21.62	22.58	23.60	24.66	25.78	26.96	28.20	29.49	30.86	32.29	33.79	35.37	36.84	38.61	40.48	42.43	44.48	46.75	49.00	51.37	53.86	56.47	
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	
Total Fixed Cost	Rs Lakh		162.27	162.43	162.71	163.10	163.62	164.27	165.05	165.97	167.04	168.25	169.63	171.17	172.89	174.78	176.86	164.20	169.23	174.48	179.95	185.65	199.90	206.09	212.54	219.27	226.28	
Per unit Fixed Cost	Rs/kWh	2.76	2.63	2.63	2.64	2.64	2.65	2.66	2.67	2.69	2.71	2.73	2.75	2.77	2.80	2.83	2.87	2.66	2.74	2.83	2.92	3.01	3.24	3.34	3.44	3.55	3.67	

Levellised 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	8.28	5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03
O&M expn	Rs/kWh	1.09	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	1.93
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	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.79	0.83	0.87	0.92
RoE	Rs/kWh	0.51	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
Total COG	Rs/kWh	11.04	7.91	8.18	8.46	8.76	9.07	9.40	9.75	10.12	10.51	10.92	11.35	11.81	12.28	12.79	13.32	13.64	14.27	14.93	15.62	16.35	17.25	18.05	18.89	19.77	20.70
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.28																										
Levellised Tariff (Fixed)	2.76																										
Levellised Tariff	8.04	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levellised	7.24																									
Electricity Generation (Levellised)	5.91																									
Levellised benefit	0.12	Rs/Unit																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Uttar Pradesh					Annexure-2.6H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3553.20
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		331.57	348.15	365.55	383.83	403.02	423.17	444.33	466.55	489.88	514.37	540.09	567.09	595.45	625.22	656.48	689.31	723.77	759.96	797.96	837.86	879.75	923.74	969.92	1,018.42	1,069.34	
Per unit Variable Cost	Rs/kWh		5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17	11.73	12.31	12.93	13.58	14.26	14.97	15.72	16.50	17.33	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		19.27	20.12	21.01	21.94	22.92	23.95	25.04	26.17	27.37	28.63	29.95	31.33	32.79	34.32	35.92	37.41	38.92	41.11	43.10	45.18	47.48	49.78	52.18	54.71	57.36	
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	
Total Fixed Cost	Rs Lakh		162.55	162.73	163.02	163.43	163.96	164.62	165.42	166.36	167.45	168.68	170.08	171.65	173.38	175.30	177.41	164.78	169.84	175.12	180.61	186.35	200.63	206.86	213.35	220.12	227.17	
Per unit Fixed Cost	Rs/kWh		2.77	2.63	2.64	2.64	2.65	2.66	2.67	2.68	2.70	2.71	2.73	2.76	2.78	2.81	2.84	2.87	2.67	2.75	2.84	2.93	3.02	3.25	3.35	3.46	3.57	3.68

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	8.43	5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17	11.73	12.31	12.93	13.58	14.26	14.97	15.72	16.50	17.33
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.49	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	0.93
RoE	Rs/kWh	0.51	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	0.63
Total COG	Rs/kWh	11.20	8.01	8.28	8.57	8.87	9.19	9.52	9.88	10.26	10.65	11.07	11.51	11.97	12.46	12.97	13.51	13.84	14.48	15.15	15.86	16.60	17.51	18.32	19.17	20.07	21.01
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.37																									
Levillised Tariff (Fixed)		2.77																									
Levillised Tariff	Rs/Unit	8.14																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																								
Book Depreciation rate		5.28%																								
Tax Depreciation rate		40%																								
Additional Depreciation		20%																								
Income Tax (MAT)		17.472%																								
Income Tax (Normal Rates)		34.944%																								
Capital Cost		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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		7.24																								
Electricity Generation (Levillised)		5.91																								
Levillised benefit	Rs/Unit	0.12																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Other Sates					Annexure-2.6I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,019.51	1,070.49	1,124.01	
Per unit Variable Cost	Rs/kWh		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	18.21	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		20.10	20.98	21.92	22.90	23.93	25.01	26.14	27.34	28.59	29.91	31.29	32.75	34.27	35.88	37.56	39.33	41.02	43.01	45.09	47.27	49.67	52.08	54.60	57.25	60.03	
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	
Total Fixed Cost	Rs Lakh		163.38	163.59	163.93	164.38	164.96	165.68	166.53	167.52	168.67	169.97	171.43	173.06	174.87	176.86	179.05	186.50	171.64	177.01	182.60	188.44	202.82	209.16	215.77	222.66	229.84	
Per unit Fixed Cost	Rs/kWh		2.79	2.65	2.65	2.66	2.66	2.67	2.68	2.70	2.71	2.73	2.75	2.78	2.80	2.83	2.87	2.90	2.70	2.78	2.87	2.96	3.05	3.29	3.39	3.50	3.61	3.72

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	8.86	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	18.21
O&M expn	Rs/kWh	1.09	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	1.93
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	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.49	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.63	0.66	0.70	0.73	0.77	0.80	0.84	0.88	0.93	0.97
RoE	Rs/kWh	0.51	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	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.65	8.29	8.58	8.88	9.20	9.54	9.89	10.27	10.66	11.08	11.52	11.98	12.46	12.98	13.51	14.08	14.44	15.11	15.81	16.55	17.32	18.27	19.12	20.02	20.95	21.94
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.65																									
Levillised Tariff (Fixed)		2.79																									
Levillised Tariff	Rs/Unit	8.44																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	Rs/Unit	0.12																								

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler - Andhra Pradesh					Annexure-2.7A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler - Haryana					Annexure-2.7B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3975.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

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Biomass Projects : Determination of Tariff Component

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			370.96	389.50	408.98	429.43	450.90	473.45	497.12	521.97	548.07	575.48	604.25	634.46	666.19	699.49	734.47	771.19	809.75	850.24	892.75	937.39	984.26	1,033.47	1,085.15	1,139.40	1,196.37
Per unit Variable Cost	Rs/kWh			5.88	6.17	6.48	6.80	7.14	7.50	7.88	8.27	8.68	9.12	9.57	10.05	10.56	11.08	11.64	12.22	12.83	13.47	14.14	14.85	15.59	16.37	17.19	18.05	18.96
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			48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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	12.22	12.22	12.22	12.22	12.22	12.22	12.22	12.22	
Interest on term loan	Rs Lakh			37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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			21.22	22.16	23.14	24.18	25.28	26.42	27.63	28.90	30.23	31.62	33.09	34.63	36.25	37.95	39.74	41.42	43.42	45.53	47.73	50.05	52.59	55.14	57.81	60.62	63.57
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
Total Fixed Cost	Rs Lakh			166.24	166.46	166.81	167.28	167.87	168.61	169.48	170.50	171.68	173.01	174.51	176.18	178.04	180.08	182.32	189.56	174.82	180.31	186.03	191.99	206.67	213.15	219.91	226.96	234.31
Per unit Fixed Cost	Rs/kWh	2.78		2.63	2.64	2.64	2.65	2.66	2.67	2.69	2.70	2.72	2.74	2.76	2.79	2.82	2.85	2.89	2.69	2.77	2.86	2.95	3.04	3.27	3.38	3.48	3.60	3.71

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	9.22		5.88	6.17	6.48	6.80	7.14	7.50	7.88	8.27	8.68	9.12	9.57	10.05	10.56	11.08	11.64	12.22	12.83	13.47	14.14	14.85	15.59	16.37	17.19	18.05	18.96
O&M expn	Rs/kWh	1.07		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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.29		0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	
Int. on working capital	Rs/kWh	0.51		0.34	0.35	0.37	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	0.92	0.96	1.01
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	0.62	0.62	0.62	0.62	0.62
Total COG	Rs/kWh	11.99		8.51	8.81	9.12	9.45	9.80	10.17	10.56	10.97	11.40	11.86	12.34	12.84	13.38	13.94	14.53	14.91	15.60	16.33	17.09	17.89	18.87	19.75	20.68	21.65	22.67
Discount Factor				1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.88																										
Levillised Tariff (Fixed)		2.78																										
Levillised Tariff	Rs/Unit	8.65																										

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%
Book Depreciation rate		5.28%
Tax Depreciation rate		40%
Additional Depreciation		20%
Income Tax (MAT)		17.472%
Income Tax (Normal Rates)		34.944%
Capital Cost		611.00
Years	----->	
	Unit	
Book Depreciation	%	2.64%
Book Depreciation	Rs Lakh	16.13
Accelerated Depreciation		
Opening	%	100%
Allowed during the year	%	30.00%
Closing	%	70.0%
Accelerated Depm.	Rs Lakh	183.30
Net Depreciation Benefit	Rs Lakh	167.17
Tax Benefit	Rs Lakh	58.42
Energy generation	MU	3.16
Per unit benefit	Rs/Unit	1.85
Discounting Factor		1.00
Applicable Discounting Factor		1.00
Tax Benefit Levillised		7.37
Electricity Generation (Levillised)		6.04
Levillised benefit	Rs/Unit	0.12

