

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 02/SM/2018 (Suo-Motu)

- Coram:**
- 1. Shri P.K. Pujari, Chairperson**
 - 2. Shri A. K. Singhal, Member**
 - 3. Shri A. S. Bakshi, Member**
 - 4. Dr. M. K. Iyer, Member**

Date of Order: 28th March 2018

IN THE MATTER OF

Determination of levelled generic tariff for FY 2018-19 under Regulation 8 of the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017.

ORDER

1. The Commission had issued the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017, on 17.04.2017 (hereinafter referred to as "the RE Tariff Regulations"), which provide for terms and conditions and the procedure for determination of tariff for 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 Plants;
- (d) Biomass Gasifier based projects;
- (e) Biogas based 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 and Solar Thermal;
 - (b) Wind Energy (including on-shore and off-shore);
 - (c) Biomass Gasifier based projects, if a project developer opts for project specific tariff;
 - (d) Biogas based projects, if a project developer opts for project specific tariff;
 - (e) Municipal Solid Waste and Refuse Derived Fuel based projects with Rankine cycle technology;
 - (f) Hybrid Solar Thermal power projects;
 - (g) Other hybrid projects include renewable–renewable or renewable-conventional sources, for which renewable technology is approved by MNRE;
 - (h) Any other new renewable energy technologies approved by MNRE.
3. The Commission, in due discharge of the mandate under Regulation 8(1) of the RE Tariff Regulations has determined the generic tariff of the RE projects for the second year of control period (i.e. FY 2018-19) through this order.
4. The Commission issued Order proposing “Determination of levellised generic tariff for FY 2018-19 under Regulation 8 of the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017”, (Petition No. 02/SM/2018) dated 1st March 2018 and invited comments/suggestions/objections from the stakeholders. A Public Notice was also issued on 1st March 2018 stating the last date of submission of comments/suggestions/objections as 21st March 2018.
5. In response, written comments/suggestions/objections were received from only one stakeholder, i.e The South Indian Sugar Mills Association (SISMA)

6. Subsequently, a public hearing was held on 26th March 2018, following which submission was made by Rajasthan SLDC.
7. The Commission has considered the views/comments/suggestions of the stakeholders and the analysis/decisions of the Commission thereon is presented as under:

1. FUEL PRICES

1.1. Commission's Proposal:

The Commission, as per Regulation 49 of the RE Tariff Regulations, proposed the price of Bagasse during first year of the Control Period (i.e. FY 2018-19) 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.

State	Bagasse Price for FY 2017-18(Rs. /Tonne)	Bagasse Price for FY 2018-19(Rs. /Tonne)
Andhra Pradesh	1622.16	1703.27
Haryana	2307.26	2422.62
Maharashtra	2273.75	2387.44
Punjab	2030.49	2132.01
Tamil Nadu	1747.51	1834.89
Uttar Pradesh	1809.57	1900.05
Other States	1964.71	2062.95

1.2. Comments Received

1.2.1. SISMA has proposed to revise the Bagasse fuel value for Tamil Nadu from

Rs. 1834.89/MT to Rs. 2910/MT. They have strongly objected to Commission's proposal of Bagasse prices for Tamil Nadu as Rs. 1834.89/MT. They have highlighted that last year too, for Draft RE Tariff Regulations 2017, they had furnished detailed justification as well as documentary support and strongly pleaded that the Draft Regulations should determine bagasse price for Tamil Nadu not below Rs. 2300/MT for FY 2017-18. However, in the final regulations there was no change. Hence, SISMA filed a writ petition No.23193/2017 before Madras High Court specifically challenging clause No 49 in CERC Regulations 2017 which states that bagasse price for cogeneration plants in Tamil Nadu would be Rs.1,747.51/ton for FY 2017-18. Further, they have cited that TNERC vide their public notice dated 02.03.2018 has put on public domain, a consultative paper for determining tariff for bagasse based cogeneration plants in Tamil Nadu for the control period 2018-20. In the said consultative paper, TNERC has considered bagasse price as Rs.1,834.89/ton based on CERC Regulations 2017 resulting in low tariff for Bagasse based projects. SISMA has further highlighted that Tamil Nadu Newsprint and Papers Limited(TNPL) a Government of Tamil Nadu undertaking buys bagasse regularly from sugar mills in the State and pays a price in excess of Rs.2,300/ton last year . Accordingly, they have requested to make this as a basis for determining market price for bagasse.