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler - Maharashtra					Annexure-2.7C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4065.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler - Punjab					Annexure-2.7D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4158
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler - Rajasthan					Annexure-2.7E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

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Biomass Projects : Determination of Tariff Component

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		323.83	340.02	357.02	374.87	393.62	413.30	433.96	455.66	478.44	502.36	527.48	553.86	581.55	610.63	641.16	673.22	706.88	742.22	779.33	818.30	859.21	902.17	947.28	994.65	1,044.38
Per unit Variable Cost	Rs/kWh		5.13	5.39	5.66	5.94	6.24	6.55	6.88	7.22	7.58	7.96	8.36	8.78	9.21	9.67	10.16	10.67	11.20	11.76	12.35	12.97	13.61	14.29	15.01	15.76	16.55
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		18.92	19.74	20.61	21.52	22.48	23.49	24.55	25.66	26.83	28.06	29.35	30.70	32.13	33.62	35.19	36.64	38.41	40.26	42.20	44.24	46.49	48.74	51.09	53.56	56.16
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
Total Fixed Cost	Rs Lakh		163.94	164.05	164.27	164.61	165.08	165.67	166.40	167.27	168.28	169.44	170.77	172.25	173.91	175.75	177.77	164.78	169.81	175.04	180.50	186.18	200.57	206.75	213.19	219.90	226.90
Per unit Fixed Cost	Rs/kWh		2.72	2.60	2.60	2.60	2.61	2.62	2.62	2.64	2.65	2.67	2.68	2.71	2.73	2.76	2.82	2.61	2.69	2.77	2.86	2.95	3.18	3.28	3.38	3.48	3.59

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	8.05	5.13	5.39	5.66	5.94	6.24	6.55	6.88	7.22	7.58	7.96	8.36	8.78	9.21	9.67	10.16	10.67	11.20	11.76	12.35	12.97	13.61	14.29	15.01	15.76	16.55
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.44	0.46	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.74	0.77	0.81	0.85	0.89
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	0.62	0.62	0.62	0.62	0.62
Total COG	Rs/kWh	10.77	7.73	7.99	8.26	8.55	8.85	9.17	9.51	9.87	10.25	10.64	11.06	11.50	11.97	12.46	12.98	13.28	13.89	14.53	15.21	15.92	16.79	17.57	18.39	19.24	20.14
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.13																									
Levillised Tariff (Fixed)		2.72																									
Levillised Tariff	Rs/Unit	7.85																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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%	2.88%	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	32.26	17.60	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.01	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	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.37																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	Rs/Unit	0.12																								

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler – Tamil Nadu					Annexure-2.7F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3435.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		320.59	336.62	353.46	371.13	389.68	409.17	429.63	451.11	473.66	497.35	522.21	548.33	575.74	604.53	634.76	666.49	699.82	734.81	771.55	810.13	850.63	893.16	937.82	984.71	1,033.95
Per unit Variable Cost	Rs/kWh		5.08	5.33	5.60	5.88	6.17	6.48	6.81	7.15	7.50	7.88	8.27	8.69	9.12	9.58	10.06	10.56	11.09	11.64	12.22	12.84	13.48	14.15	14.86	15.60	16.38
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		18.76	19.58	20.44	21.34	22.29	23.29	24.34	25.44	26.60	27.81	29.09	30.43	31.84	33.32	34.88	36.31	38.06	39.90	41.82	43.84	46.07	48.30	50.63	53.08	55.65
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
Total Fixed Cost	Rs Lakh		163.78	163.88	164.10	164.43	164.89	165.47	166.19	167.05	168.05	169.20	170.51	171.98	173.63	175.45	177.46	164.45	169.46	174.68	180.12	185.78	200.15	206.31	212.73	219.42	226.39
Per unit Fixed Cost	Rs/kWh		2.71	2.59	2.60	2.60	2.61	2.62	2.63	2.65	2.66	2.68	2.70	2.72	2.75	2.78	2.81	2.61	2.68	2.77	2.85	2.94	3.17	3.27	3.37	3.48	3.59

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	
Per unit Variable Cost	Rs/kWh	7.97	5.08	5.33	5.60	5.88	6.17	6.48	6.81	7.15	7.50	7.88	8.27	8.69	9.12	9.58	10.06	10.56	11.09	11.64	12.22	12.84	13.48	14.15	14.86	15.60	16.38
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.50	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	0.49
Total COG	Rs/kWh	10.68	7.67	7.93	8.20	8.49	8.79	9.10	9.44	9.79	10.17	10.56	10.98	11.41	11.87	12.36	12.87	13.17	13.77	14.41	15.08	15.78	16.65	17.42	18.23	19.08	19.97
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.08																										
Levelised Tariff (Fixed)	2.71																										
Levelised Tariff	7.79	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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%	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	32.26	17.60	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	0.01	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	0.01	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	0.01	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	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	-0.17	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levelised	7.37																										
Electricity Generation (Levelised)	6.04																										
Levelised benefit	0.12	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler – Telangana					Annexure-2.7G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01
Per unit Variable Cost	Rs/kWh		5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.02	19.85	20.72	21.64	22.60	23.62	24.68	25.80	26.98	28.21	29.51	30.87	32.31	33.81	35.39	36.85	38.62	40.49	42.44	44.49	46.76	49.02	51.39	53.87	56.48
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
Total Fixed Cost	Rs Lakh		164.04	164.15	164.38	164.73	165.20	165.80	166.54	167.41	168.43	169.60	170.93	172.42	174.09	175.94	177.97	180.00	182.22	184.74	187.49	190.40	193.48	196.74	200.19	203.84	207.69
Per unit Fixed Cost	Rs/kWh		2.72	2.60	2.60	2.60	2.61	2.62	2.63	2.64	2.65	2.67	2.69	2.71	2.73	2.76	2.79	2.82	2.86	2.90	2.94	2.98	3.02	3.06	3.10	3.14	3.18

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	8.10	5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.33	0.34	0.36	0.37	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	0.70	0.74	0.78	0.81	0.85	0.89
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
Total COG	Rs/kWh	10.82	7.76	8.02	8.30	8.59	8.89	9.22	9.56	9.92	10.30	10.70	11.12	11.56	12.03	12.52	13.04	13.35	13.96	14.61	15.29	16.00	16.88	17.67	18.49	19.35	20.25
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.16																									
Levillised Tariff (Fixed)		2.72																									
Levillised Tariff	Rs/Unit	7.88																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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%	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	32.26	17.60	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	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	0.01	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	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	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	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.37																										
Electricity Generation (Levillised)	6.04																										
Levillised benefit	Rs/Unit	0.12																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler – Uttar Pradesh					Annexure-2.7H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3553.20
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		331.57	348.15	365.55	383.83	403.02	423.17	444.33	466.55	489.88	514.37	540.09	567.09	595.45	625.22	656.48	689.31	723.77	759.96	797.96	837.86	879.75	923.74	969.92	1,018.42	1,069.34	
Per unit Variable Cost	Rs/kWh		5.25	5.52	5.79	6.08	6.39	6.70	7.04	7.39	7.76	8.15	8.56	8.99	9.43	9.91	10.40	10.92	11.47	12.04	12.64	13.28	13.94	14.64	15.37	16.14	16.94	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.29	20.14	21.03	21.96	22.94	23.97	25.05	26.19	27.39	28.64	29.96	31.35	32.80	34.33	35.94	37.42	39.23	41.12	43.11	45.19	47.49	49.79	52.20	54.72	57.37	
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	
Total Fixed Cost	Rs Lakh		164.31	164.44	164.69	165.05	165.54	166.16	166.91	167.80	168.84	170.03	171.38	172.90	174.59	176.46	178.52	165.57	170.63	175.91	181.41	187.14	201.57	207.80	214.29	221.06	228.11	
Per unit Fixed Cost	Rs/kWh		2.73	2.60	2.61	2.61	2.62	2.62	2.63	2.64	2.66	2.68	2.69	2.72	2.74	2.77	2.80	2.83	2.62	2.70	2.79	2.87	2.97	3.19	3.29	3.40	3.50	3.61

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	
Per unit Variable Cost	Rs/kWh	8.24	5.25	5.52	5.79	6.08	6.39	6.70	7.04	7.39	7.76	8.15	8.56	8.99	9.43	9.91	10.40	10.92	11.47	12.04	12.64	13.28	13.94	14.64	15.37	16.14	16.94
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.19
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	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	0.68	0.72	0.75	0.79	0.83	0.87	0.91
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
Total COG	Rs/kWh	10.97	7.86	8.12	8.40	8.70	9.01	9.34	9.68	10.05	10.44	10.84	11.27	11.72	12.20	12.70	13.23	13.54	14.17	14.83	15.52	16.24	17.13	17.93	18.76	19.64	20.56
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.25																									
Levllised Tariff (Fixed)		2.73																									
Levelised Tariff		7.98																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		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%	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	32.26	17.60	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	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	0.01	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	0.01	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	0.01	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	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	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levelised		7.37																									
Electricity Generation (Levelised)		6.04																									
Levelised benefit		0.12																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler – Other States					Annexure-2.7i
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		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	1,019.51	1,070.49	1,124.01	
Per unit Variable Cost	Rs/kWh		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	12.66	13.29	13.95	14.65	15.38	16.15	16.96	17.81	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		20.12	21.01	21.94	22.92	23.95	25.03	26.16	27.36	28.61	29.93	31.31	32.76	34.29	35.89	37.57	39.14	41.03	43.02	45.10	47.28	49.69	52.09	54.61	57.26	60.04	
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	39.45	39.45	39.45	39.45	
Total Fixed Cost	Rs Lakh		165.14	165.31	165.60	166.01	166.54	167.21	168.01	168.96	170.06	171.31	172.73	174.31	176.07	178.02	180.16	182.59	185.33	188.37	191.71	195.36	199.33	203.77	208.69	214.01	219.76	
Per unit Fixed Cost	Rs/kWh	2.75	2.62	2.62	2.62	2.63	2.64	2.65	2.66	2.68	2.69	2.71	2.74	2.76	2.79	2.82	2.85	2.89	2.93	2.97	3.00	3.03	3.07	3.11	3.15	3.20	3.25	

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	8.66	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	12.66	13.29	13.95	14.65	15.38	16.15	16.96	17.81
O&M expn	Rs/kWh	1.07	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	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
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	0.45
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.48	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	0.60	0.62	0.65	0.68	0.71	0.75	0.79	0.83	0.87	0.91	0.95
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	0.62	0.62	0.62	0.62	0.62
Total COG	Rs/kWh	11.41	8.14	8.42	8.71	9.02	9.35	9.70	10.06	10.45	10.85	11.28	11.73	12.21	12.71	13.23	13.79	14.13	14.79	15.47	16.19	16.95	17.88	18.71	19.59	20.50	21.47
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.52																										
Levillised Tariff (Fixed)	2.75																										
Levillised Tariff	8.27	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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%	2.88%	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	32.26	17.60	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	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	0.01	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	0.01	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.37																									
Electricity Generation (Levillised)	6.04																									
Levillised benefit	0.12	Rs/Unit																								

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Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Andhra Pradesh					Annexure-2.8A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01	
Per unit Variable Cost	Rs/kWh		5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.10	19.93	20.80	21.72	22.68	23.69	24.76	25.87	27.05	28.28	29.57	30.94	32.36	33.87	35.44	36.89	38.66	40.53	42.48	44.53	46.80	49.06	51.43	53.92	56.53	
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	
Total Fixed Cost	Rs Lakh		170.62	170.56	170.62	170.79	171.09	171.51	172.07	172.77	173.62	174.61	175.77	177.09	178.58	180.25	182.11	184.17	186.44	188.92	191.61	194.51	197.62	200.95	204.50	208.27	212.27	
Per unit Fixed Cost	Rs/kWh		2.87	2.76	2.76	2.76	2.77	2.77	2.78	2.79	2.80	2.81	2.83	2.85	2.87	2.89	2.92	2.95	2.97	2.80	2.89	2.98	3.07	3.31	3.41	3.52	3.63	3.74

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	8.28	5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.80	0.83	0.87	0.92
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	11.15	8.05	8.31	8.59	8.88	9.19	9.52	9.86	10.23	10.62	11.02	11.45	11.90	12.38	12.88	13.41	13.70	14.33	14.99	15.69	16.41	17.32	18.12	18.96	19.85	20.77
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.28																										
Levillised Tariff (Fixed)	2.87																										
Levillised Tariff	8.15	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	652.00																									
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%
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	34.43	18.78	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.86																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.13	Rs/Unit																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Haryana					Annexure-2.8B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3975.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		370.96	389.50	408.98	429.43	450.90	473.45	497.12	521.97	548.07	575.48	604.25	634.46	666.19	699.49	734.47	771.19	809.75	850.24	892.75	937.39	984.26	1,033.47	1,085.15	1,139.40	1,196.37	
Per unit Variable Cost	Rs/kWh		6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.33	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		21.30	22.24	23.23	24.26	25.35	26.50	27.70	28.97	30.29	31.69	33.15	34.69	36.31	38.01	39.80	41.46	43.46	45.56	47.77	50.09	52.64	55.19	57.86	60.67	63.61	
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	
Total Fixed Cost	Rs Lakh		172.82	172.87	173.04	173.33	173.76	174.32	175.02	175.86	176.86	178.02	179.35	180.85	182.53	184.40	186.46	172.51	177.77	183.25	188.97	194.94	210.18	216.67	223.43	230.47	237.82	
Per unit Fixed Cost	Rs/kWh		2.92	2.80	2.80	2.80	2.81	2.82	2.82	2.84	2.85	2.87	2.88	2.91	2.93	2.96	2.99	3.02	2.80	2.88	2.97	3.06	3.16	3.41	3.51	3.62	3.73	3.85

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	9.43	6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.33	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.52	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	0.62	0.64	0.67	0.70	0.74	0.77	0.81	0.85	0.89	0.94	0.98	1.03
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	12.35	8.81	9.11	9.43	9.77	10.12	10.50	10.89	11.31	11.75	12.21	12.70	13.21	13.75	14.32	14.92	15.29	16.00	16.75	17.53	18.35	19.35	20.26	21.20	22.20	23.24
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.01																									
Levillised Tariff (Fixed)		2.92																									
Levillised Tariff	Rs/Unit	8.93																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		652.00																									
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	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	
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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	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	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30										

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Maharashtra					Annexure-2.8C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4065.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	48.20	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		379.38	398.35	418.27	439.18	461.14	484.20	508.41	533.83	560.52	588.55	617.98	648.87	681.32	715.38	751.15	788.71	828.15	869.55	913.03	958.68	1,006.62	1,056.95	1,109.80	1,165.29	1,223.55
Per unit Variable Cost	Rs/kWh		6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		21.71	22.67	23.68	24.74	25.85	27.02	28.25	29.54	30.90	32.33	33.82	35.40	37.05	38.79	40.61	42.31	44.36	46.51	48.76	51.13	53.73	56.33	59.06	61.93	64.94
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
Total Fixed Cost	Rs Lakh		173.23	173.30	173.49	173.81	174.26	174.84	175.57	176.44	177.47	178.66	180.02	181.55	183.27	185.17	187.28	189.36	191.49	193.68	195.97	198.36	200.84	203.41	206.07	208.82	211.67
Per unit Fixed Cost	Rs/kWh		2.93	2.81	2.81	2.81	2.82	2.82	2.83	2.84	2.86	2.88	2.90	2.92	2.94	2.97	3.00	3.03	3.07	3.11	3.15	3.19	3.24	3.29	3.34	3.39	3.44

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		9.64	6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
O&M expn	Rs/kWh		1.09	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	1.93
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	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
Int. on term loan	Rs/kWh		0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	
Int. on working capital	Rs/kWh		0.53	0.35	0.37	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	0.75	0.79	0.83	0.87	0.91	0.96	1.00	1.05
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	
Total COG	Rs/kWh		12.58	8.95	9.26	9.59	9.93	10.30	10.68	11.08	11.51	11.96	12.43	12.93	13.46	14.01	14.59	15.21	15.89	16.53	17.23	17.99	18.81	19.70	20.66	21.62	22.64	23.70
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Variable Cost			6.15																									
Levillised Tariff (Fixed)			2.93																									
Levillised Tariff	Rs/Unit		9.08																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	652.00																										
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	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	34.43	18.78	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-22.90	-27.33	-30.17	-31.87	-32.89	-33.51	-33.87	-34.09	-34.23	-34.31	-34.35	-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	-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	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	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.86																										
Electricity Generation (Levillised)	5.91																										
Levillised benefit	Rs/Unit	0.13																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Punjab					Annexure-2.8D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4158
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,029.49	1,080.97	1,135.02	1,191.77	1,251.36	
Per unit Variable Cost	Rs/kWh		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	20.28	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		22.13	23.11	24.14	25.23	26.36	27.56	28.82	30.14	31.52	32.98	34.51	36.12	37.81	39.58	41.44	43.18	45.28	47.47	49.77	52.19	54.84	57.50	60.29	63.22	66.30	
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	
Total Fixed Cost	Rs Lakh		173.65	173.74	173.96	174.30	174.77	175.38	176.13	177.03	178.09	179.31	180.70	182.27	184.02	185.96	188.11	174.23	179.58	185.16	190.97	197.04	212.39	218.98	225.86	233.03	240.50	
Per unit Fixed Cost	Rs/kWh		2.94	2.81	2.82	2.82	2.82	2.83	2.84	2.85	2.87	2.89	2.91	2.93	2.95	2.98	3.01	3.05	2.82	2.91	3.00	3.09	3.19	3.44	3.55	3.66	3.78	3.90