1.2.2. SISMA has also stated that there is no rationale whatsoever to determine bagasse price for Tamil Nadu at a level far below the price determined for other major sugarcane and sugar producing States like UP, Maharashtra and Karnataka. They have urged that bagasse price for Tamil Nadu should be in tandem with the price determined for other States to assure level playing field for all.

1.3. Analysis & Decision

As explained in the SOR for RE Tariff Regulations 2017 (reproduced below), there were suggestions that there should not be any provision for fuel cost for bagasse based co-generation plants as Bagasse is a by-product of sugarcane crushing while manufacturing sugar and this cost is already included by the State Governments in sugar pricing.

“The Commission has analyzed the comments and observations submitted by stakeholders. Some stakeholders have proposed to increase the price of fuel cost. However, there are views that there should not be any provision for fuel cost for bagasse based co-generation plants as Bagasse is a by-product of sugarcane crushing while manufacturing sugar and this cost is already included by the State Governments in sugar pricing.

The Commission is of the view that fuel prices should be considered for Bagasse based cogeneration plant plants for the purpose of tariff determination. Accordingly, the Commission has retained the fuel prices specified in the Draft Regulations.

Year-on-year escalation shall be 5%, hence it is no more linked to a defined index. The clause on escalation has been modified accordingly.”

Further, a writ petition has been filed before the Madras High Court challenging clause No 49 in CERC RE Tariff Regulations, 2017 which provides for the bagasse price for cogeneration plants. The matter is subjudice in the Court. Hence, the Commission has decided to retain the proposed fuel prices for Bagasse based cogeneration plants for the purpose of tariff determination.

2. MISCELLANEOUS

2.1. Comments Received

Rajasthan SLDC commented that the services required for setting up and operation of renewable energy plant/ project should be exempt from Levy of GST. The exemption should be on all type of goods & services used for

renewable energy project including civil construction work, setting up machinery/parts for plant and O&M. This would decrease the capital cost and running cost of RE plant and hence reduce the tariff of electricity generated.

2.2. Analysis & Decision

The Commission would like to clarify that the request of Rajasthan SLDC for exemption from levy of GST on Renewable Energy projects is beyond the scope of the jurisdiction of this Commission.

8. No other comment on any other parameters of the order was received. Hence, the Commission determines the levellised generic tariff for RE based generating stations for FY 2018 -19 as enclosed in Annexure – I to this Order.

Sd/-
[M. K. Iyer]
MEMBER

Sd/-
[A. S. Bakshi]
MEMBER

Sd/-
[A. K. Singhal]
MEMBER

Sd/-
[P.K Pujari]
CHAIRPERSON

New Delhi
28th March 2018

LEVELLISED GENERIC TARIFF FOR VARIOUS RENEWABLE ENERGY TECHNOLOGIES FOR FY 2018-19

1. The levellised generic tariffs for Small Hydro projects, Biomass with Rankine Cycle, Non-fossil fuel based co-generation, Biomass Gasifier and Biogas based projects, for FY 2018-19 are discussed below. For Solar PV, Solar Thermal, Wind (onshore and offshore), MSW/RDF and other emerging renewable energy technologies, the tariff will be project specific and not generic.

USEFUL LIFE

2. Clause (cc) of sub-Regulation (1) of Regulation 2 of the RE Tariff Regulations defines 'useful life' in relation to a unit of a generating station (including evacuation system) to mean the following duration from the date of commercial operation (COD) of such generation facility:

Renewable Energy Projects	Years
Small Hydro	35
Biomass power project with Rankine Cycle technology	20
Non-fossil fuel based co-generation	20
Biomass Gasifier	20
Biogas	20

CONTROL PERIOD

3. Regulation 5 of the RE Tariff Regulations provides that the control period for determination of tariff for renewable energy projects (RE projects) shall be three years of which the first year of the control period is FY 2017-18. The Provision to the said regulation stipulates that the tariff determined for the RE projects

commissioned during the control period shall continue to be applicable for the entire duration of the tariff period as specified in Regulation 6 of the RE Tariff Regulations. Accordingly, the tariff determined for FY 2018-19 is for the second year of the control period.

TARIFF STRUCTURE

4. Clause (1) of Regulation 9 of the RE Regulations stipulates that the tariff for RE projects shall be single part tariff consisting of the following fixed cost components:
 - a. Return on equity;
 - b. Interest on loan capital;
 - c. Depreciation;
 - d. Interest on working capital;
 - e. Operation and maintenance expenses;

For renewable energy technologies having fuel cost component, such as biomass power projects and non-fossil fuel based cogeneration, single part tariff with two components i.e. fixed cost component and fuel cost component, is to be determined.

TARIFF DESIGN

5. 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 for the Tariff Period. Provided that for renewable energy technologies having single part tariff with two components, tariff shall be determined on levellised basis considering the year of commissioning of the project for fixed cost component while the fuel cost component shall be specified on year of operation basis.*
 - 2) *For the purpose of levellised tariff computation, the discount factor equivalent to Post*

Tax weighted average cost of capital shall be considered.

3) *Levelling shall be carried out for the 'useful life' of the Renewable Energy project while Tariff shall be specified for the period equivalent to Tariff Period.*

4) *The above principles shall also apply for project specific tariff."*

LEVELLISED TARIFF

6. Levellised Tariff is calculated by carrying out levelling for 'useful life' of each technology considering the discount factor for time value of money. Norms considered for computation of tariff are as below:

DISCOUNT FACTOR

7. In accordance with Regulation 10(2) of RE tariff regulation, the discount factor considered for this exercise is equal to the post tax weighted average cost of capital on the basis of normative debt: equity ratio (70:30) specified in the Regulations. Considering the normative debt equity ratio and weighted average of the post-tax rates for debt and equity component, the discount factor is calculated. Interest Rate considered for the loan component (i.e.70 %) of capital cost is 9.97 %. For equity component (i.e. 30 %), rate of Return on Equity (ROE) is considered at post tax rate of 14 %. The discount factor derived by this method for all technologies is 9.15 % $((9.97\% \times 0.70 \times (1 - 29.12\%)) + (14.0\% \times 0.30))$ (Income tax rate @ 29.12% (25% IT rate+ 12% surcharge +4% Education cess).

CAPITAL COST

8. Regulation 12 of the RE Tariff Regulations stipulates that the norms for the capital

cost as specified in the technology specific chapter shall be inclusive of all capital works like plant and machinery, civil works, erection and commissioning, financing and interest during construction, and evacuation infrastructure upto inter-connection point. The Commission has specified the normative capital cost, applicable for the second year of control period i.e. FY 2018-19, for various RE technologies viz., Small Hydro Power, Biomass Power based on Rankine cycle, Non-Fossil Fuel based Cogeneration, Biomass Gasifier and Biogas based power projects.

9. The Capital Cost, for above mentioned RE technologies, as specified for second year of control period will remain valid for the remaining duration of the control period unless reviewed earlier by the Commission.

Technology specific capital cost of RE projects is discussed herein as under:

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

10. 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.
11. The Commission under Regulation 28 (1) has specified the normative capital cost for small hydro projects for second year of Control Period (FY 2018-19) as under:

Region	Projects Size	Capital Cost (Rs. Lakhs/MW)
Himachal Pradesh, Uttarakhand, West Bengal and North Eastern States	Below 5 MW	1000
	5 MW to 25 MW	900
Other States	Below 5 MW	779
	5 MW to 25 MW	707

(B) Capital Cost of Biomass based Power Projects

12. The Commission, under Regulation 33 of the RE Tariff Regulations has specified the normative capital cost for Biomass based Power Projects for FY 2018-19, as under:

Biomass Rankine Cycle Projects	Capital Cost (FY 2018-19) (Rs lakhs/ MW)
Project [other than rice straw and juliflora (plantation) based project] with water cooled condenser	559.03
Project [other than rice straw and Juliflora(plantation) based project] with air cooled condenser	600.44
For rice straw and Juliflora (plantation) based project with water cooled condenser	610.80
For rice straw and Juliflora (plantation) based project with air cooled condenser	652.20

(C) Capital Cost of Non-fossil fuel based Cogeneration Projects

13. Non-fossil based cogeneration has been defined as the process in which more than

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

14. The Commission under Regulation 44 has specified the normative capital cost for the Non-Fossil Fuel Based Cogeneration Projects as Rs.492.5 lakhs/MW for the second year of Control Period (i.e. FY 2018-19), and will remain valid for the remaining duration of the control period unless reviewed earlier by the Commission

(D) Capital Cost of Biomass Gasifier Power Projects

15. The Commission under Regulation 62 has specified the normative capital cost for the Biomass Gasifier power projects based on Rankine cycle to be Rs. 592.88 lakhs/MW for FY 2018-19. After taking into account capital subsidy of Rs.150.00 lakhs/MW (by Ministry of New and Renewable Energy), net project cost shall be Rs. 442.88 lakhs/MW for FY 2018-19.

(E) Capital Cost of Biogas based Power Projects

16. The Commission under Regulation 70 has specified the normative capital cost for

Biogas based power projects to be Rs. 1185.76 lakhs/MW for FY 2018-19. After taking into account capital subsidy of Rs. 300.00 lakhs/MW, net project cost is Rs. 885.76 lakhs/MW.

17. The capital cost for the second year (i.e. FY 2018-19) of the control period in respect of the renewable energy power generating stations is summarized as under:

Renewable Energy Projects	Capital Cost Norm for FY 2018-19 (Rs. lakhs/MW)
(1) Small Hydro Projects	
(a) Himachal Pradesh, Uttarakhand, West Bengal and North Eastern States (less than 5 MW)	1000
(b) Himachal Pradesh, Uttarakhand, West Bengal and North Eastern States (5MW to 25 MW)	900
(c) Other States (below 5 MW)	779
(d) Other States (5MW to 25 MW)	707
(2) Biomass Power Projects	
(a) project [other than rice straw and juliflora (plantation) based project] with water cooled condenser	559.03
(b) Project [other than rice straw and Juliflora (plantation) based project] with air cooled condenser	600.44
(c) Rice straw and juliflora (plantation) based project with water cooled condenser	610.80

(d) Rice straw and juliflora (plantation) based project with air cooled condenser	652.20
(3) Non-fossil fuel based co-generation Power Projects (For High Pressure Boilers)	492.5
(4) Biomass Gasifier Power Projects	442.88
(5) Biogas Power Projects	885.76

DEBT-EQUITY RATIO

18. Sub-Regulation (1) of Regulation 13 of the RE Tariff Regulations, as stipulated below, provides that the debt-equity ratio of 70:30 is to be considered for determination of generic tariff based on suo-motu petition.

Regulation 13 (1): For generic tariff to be determined based on suo-motu petition, the debt equity ratio shall be 70:30.

19. 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 under:

Renewable Energy Projects	Debt (Rs. Lakh)	Equity (Rs. Lakh)
(1) Small Hydro		
(a) Himachal Pradesh, Uttarakhand, West Bengal and North Eastern States (below 5 MW)	700.00	300.00
(b) Himachal Pradesh, Uttarakhand, West Bengal and North Eastern States (5 MW to 25 MW)	630.00	270.00
(c) Other States (below 5 MW)	545.30	233.70
(d) Other States (5MW to 25 MW)	494.90	212.10