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	9.86	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	20.28
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.54	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.59	0.61	0.64	0.67	0.70	0.73	0.77	0.81	0.85	0.89	0.93	0.98	1.02	1.07
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	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	12.81	9.10	9.42	9.75	10.10	10.47	10.87	11.28	11.72	12.18	12.66	13.17	13.71	14.27	14.87	15.50	15.89	16.63	17.41	18.23	19.08	20.12	21.06	22.05	23.09	24.17
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.29																									
Levillised Tariff (Fixed)		2.94																									
Levillised Tariff	Rs/Unit	9.23																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		652.00																									
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	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	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	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	0.00
Tax Benefit	Rs Lakh	62.34	67.71	19.67	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	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	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised		7.86																									
Electricity Generation (Levillised)		5.91																									
Levillised benefit	Rs/Unit	0.13																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Rajasthan					Annexure-2.8E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		323.83	340.02	357.02	374.87	393.62	413.30	433.96	455.66	478.44	502.36	527.48	553.86	581.55	610.63	641.16	673.22	706.88	742.22	779.33	818.30	859.21	902.17	947.28	994.65	1,044.38	
Per unit Variable Cost	Rs/kWh		5.25	5.51	5.79	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91	11.45	12.03	12.63	13.26	13.92	14.62	15.35	16.12	16.92	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.00	19.83	20.69	21.60	22.56	23.57	24.62	25.73	26.90	28.12	29.41	30.76	32.18	33.68	35.24	36.88	38.44	40.30	42.24	44.28	46.54	48.78	51.14	53.61	56.20	
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	
Total Fixed Cost	Rs Lakh		170.52	170.46	170.51	170.67	170.96	171.38	171.94	172.63	173.47	174.46	175.60	176.92	178.40	180.06	181.91	183.44	185.09	186.88	188.73	190.64	192.61	194.64	196.73	198.88	201.09	
Per unit Fixed Cost	Rs/kWh		2.86	2.76	2.76	2.76	2.77	2.77	2.78	2.79	2.80	2.81	2.83	2.85	2.87	2.89	2.92	2.95	2.97	2.80	2.88	2.97	3.06	3.31	3.41	3.51	3.62	3.73

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	8.23	5.25	5.51	5.79	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91	11.45	12.03	12.63	13.26	13.92	14.62	15.35	16.12	16.92
O&M exrn	Rs/kWh	1.09	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	1.93
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	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	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	0.55	0.57	0.59	0.62	0.65	0.68	0.72	0.75	0.79	0.83	0.87	0.91
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	11.09	8.01	8.27	8.55	8.84	9.15	9.47	9.82	10.18	10.56	10.97	11.39	11.84	12.31	12.81	13.34	13.63	14.25	14.91	15.60	16.32	17.23	18.03	18.86	19.74	20.66
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.25																									
Levillised Tariff (Fixed)		2.86																									
Levillised Tariff	Rs/Unit	8.11																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	652.00																									
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	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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.86																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	Rs/Unit	0.13																								

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Tamil Nadu					Annexure-2.8F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3435.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		320.59	336.62	353.46	371.13	389.68	409.17	429.63	451.11	473.66	497.35	522.21	548.33	575.74	604.53	634.76	666.49	699.82	734.81	771.55	810.13	850.63	893.16	937.82	984.71	1,033.95	
Per unit Variable Cost	Rs/kWh		5.19	5.45	5.73	6.01	6.31	6.63	6.96	7.31	7.68	8.06	8.46	8.89	9.33	9.80	10.29	10.80	11.34	11.91	12.50	13.13	13.78	14.47	15.20	15.96	16.75	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		18.85	19.66	20.52	21.42	22.37	23.36	24.41	25.51	26.67	27.88	29.15	30.49	31.90	33.38	34.93	36.35	38.10	39.93	41.86	43.88	46.12	48.34	50.68	53.12	55.69	
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	
Total Fixed Cost	Rs Lakh		170.36	170.29	170.33	170.49	170.77	171.18	171.73	172.41	173.23	174.21	175.35	176.65	178.12	179.77	181.60	167.40	172.41	177.62	183.06	188.73	203.67	209.82	216.24	222.93	229.90	
Per unit Fixed Cost	Rs/kWh		2.86	2.76	2.76	2.76	2.76	2.77	2.77	2.78	2.79	2.81	2.82	2.84	2.86	2.89	2.91	2.94	2.71	2.79	2.88	2.97	3.06	3.30	3.40	3.50	3.61	3.73

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	8.15	5.19	5.45	5.73	6.01	6.31	6.63	6.96	7.31	7.68	8.06	8.46	8.89	9.33	9.80	10.29	10.80	11.34	11.91	12.50	13.13	13.78	14.47	15.20	15.96	16.75
O&M expn	Rs/kWh	1.09	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	1.93
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	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	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	0.75	0.78	0.82	0.86	0.90
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	11.01	7.96	8.21	8.49	8.78	9.08	9.40	9.74	10.10	10.48	10.88	11.30	11.75	12.22	12.71	13.23	13.51	14.13	14.79	15.47	16.19	17.08	17.87	18.70	19.57	20.48
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.19																									
Levillised Tariff (Fixed)		2.86																									
Levillised Tariff	8.05	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	652.00

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	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	
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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised		7.86																									
Electricity Generation (Levillised)		5.91																									
Levillised benefit	0.13	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Telangana					Annexure-2.8G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Uttar Pradesh					Annexure-2.8H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3553.20
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		331.57	348.15	365.55	383.83	403.02	423.17	444.33	466.55	489.88	514.37	540.09	567.09	595.45	625.22	656.48	689.31	723.77	759.96	797.96	837.86	879.75	923.74	969.92	1,018.42	1,069.34	
Per unit Variable Cost	Rs/kWh		5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17	11.73	12.31	12.93	13.58	14.26	14.97	15.72	16.50	17.33	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		19.38	20.22	21.11	22.04	23.02	24.05	25.13	26.26	27.46	28.71	30.03	31.41	32.86	34.39	35.99	37.66	39.27	41.16	43.15	45.23	47.54	49.83	52.24	54.77	57.42	
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	
Total Fixed Cost	Rs Lakh		170.90	170.85	170.92	171.11	171.42	171.87	172.44	173.16	174.02	175.04	176.22	177.56	179.08	180.77	182.66	184.51	173.57	178.85	184.35	190.08	205.09	211.31	217.81	224.57	231.63	
Per unit Fixed Cost	Rs/kWh		2.87	2.77	2.77	2.77	2.77	2.78	2.78	2.79	2.81	2.82	2.84	2.86	2.88	2.90	2.93	2.96	2.73	2.81	2.90	2.99	3.08	3.32	3.42	3.53	3.64	3.75

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	8.43	5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17	11.73	12.31	12.93	13.58	14.26	14.97	15.72	16.50	17.33
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	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	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.81	0.85	0.89	0.93
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	0.68	0.68	0.68	0.68	0.68
Total COG	Rs/kWh	11.30	8.14	8.41	8.69	8.99	9.31	9.64	9.99	10.37	10.76	11.17	11.61	12.07	12.55	13.06	13.60	13.90	14.54	15.21	15.92	16.66	17.58	18.39	19.25	20.14	21.08
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.37																										
Levillised Tariff (Fixed)	2.87																										
Levillised Tariff	8.25	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
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Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	652.00																										
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	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	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	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	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	0.01	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	0.01	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	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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	7.86																										
Electricity Generation (Levillised)	5.91																										
Levillised benefit	0.13	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Other States					Annexure-2.8I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	652.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	456.40
			Total Equity Amount	Rs Lakh	195.60
		Debt Component	Loan Amount	Rs Lakh	456.40
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	195.60
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

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		6.17	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		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	1,019.51	1,070.49	1,124.01	
Per unit Variable Cost	Rs/kWh		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	18.21	
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08	
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	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	
Interest on term loan	Rs Lakh		39.71	36.97	34.23	31.49	28.75	26.01	23.28	20.54	17.80	15.06	12.32	9.58	6.85	4.11	1.37	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		20.21	21.09	22.02	23.00	24.02	25.10	26.24	27.43	28.68	29.99	31.37	32.82	34.35	35.95	37.63	39.18	41.07	43.06	45.14	47.32	49.73	52.14	54.66	57.31	60.09	
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	
Total Fixed Cost	Rs Lakh		171.72	171.72	171.83	172.07	172.43	172.92	173.55	174.32	175.25	176.32	177.56	178.98	180.56	182.33	184.30	186.37	188.58	190.94	193.46	196.15	199.02	202.08	213.62	220.22	227.11	234.29
Per unit Fixed Cost	Rs/kWh	2.89	2.78	2.78	2.78	2.79	2.79	2.80	2.81	2.82	2.84	2.86	2.88	2.90	2.93	2.95	2.99	2.76	2.84	2.93	3.02	3.11	3.36	3.46	3.57	3.68	3.80	

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	8.86	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	18.21
O&M expn	Rs/kWh	1.09	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	1.93
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	0.49	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Int. on term loan	Rs/kWh	0.32	0.64	0.60	0.55	0.51	0.47	0.42	0.38	0.33	0.29	0.24	0.20	0.16	0.11	0.07	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.49	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.44	0.46	0.49	0.51	0.53	0.56	0.58	0.61	0.63	0.67	0.70	0.73	0.77	0.81	0.84	0.89	0.93	0.97
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	0.54
Total COG	Rs/kWh	11.75	8.43	8.71	9.01	9.33	9.66	10.01	10.38	10.77	11.18	11.62	12.08	12.56	13.07	13.60	14.17	14.50	15.17	15.87	16.61	17.38	18.34	19.20	20.09	21.03	22.01
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.65																									
Levilled Tariff (Fixed)		2.89																									
Levilled Tariff	8.54	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	652.00																									
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	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
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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-34.31	-34.35	-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	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levilled	7.86																									
Electricity Generation (Levilled)	5.91																									
Levilled benefit	0.13	Rs/Unit																								

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Non Fossil Fuel based Co-Generation Projects- Andhra Pradesh					Annexure-3A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	45.00%
			PLF(during first year after Stabilization)	%	45.00%
			PLF(second year onwards)	%	45.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	3600.00
			During stabilization period	Kcal/kWh	3600.00
		Bagasse	Base Price	Rs/T	1971.90
			GCV-Bagasse	Kcal/kg	2250
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	25.46
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Cogeneration Projects : Determination of Tariff Component

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		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	Rs.	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		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	401.39
Per unit Variable Cost	Rs/kWh		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	10.59	11.12
Fixed Cost	Rs.	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		25.46	26.44	27.45	28.51	29.60	30.74	31.92	33.15	34.42	35.74	37.11	38.54	40.02	41.56	43.15	44.81	46.53	48.32	50.17	52.10	54.10	56.18	58.33	60.57	62.90
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	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		28.44	26.48	24.52	22.56	20.59	18.63	16.67	14.71	12.75	10.79	8.83	6.86	4.90	2.94	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		8.02	8.34	8.67	9.02	9.39	9.77	10.18	10.61	11.05	11.53	12.02	12.55	13.10	13.67	14.28	14.77	15.46	16.19	16.96	17.76	18.69	19.58	20.50	21.48	22.50
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	30.15	30.15	30.15	30.15	30.15
Total Fixed Cost	Rs Lakh		107.49	106.82	106.20	105.64	105.14	104.71	104.33	104.02	103.78	103.62	103.52	103.51	103.58	103.73	103.97	92.68	95.10	97.61	100.24	102.97	112.28	115.24	118.32	121.54	124.88
Per unit Fixed Cost	Rs/kWh		2.98	2.96	2.94	2.93	2.91	2.90	2.89	2.88	2.88	2.87	2.87	2.87	2.87	2.87	2.88	2.57	2.63	2.70	2.78	2.85	3.11	3.19	3.28	3.37	3.46

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	5.41	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	10.59	11.12
O&M expn	Rs/kWh	0.99	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	1.20	1.24	1.29	1.34	1.39	1.44	1.50	1.56	1.62	1.68	1.74
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	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Int. on term loan	Rs/kWh	0.39	0.79	0.73	0.68	0.62	0.57	0.52	0.46	0.41	0.35	0.30	0.24	0.19	0.14	0.08	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	Rs/kWh	0.32	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.31	0.32	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	0.60	0.62
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	0.84	0.84	0.84	0.84	0.84
Total COG	Rs/kWh	8.32	6.43	6.58	6.74	6.92	7.10	7.30	7.51	7.73	7.97	8.22	8.48	8.77	9.06	9.38	9.71	9.74	10.16	10.61	11.08	11.57	12.26	12.80	13.36	13.96	14.58
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		3.45																									
Levillised Tariff (Fixed)		2.91																									
Levillised Tariff	Rs/Unit	6.36																									

Determination of Additional Depreciation

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.47%																										
Income Tax (Normal Rates)	34.94%																										
Capital Cost	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%	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	24.66	13.45	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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Deprn.	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	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	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	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	5.63	Rs/Unit																									
Electricity Generation (Levillised)	3.46	Rs/Unit																									
Levillised benefit	0.16	Rs/Unit																									

CERC RE Tariff Order FY 2020-21

Non Fossil Fuel based Co-Generation Projects- Haryana					Annexure-3B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	53.00%
			PLF(during first year after Stabilization)	%	53.00%
			PLF(second year onwards)	%	53.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	3600.00
			During stabilization period	Kcal/kWh	3600.00
		Bagasse	Base Price	Rs/T	2804.55
			GCV-Bagasse	Kcal/kg	2250
			Biomass Price Escalation Factor	%	5.00%
			O&M Expenses	Rs Lakh	25.46
05	Operation & Maintenance	O & M Expenses Escalation	%	3.84%	
		Total No .Of Hours	Hrs	8766.00	
06	Generation & Sale of Energy				

CERC RE Tariff Order FY 2020-21

Cogeneration Projects : Determination of Tariff Component

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		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-->	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		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	609.85	640.35	672.36
Per unit Variable Cost	Rs/kWh		4.90	5.15	5.41	5.68	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
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		25.46	26.44	27.45	28.51	29.60	30.74	31.92	33.15	34.42	35.74	37.11	38.54	40.02	41.56	43.15	44.81	46.53	48.32	50.17	52.10	54.10	56.18	58.33	60.57	62.90
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		28.44	26.48	24.52	22.56	20.59	18.63	16.67	14.71	12.75	10.79	8.83	6.86	4.90	2.94	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		12.12	12.64	13.19	13.76	14.37	15.00	15.67	16.37	17.11	17.88	18.70	19.55	20.45	21.40	22.39	23.28	24.41	25.58	26.82	28.12	29.56	30.99	32.49	34.06	35.71
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
Total Fixed Cost	Rs Lakh		111.58	111.12	110.72	110.39	110.12	109.93	109.82	109.79	109.84	109.97	110.20	110.52	110.94	111.46	112.08	101.20	104.04	107.01	110.10	113.32	123.15	126.65	130.31	134.12	138.10
Per unit Fixed Cost	Rs/kWh		2.62	2.61	2.60	2.60	2.59	2.59	2.58	2.58	2.58	2.59	2.59	2.60	2.61	2.62	2.64	2.38	2.45	2.52	2.59	2.67	2.90	2.98	3.07	3.16	3.25

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	7.69	4.90	5.15	5.41	5.68	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
O&M expn	Rs/kWh	0.84	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	1.02	1.05	1.09	1.14	1.18	1.23	1.27	1.32	1.37	1.42	1.48
Depreciation	Rs/kWh	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
Int. on term loan	Rs/kWh	0.33	0.67	0.62	0.58	0.53	0.48	0.44	0.39	0.35	0.30	0.25	0.21	0.16	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
Int. on working capital	Rs/kWh	0.43	0.29	0.30	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.57	0.60	0.63	0.66	0.70	0.73	0.76	0.80	0.84
RoE	Rs/kWh	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
Total COG	Rs/kWh	10.32	7.53	7.76	8.01	8.27	8.55	8.85	9.16	9.48	9.83	10.19	10.58	10.99	11.42	11.87	12.35	12.58	13.15	13.76	14.39	15.06	15.91	16.64	17.41	18.22	19.06
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		4.90																									
Levillised Tariff (Fixed)		2.63																									
Levillised Tariff	Rs/Unit	7.53																									

Determination of Additional Depreciation

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost	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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depn.	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	Rs/Unit	5.63																									
Electricity Generation (Levillised)	Rs/Unit	4.07																									
Levillised benefit	Rs/Unit	0.14																									

Non Fossil Fuel based Co-Generation Projects- Maharashtra					Annexure-3C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	60.00%
			PLF(during first year after Stabilization)	%	60.00%
			PLF(second year onwards)	%	60.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
		04	Fuel Related Assumptions	Heat Rate	After stabilization period
During stabilization period	Kcal/kWh				3600.00
Bagasse	Base Price			Rs/T	2763.60
	GCV-Bagasse			Kcal/kg	2250
	Biomass Price Escalation Factor			%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	25.46	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

Non Fossil Fuel based Co-Generation Projects- Punjab					Annexure-3D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	53.00%
			PLF(during first year after Stabilization)	%	53.00%
			PLF(second year onwards)	%	53.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	3600.00
			During stabilization period	Kcal/kWh	3600.00
		Bagasse	Base Price	Rs/T	2468.55
			GCV-Bagasse	Kcal/kg	2250
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	25.46	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

Non Fossil Fuel based Co-Generation Projects- Tamil Nadu					Annexure-3E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	60.00%
			PLF(during first year after Stabilization)	%	60.00%
			PLF(second year onwards)	%	60.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
		04	Fuel Related Assumptions	Heat Rate	After stabilization period
During stabilization period	Kcal/kWh				3600.00
Bagasse	Base Price			Rs/T	2124.15
	GCV-Bagasse			Kcal/kg	2250
	Biomass Price Escalation Factor			%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	25.46	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