(2) Biomass		
(a) Project [other than rice straw and Juliflora (plantation) based project] with water cooled condenser	391.32	167.71
(b) Project [other than rice straw and Juliflora (plantation) based project] with air cooled condenser	420.31	180.13
(c) Rice straw and Juliflora (plantation) based project with water cooled condenser	427.56	183.24
(d) Rice straw and Juliflora (plantation) based project with air cooled condenser	456.54	195.66
(3) Non-fossil fuel co-generation	344.75	147.75
(4) Biomass Gasifier based Power Projects	310.02	132.87
(5) Biogas based Power Projects	620.04	265.73

RETURN ON EQUITY

20. Sub-Regulation (2) of Regulation 16 of the RE Tariff Regulations, as defined below, stipulates the normative Return on Equity (ROE) as 17.56% (after grossing up by prevailing MAT rate of 20.26%¹ (Avg. MAT rate) as on 1 April 2017) for the useful life of the project.

Regulation 16 (2): The normative Return on Equity shall be 14 %, to be grossed up by prevailing MAT as on 1st April of previous year for the entire useful life of the project.

INTEREST ON LOAN

21. Sub-Regulation (1) of Regulation 14 of the RE Regulations provides that the loan tenure of 13 years is to be considered for the purpose of determination of tariff for RE projects.

¹Average of MAT rate, as on 1st April 2017, for companies having profit less than Rs. 1 Cr, between Rs. 1 Cr & 10 Cr and above Rs. 10 Cr i.e. 19.055%, 20.389% and 21.342% respectively

Sub-Regulation (2) of the said Regulation provides for computation of interest on loan as under:

(a) "The loan arrived at in the manner indicated in Regulation 13 shall be considered as gross normative loan of calculation for interest on loan. The normative loan outstanding as on April 1st of every year shall be worked out by deducting the cumulative repayment up to March 31st of previous year from the gross normative 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 MCLR (Marginal Cost Lending Rate - one year tenor) prevalent during the last available six months shall be considered.

(c) Notwithstanding any moratorium period availed by the generating company, 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."

22. The monthly data of MCLR for the last available six months from State Bank of India and the average MCLR is shown below.

Month	1 Year Tenor MCLR Rates (Source: SBI Monthly Press Releases)
Sept 2017	8.00
Oct. 2017	8.00
Nov. 2017	7.95
Dec. 2017	7.95
Jan. 2018	7.95
Feb. 2018	7.95
Avg. for last Available 6 months	7.97

23. Considering the Average MCLR and in accordance to Sub-Regulation 2, interest rate for loan component has been determined as 9.97%.

DEPRECIATION

24. Regulation 15 of the RE Tariff Regulations provides for computation of depreciation in the following manner:

- (1) *“The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission. The Salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the asset.*
- (2) *Depreciation rate of 5.28% per annum for first 13 years and remaining depreciation to be spread during remaining useful life of the RE projects considering the salvage value of the project as 10% of project cost shall be considered.*
- (3) *Depreciation shall be chargeable from the first year of commercial operation. Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis”.*

25. In accordance with the above, the rate of depreciation for the first 13 years has been considered as 5.28% and the rate of depreciation from the 14th year onwards has been spread over the balance useful life of the RE project as under:

Details	Small Hydro	Biomass	Non-fossil fuel cogeneration	Biomass Gasifier	Biogas
Useful Life (in years)	35	20	20	20	20
Rate of depreciation for 13 years (%)	5.28	5.28	5.28	5.28	5.28
Rate of depreciation after first 13 years (%)	0.97	3.05	3.05	3.05	3.05

INTEREST ON WORKING CAPITAL

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

"(1) *The Working Capital requirement in respect of Small Hydro Power shall be computed in accordance with the following:*

Small Hydro Power

- a) *Operation & Maintenance expenses for one month;*
- b) *Receivables equivalent to 2 (two) months of energy charges for sale of electricity calculated on the normative CUF;*
- c) *Maintenance spare @ 15% of operation and maintenance expenses*

(2) *The Working Capital requirement in respect of biomass power projects and non-fossil fuel based co-generation projects shall be computed in accordance with the following clause:*

Biomass (Rankine Cycle Technology), Biomass Gasifier, Biogas Power and Non-fossil fuel Co-generation.