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Non Fossil Fuel based Co-Generation Projects-Telangana					Annexure-3F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	53.00%
			PLF(during first year after Stabilization)	%	53.00%
			PLF(second year onwards)	%	53.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	3600.00
			During stabilization period	Kcal/kWh	3600.00
		Bagasse	Base Price	Rs/T	1970.85
			GCV-Bagasse	Kcal/kg	2250
			Biomass Price Escalation Factor	%	5.00%
			O&M Expenses	Rs Lakh	25.46
05	Operation & Maintenance	O & M Expenses Escalation	%	3.84%	
		Total No .Of Hours	Hrs	8766.00	
06	Generation & Sale of Energy				

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Cogeneration Projects : Determination of Tariff Component

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		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-->	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		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	472.49	
Per unit Variable Cost	Rs/kWh		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	11.11	
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		25.46	26.44	27.45	28.51	29.60	30.74	31.92	33.15	34.42	35.74	37.11	38.54	40.02	41.56	43.15	44.81	46.53	48.32	50.17	52.10	54.10	56.18	58.33	60.57	62.90	
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		28.44	26.48	24.52	22.56	20.59	18.63	16.67	14.71	12.75	10.79	8.83	6.86	4.90	2.94	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		9.10	9.47	9.86	10.26	10.69	11.14	11.62	12.12	12.64	13.20	13.78	14.39	15.03	15.70	16.41	17.00	17.81	18.66	19.55	20.48	21.54	22.57	23.65	24.78	25.96	
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	
Total Fixed Cost	Rs Lakh		108.56	107.95	107.39	106.89	106.45	106.08	105.77	105.53	105.37	105.28	105.28	105.35	105.51	105.76	106.10	94.92	97.44	100.08	102.82	105.68	115.13	118.24	121.47	124.84	128.35	
Per unit Fixed Cost	Rs/kWh		2.55	2.54	2.53	2.51	2.50	2.50	2.49	2.48	2.48	2.48	2.48	2.48	2.48	2.49	2.50	2.23	2.29	2.35	2.42	2.49	2.71	2.78	2.86	2.94	3.02	

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	5.41	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	11.11
O&M expn	Rs/kWh	0.84	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	1.02	1.05	1.09	1.14	1.18	1.23	1.27	1.32	1.37	1.42	1.48
Depreciation	Rs/kWh	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	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Int. on term loan	Rs/kWh	0.33	0.67	0.62	0.58	0.53	0.48	0.44	0.39	0.35	0.30	0.25	0.21	0.16	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
Int. on working capital	Rs/kWh	0.31	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.29	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
RoE	Rs/kWh	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	0.71	0.71	0.71
Total COG	Rs/kWh	7.92	6.00	6.16	6.33	6.50	6.69	6.89	7.11	7.33	7.57	7.82	8.09	8.37	8.67	8.99	9.32	9.40	9.82	10.25	10.71	11.19	11.85	12.38	12.94	13.52	14.13
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		3.45																									
Levillised Tariff (Fixed)		2.51																									
Levillised Tariff	Rs/Unit	5.96																									

Determination of Additional Depreciation

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	Rs/Unit	5.63																								
Electricity Generation (Levillised)	Rs/Unit	4.07																								
Levillised benefit	Rs/Unit	0.14																								

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Non Fossil Fuel based Co-Generation Projects- Uttar Pradesh					Annexure-3G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	45.00%
			PLF(during first year after Stabilization)	%	45.00%
			PLF(second year onwards)	%	45.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	3600.00
			During stabilization period	Kcal/kWh	3600.00
		Bagasse	Base Price	Rs/T	2199.75
			GCV-Bagasse	Kcal/kg	2250
			Biomass Price Escalation Factor	%	5.00%
			O&M Expenses	Rs Lakh	25.46
05	Operation & Maintenance	O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

Non Fossil Fuel based Co-Generation Projects-Other States					Annexure-3H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	8.50%
			Auxiliary Consumption after stabilization	%	8.50%
			PLF(Stabilization for 6 months)	%	53.00%
			PLF(during first year after Stabilization)	%	53.00%
			PLF(second year onwards)	%	53.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	467.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	326.90
			Total Equity Amount	Rs Lakh	140.10
		Debt Component	Loan Amount	Rs Lakh	326.90
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	140.10
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
Discount Rate (equiv. to WACC)	%		8.30%		
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
		04	Fuel Related Assumptions	Heat Rate	After stabilization period
During stabilization period	Kcal/kWh				3600.00
Bagasse	Base Price			Rs/T	2387.70
	GCV-Bagasse			Kcal/kg	2250
	Biomass Price Escalation Factor			%	5.00%
05	Operation & Maintenance	O&M Expenses	Rs Lakh	25.46	
		O & M Expenses Escalation	%	3.84%	
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

Biomass Gasifier Power Projects- Andhra Pradesh					Annexure-4A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3492.30
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

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Biomass Gasifier : Determination of Tariff Component

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		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	1049.02	
Per unit Variable Cost	Rs/kWh		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	15.64	
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		63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27	
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	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	
Interest on term loan	Rs Lakh		26.98	25.12	23.25	21.39	19.53	17.67	15.81	13.94	12.08	10.22	8.36	6.50	4.63	2.77	0.91	-	-	-	-	-	-	-	-	-	-	
Interest on working Capital	Rs Lakh		19.22	20.08	20.99	21.94	22.94	23.98	25.08	26.24	27.45	28.72	30.06	31.46	32.94	34.48	36.11	37.66	39.48	41.38	43.37	45.47	47.74	50.04	52.46	54.99	57.65	
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	28.60	28.60	28.60	28.60	
Total Fixed Cost	Rs Lakh		153.10	154.54	156.12	157.85	159.72	161.75	163.94	166.30	168.83	171.55	174.45	177.56	180.87	184.39	188.15	191.11	194.22	197.59	201.23	205.14	209.26	213.60	218.17	222.96	227.96	
Per unit Fixed Cost	Rs/kWh		2.58	2.28	2.30	2.33	2.35	2.38	2.41	2.44	2.48	2.52	2.56	2.60	2.65	2.70	2.75	2.81	2.70	2.79	2.89	2.99	3.09	3.29	3.40	3.52	3.64	3.76

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	7.61	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	15.64
O&M expn	Rs/kWh	1.33	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	2.35
Depreciation	Rs/kWh	0.27	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	0.20	0.40	0.37	0.35	0.32	0.29	0.26	0.24	0.21	0.18	0.15	0.12	0.10	0.07	0.04	0.01	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.43	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	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	0.43	0.43	0.43	0.43
Total COG	Rs/kWh	10.19	7.13	7.40	7.68	7.97	8.28	8.60	8.94	9.30	9.68	10.08	10.50	10.94	11.41	11.90	12.41	12.78	13.38	14.00	14.66	15.35	16.16	16.91	17.70	18.54	19.41
Discount Factor	Levilled		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	4.85																										
Levilled Tariff (Fixed)	2.58																										
Levilled Tariff	7.43	Rs/Unit																									

Determination of Additional Depreciation for Biomass Gasifier Power Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	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%	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%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-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	-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	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	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levilled	5.34	Rs/Unit																									
Electricity Generation (Levilled)	6.42	Rs/Unit																									
Levilled benefit	0.08	Rs/Unit																									

Biomass Gasifier Power Projects- Haryana					Annexure-4B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3975.30
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

CERC RE Tariff Order FY 2020-21

Biomass Gasifier : Determination of Tariff Component

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		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	1194.11	
Per unit Variable Cost	Rs/kWh		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	17.81	
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		63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27	
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		26.98	25.12	23.25	21.39	19.53	17.67	15.81	13.94	12.08	10.22	8.36	6.50	4.63	2.77	0.91	-	-	-	-	-	-	-	-	-	-	
Interest on working Capital	Rs Lakh		21.42	22.39	23.41	24.48	25.60	26.78	28.02	29.33	30.69	32.13	33.63	35.22	36.88	38.62	40.45	42.23	44.27	46.41	48.65	51.01	53.56	56.16	58.88	61.73	64.72	
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	
Total Fixed Cost	Rs Lakh		155.29	156.85	158.54	160.39	162.39	164.55	166.88	169.38	172.07	174.95	178.03	181.31	184.81	188.53	192.49	185.67	192.01	198.62	205.51	212.68	226.29	234.08	242.19	250.65	259.46	
Per unit Fixed Cost	Rs/kWh		2.63	2.32	2.34	2.36	2.39	2.42	2.45	2.49	2.53	2.57	2.61	2.65	2.70	2.76	2.81	2.87	2.77	2.86	2.96	3.06	3.17	3.37	3.49	3.61	3.74	3.87
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	8.66	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	17.81	
O&M expn	Rs/kWh	1.33	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	2.35	
Depreciation	Rs/kWh	0.27	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	0.20	0.40	0.37	0.35	0.32	0.29	0.26	0.24	0.21	0.18	0.15	0.12	0.10	0.07	0.04	0.01	-	-	-	-	-	-	-	-	-	-	
Int. on working capital	Rs/kWh	0.48	0.32	0.33	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88	0.92	0.97	
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	0.43	0.43	0.43	0.43	0.43	
Total COG	Rs/kWh	11.29	7.84	8.14	8.45	8.78	9.13	9.50	9.89	10.29	10.72	11.17	11.65	12.15	12.67	13.22	13.80	14.25	14.92	15.62	16.35	17.12	18.02	18.87	19.76	20.70	21.68	
Discount Factor	Levillised		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Variable Cost		5.52																										
Levillised Tariff (Fixed)		2.63																										
Levillised Tariff	Rs/Unit	8.15																										

Determination of Additional Depreciation for Biomass Gasifier Power Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depn.	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	1.26	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	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	Rs/Unit	5.34																									
Electricity Generation (Levillised)	Rs/Unit	6.42																									
Levillised benefit	Rs/Unit	0.08																									

Biomass Gasifier Power Projects- Maharashtra					Annexure-4C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	4065.60
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

Biomass Gasifier Power Projects- Punjab					Annexure-4D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	4158
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

CERC RE Tariff Order FY 2020-21

Biomass Gasifier : Determination of Tariff Component

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		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	1248.99	
Per unit Variable Cost	Rs/kWh		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	18.62	
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		63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27	
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		26.98	25.12	23.25	21.39	19.53	17.67	15.81	13.94	12.08	10.22	8.36	6.50	4.63	2.77	0.91	-	-	-	-	-	-	-	-	-	-	
Interest on working Capital	Rs Lakh		22.25	23.26	24.32	25.44	26.61	27.84	29.14	30.49	31.92	33.42	34.99	36.64	38.37	40.18	42.09	43.95	46.08	48.31	50.65	53.11	55.76	58.47	61.30	64.28	67.40	
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	
Total Fixed Cost	Rs Lakh		156.12	157.72	159.46	161.35	163.40	165.61	167.99	170.55	173.30	176.24	179.38	182.73	186.30	190.10	194.13	197.99	199.82	200.52	207.50	214.78	228.49	236.39	244.62	253.19	262.13	
Per unit Fixed Cost	Rs/kWh		2.65	2.33	2.35	2.38	2.41	2.44	2.47	2.51	2.54	2.58	2.63	2.67	2.72	2.78	2.83	2.89	2.79	2.89	2.99	3.09	3.20	3.41	3.53	3.65	3.78	3.91

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	9.06	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	18.62
O&M expn	Rs/kWh	1.33	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	2.35
Depreciation	Rs/kWh	0.27	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	0.20	0.40	0.37	0.35	0.32	0.29	0.26	0.24	0.21	0.18	0.15	0.12	0.10	0.07	0.04	0.01	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.50	0.33	0.35	0.36	0.38	0.40	0.42	0.43	0.45	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	0.91	0.96	1.01
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
Total COG	Rs/kWh	11.71	8.10	8.42	8.74	9.09	9.46	9.84	10.24	10.67	11.12	11.59	12.08	12.60	13.15	13.72	14.33	14.80	15.50	16.23	16.99	17.80	18.73	19.61	20.54	21.51	22.53
Discount Factor	Levillised		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.78																									
Levillised Tariff (Fixed)		2.65																									
Levillised Tariff	Rs/Unit	8.43																									

Determination of Additional Depreciation for Biomass Gasifier Power Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	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																										
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	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	1.26	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
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	Rs/Unit	5.34																								
Electricity Generation (Levillised)	Rs/Unit	6.42																								
Levillised benefit	Rs/Unit	0.08																								

Biomass Gasifier Power Projects- Rajasthan					Annexure-4E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3470.25
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

CERC RE Tariff Order FY 2020-21

Biomass Gasifier : Determination of Tariff Component

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		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	1042.40	
Per unit Variable Cost	Rs/kWh		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	15.54	
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		63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27	
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		26.98	25.12	23.25	21.39	19.53	17.67	15.81	13.94	12.08	10.22	8.36	6.50	4.63	2.77	0.91	-	-	-	-	-	-	-	-	-	-	
Interest on working Capital	Rs Lakh		19.12	19.98	20.88	21.82	22.82	23.86	24.95	26.10	27.30	28.57	29.90	31.29	32.76	34.29	35.91	37.46	39.26	41.15	43.13	45.21	47.48	49.76	52.17	54.68	57.33	
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	
Total Fixed Cost	Rs Lakh		153.00	154.44	156.01	157.73	159.60	161.62	163.80	166.16	168.68	171.39	174.29	177.39	180.69	184.21	187.95	190.90	197.00	193.36	199.98	206.88	220.20	227.68	235.48	243.60	252.06	
Per unit Fixed Cost	Rs/kWh		2.58	2.28	2.30	2.33	2.35	2.38	2.41	2.44	2.48	2.52	2.56	2.60	2.65	2.69	2.75	2.80	2.70	2.79	2.88	2.98	3.09	3.28	3.40	3.51	3.63	3.76

Levallised 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	7.56	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	15.54
O&M expn	Rs/kWh	1.33	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	2.35
Depreciation	Rs/kWh	0.27	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	0.20	0.40	0.37	0.35	0.32	0.29	0.26	0.24	0.21	0.18	0.15	0.12	0.10	0.07	0.04	0.01	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.43	0.29	0.30	0.31	0.33	0.34	0.36	0.37	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
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
Total COG	Rs/kWh	10.14	7.10	7.36	7.64	7.93	8.24	8.56	8.90	9.26	9.64	10.03	10.45	10.89	11.35	11.84	12.35	12.72	13.31	13.93	14.58	15.26	16.07	16.82	17.61	18.44	19.30
Discount Factor	Levelised		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		4.82																									
Levllised Tariff (Fixed)		2.58																									
Levllised Tariff	Rs/Unit	7.40																									

Determination of Additional Depreciation for Biomass Gasifier Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	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%	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	
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%	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	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	1.26	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	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levelled	5.34	Rs/Unit																									
Electricity Generation (Levelled)	6.42	Rs/Unit																									
Levelled benefit	0.08	Rs/Unit																									

Biomass Gasifier Power Projects- Tamil Nadu					Annexure-4F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3435.6
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

CERC RE Tariff Order FY 2020-21

Biomass Gasifier : Determination of Tariff Component

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		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	1031.99
Per unit Variable Cost	Rs/kWh		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	15.39
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		63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27
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		26.98	25.12	23.25	21.39	19.53	17.67	15.81	13.94	12.08	10.22	8.36	6.50	4.63	2.77	0.91	-	-	-	-	-	-	-	-	-	-
Interest on working Capital	Rs Lakh		18.97	19.81	20.71	21.64	22.62	23.66	24.74	25.88	27.07	28.33	29.64	31.02	32.47	34.00	35.60	37.13	38.92	40.79	42.75	44.82	47.06	49.33	51.71	54.20	56.82
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
Total Fixed Cost	Rs Lakh		152.84	154.27	155.84	157.55	159.41	161.42	163.59	165.93	168.45	171.15	174.03	177.12	180.41	183.91	187.64	190.57	196.66	193.00	199.61	206.48	219.78	227.25	235.02	243.12	251.55
Per unit Fixed Cost	Rs/kWh		2.58	2.28	2.30	2.32	2.35	2.38	2.41	2.44	2.47	2.51	2.55	2.60	2.64	2.69	2.74	2.80	2.69	2.78	2.88	2.98	3.08	3.28	3.39	3.50	3.63

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	7.48	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	15.39
O&M expn	Rs/kWh	1.33	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	2.35
Depreciation	Rs/kWh	0.27	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	0.20	0.40	0.37	0.35	0.32	0.29	0.26	0.24	0.21	0.18	0.15	0.12	0.10	0.07	0.04	0.01	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.43	0.28	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	0.55	0.58	0.61	0.64	0.67	0.70	0.74	0.77	0.81	0.85
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	0.43	0.43	0.43	0.43	0.43
Total COG	Rs/kWh	10.06	7.05	7.31	7.58	7.87	8.18	8.50	8.83	9.19	9.56	9.95	10.37	10.80	11.26	11.74	12.25	12.61	13.20	13.81	14.46	15.14	15.94	16.68	17.46	18.28	19.14
Discount Factor	Levilled		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		4.77																									
Levilled Tariff (Fixed)		2.58																									
Levilled Tariff	7.35																										

Determination of Additional Depreciation for Biomass Gasifier Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	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																											
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	%	30.00%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Deprn.	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	1.26	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	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levilled	5.34	Rs/Unit																									
Electricity Generation (Levilled)	6.42	Rs/Unit																									
Levilled benefit	0.08	Rs/Unit																									

Biomass Gasifier Power Projects- Telangana					Annexure-4G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3492.3
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

CERC RE Tariff Order FY 2020-21

Biomass Gasifier : Determination of Tariff Component

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		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		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	1049.02	
Per unit Variable Cost	Rs/kWh		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	15.64	
Fixed Cost		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		63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27	
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		26.98	25.12	23.25	21.39	19.53	17.67	15.81	13.94	12.08	10.22	8.36	6.50	4.63	2.77	0.91	-	-	-	-	-	-	-	-	-	-	
Interest on working Capital	Rs Lakh		19.22	20.08	20.99	21.94	22.94	23.98	25.08	26.24	27.45	28.72	30.06	31.46	32.94	34.48	36.11	37.66	39.48	41.38	43.37	45.47	47.74	50.04	52.46	54.99	57.65	
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	
Total Fixed Cost	Rs Lakh		153.10	154.54	156.12	157.85	159.72	161.75	163.94	166.30	168.83	171.55	174.45	177.56	180.87	184.39	188.15	181.11	187.22	193.59	200.23	207.14	220.47	227.96	235.77	243.91	252.38	
Per unit Fixed Cost	Rs/kWh		2.58	2.28	2.30	2.33	2.35	2.38	2.41	2.44	2.48	2.52	2.56	2.60	2.65	2.70	2.75	2.81	2.70	2.79	2.89	2.99	3.09	3.29	3.40	3.52	3.64	3.76

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	7.61	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	15.64
O&M expn	Rs/kWh	1.33	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	2.35
Depreciation	Rs/kWh	0.27	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	0.20	0.40	0.37	0.35	0.32	0.29	0.26	0.24	0.21	0.18	0.15	0.12	0.10	0.07	0.04	0.01	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.43	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	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	0.43	0.43	0.43	0.43	0.43
Total COG	Rs/kWh	10.19	7.13	7.40	7.68	7.97	8.28	8.60	8.94	9.30	9.68	10.08	10.50	10.94	11.41	11.90	12.41	12.78	13.38	14.00	14.66	15.35	16.16	16.91	17.70	18.54	19.41
Discount Factor	Levillised		1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		4.85																									
Levillised Tariff (Fixed)		2.58																									
Levillised Tariff	Rs/Unit	7.43																									

Determination of Additional Depreciation for Biomass Gasifier Power Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		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%	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%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-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	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	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	5.34	Rs/Unit																									
Electricity Generation (Levellised)	6.42	Rs/Unit																									
Levillised benefit	Rs/Unit	0.08																									

Biomass Gasifier Power Projects- Uttar Pradesh					Annexure-4H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3553.2
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

Biomass Gasifier Power Projects- Other States					Annexure-4I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	For First 6 Months	85%
			PLF(during first year after Stablization)	Next six months	85%
			PLF(second year onwards)	2 nd Year Onwards	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	443.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	310.10
			Total Equity Amout	Rs Lakh	132.90
		Debt Component	Loan Amount	Rs Lakh	310.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	132.90
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3734.85
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

CERC RE Tariff Order FY 2020-21

Biomass Gasifier : Determination of Tariff Component

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	Rs. Lakh	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				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	1121.88	
Per unit Variable Cost	Rs/kWh			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	16.73	
Fixed Cost	Rs. Lakh	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				63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27	
Depreciation				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	8.86
Interest on term loan				26.98	25.12	23.25	21.39	19.53	17.67	15.81	13.94	12.08	10.22	8.36	6.50	4.63	2.77	0.91	-	-	-	-	-	-	-	-	-	-	-
Interest on working Capital				20.32	21.24	22.20	23.21	24.28	25.39	26.56	27.79	29.08	30.43	31.86	33.35	34.92	36.56	38.29	39.95	41.88	43.90	46.02	48.25	50.66	53.11	55.68	58.38	61.20	
Return on Equity				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
Total Fixed Cost	Rs Lakh			154.20	155.70	157.34	159.12	161.06	163.16	165.42	167.85	170.46	173.25	176.25	179.44	182.85	186.47	190.33	183.40	189.63	196.12	202.88	209.92	223.39	231.03	239.00	247.29	255.93	
Per unit Fixed Cost	Rs/kWh			2.61	2.30	2.32	2.35	2.37	2.40	2.43	2.47	2.50	2.54	2.58	2.63	2.68	2.73	2.78	2.84	2.73	2.83	2.92	3.03	3.13	3.33	3.45	3.56	3.69	3.82
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			8.14	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	16.73
O&M expn	Rs/kWh			1.33	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	2.35
Depreciation	Rs/kWh			0.27	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			0.20	0.40	0.37	0.35	0.32	0.29	0.26	0.24	0.21	0.18	0.15	0.12	0.10	0.07	0.04	0.01	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh			0.46	0.30	0.32	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.48	0.50	0.52	0.55	0.57	0.60	0.62	0.65	0.69	0.72	0.76	0.79	0.83	0.87	0.91
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	0.43	0.43	0.43	0.43	0.43
Total COG	Rs/kWh			10.74	7.49	7.77	8.07	8.38	8.71	9.05	9.42	9.80	10.21	10.63	11.08	11.55	12.04	12.56	13.11	13.52	14.15	14.81	15.51	16.24	17.09	17.90	18.74	19.62	20.55
Discount Factor	Levillised			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Variable Cost	5.19																												
Levillised Tariff (Fixed)	2.61																												
Levillised Tariff	7.79	Rs/Unit																											

Determination of Additional Depreciation for Biomass Gasifier Power Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		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%	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%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levillised	5.34	Rs/Unit																									
Electricity Generation (Levillised)	6.42	Rs/Unit																									
Levillised benefit	0.08	Rs/Unit																									

Biogas Power Projects					Annexure-5A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption	%	12%
			PLF	%	90%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	886.00
3	Sources of Fund	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	620.20
			Total Equity Amout	Rs Lakh	265.80
		Debt Component	Loan Amount	Rs Lakh	620.20
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15.00
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lacs	265.80
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (after 20 years)	% p.a	21.52%
			Discount Rate (Equiv. to WACC)		8.30%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.50%
6	Fuel Related Assumptions	Biogas	Specific Fuel Consumption	kg/kWh	3
			Biogas Price	Rs/T	1493.10
			Substrate Pice Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Cost of power plant	Rs Lakh	63.66
			Total O & M Expenses Escalation	%	3.84%
8	Generation & Sale of Energy		Total No .Of Hours		8766.00

CERC RE Tariff Order FY 2021-22

Biogas : Determination of Tariff Component

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		6.94	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		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	1,139.72
Per unit Variable Cost	Rs/kWh		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	16.42
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		63.66	66.11	68.65	71.28	74.02	76.86	79.81	82.88	86.06	89.37	92.80	96.36	100.06	103.91	107.90	112.04	116.34	120.81	125.45	130.26	135.27	140.46	145.85	151.46	157.27
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		53.96	50.24	46.52	42.79	39.07	35.35	31.63	27.91	24.19	20.47	16.75	13.02	9.30	5.58	1.86	-	-	-	-	-	-	-	-	-	-
Interest on working Capital	Rs Lakh		21.53	22.43	23.38	24.39	25.44	26.54	27.71	28.93	30.21	31.56	32.98	34.47	36.04	37.68	39.41	40.93	42.89	44.94	47.09	49.35	51.88	54.36	56.97	59.70	62.57
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
Total Fixed Cost	Rs Lakh		225.59	225.21	224.98	224.90	224.97	225.20	225.59	226.15	226.90	227.83	228.96	230.29	231.84	233.60	235.60	237.78	240.04	242.56	245.35	248.42	251.86	255.67	259.85	264.40	269.34
Per unit Fixed Cost	Rs/kWh		3.33	3.25	3.24	3.24	3.24	3.24	3.24	3.25	3.26	3.27	3.28	3.30	3.32	3.34	3.36	3.39	3.41	3.42	3.43	3.44	3.45	3.46	3.47	3.48	3.49

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		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	16.42
O&M expn	Rs/kWh	1.29	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	1.68	1.74	1.81	1.88	1.95	2.02	2.10	2.18	2.27
Depreciation	Rs/kWh	0.53	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	0.26
Int. on term loan	Rs/kWh	0.39	0.78	0.72	0.67	0.62	0.56	0.51	0.46	0.40	0.35	0.29	0.24	0.19	0.13	0.08	0.03	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.45	0.48	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86	0.90
RoE	Rs/kWh	0.66	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
Total COG	Rs/kWh	3.33	8.34	8.59	8.85	9.13	9.43	9.74	10.07	10.42	10.79	11.18	11.59	12.02	12.48	12.96	13.47	13.99	14.51	15.06	15.64	16.25	16.88	17.53	18.20	18.89	19.75
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		5.09																									
Levillised Tariff (Fixed)		3.33																									
Levillised Tariff		8.42	Rs/Unit																								

Determination of Additional Depreciation

Depreciation amount		90%																								
Book Depreciation rate		5.28%																								
Tax Depreciation rate		40%																								
Additional Depreciation		20%																								
Income Tax (MAT)		17.472%																								
Income Tax (Normal Rates)		34.944%																								
Capital Cost		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	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%
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	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	-0.23	-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	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised		10.69	Rs/Unit																							
Electricity Generation (Levillised)		6.65	Rs/Unit																							
Levillised benefit		0.16	Rs/Unit																							