- a) *Fuel costs for four months equivalent to normative PLF;*
- b) *Operation & Maintenance expense for one month;*
- c) *Receivables equivalent to 2 (two) months of fixed and variable charges for sale of electricity calculated on the target PLF;*
- d) *Maintenance spare @ 15% of operation and maintenance expenses*

(3) *Interest on Working Capital shall be computed at rate equivalent to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months for the determination of tariff".*

27. Receivables equivalent to two months of actual fixed cost and four months of variable cost, (as applicable for biomass power and non-fossil fuel based co-generation) have been considered. Interest rate has been computed as average of State Bank of India MCLR (One Year Tenor) prevalent during the last available six months plus 300 basis points (equivalent to interest rate of 10.97%). The interest on working capital has been worked out as specified below:

Details	Small Hydro	Biomass, Non-fossil fuel co-generation Biomass Gasifier and Biogas
(A) For Fixed charges		
(i) O&M expenses (month)	1	1
(ii) Maintenance spares (%) of O&M expenses	15	15
(iii) Receivables (months)	2	2
(B) For Variable Charges		
Biomass/Bagasse stock (months)	-	4
(C) Interest On Working Capital (%)	10.97%	10.97%

CALCULATION OF CAPACITY UTILIZATION FACTOR (CUF)/PLANT LOAD

FACTOR (PLF)

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

Regulation 18: The number of hours for calculation of CUF/PLF (wherever applicable) for various RE technologies shall be 8766.

OPERATION AND MAINTENANCE EXPENSES

29. Regulation 19 of the RE Tariff Regulations provides for Operation and Maintenance Expenses (O&M expenses) in respect of RE projects as under:

"Operation and Maintenance Expenses

(1) 'Operation and Maintenance or O&M expenses' shall comprise repair and maintenance (R&M), establishment including employee expenses and administrative & general expenses.

(2) Operation and maintenance expenses shall be determined for the Tariff Period based on normative O&M expenses specified by the Commission subsequently in these Regulations for the first Year of Control Period.

(3) Normative O&M expenses allowed during first year of the Control Period (i.e. FY2017-18) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period"

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

(a) Small Hydro: Regulation 31 of RE Regulations provided for the normative O&M expenses for small hydro projects for the first year of the Control Period (FY 2017-18) which shall be escalated at the rate of 5.72% 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 2018-19:

Region	Project Size	O&M expenses FY 2018-19 (Rs. lakhs/MW)
Himachal Pradesh, Uttarakhand, West Bengal and North Eastern States	Below 5 MW	38.06
	5 MW to 25 MW	28.54
Other States	Below 5 MW	30.66
	5 MW to 25 MW	22.20

(b) Biomass: Regulation 37 of RE Tariff Regulations provides that the normative O& M expenses for biomass based projects for the first year of the Control Period (FY 2017-18) shall be Rs. 40 Lakh per MW, which shall be escalated at the rate of 5.72% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for biomass power as Rs. 42.29 Lakhs per MW for FY 2018-19.

(c) Non-fossil fuel co-generation: As per Regulation 50 of RE Tariff Regulations, the normative O&M expenses for non-fossil fuel co-generation projects for the first year of the Control Period (FY 2017-18) has been specified as Rs. 21.13 Lakhs per MW which shall be escalated at the rate of 5.72% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for Non-fossil fuel based co-generation plant as Rs. 22.34 Lakhs per MW for FY 2018-19.

(d) Biomass Gasifier: Regulation 66 of the RE Tariff Regulations specified normative O&M expenses for Biomass Gasifier power projects as Rs. 52.83 lakhs/MW for the first year of Control Period (FY 2017-18), which shall be escalated at the rate of 5.72% per annum over the tariff period. Accordingly, the Commission has specified O&M cost norm for Biomass Gasifier project as Rs. 55.85 Lakhs per MW for FY 2018-19.

(e) Biogas: Regulation 73 of the RE Tariff Regulations specified normative O&M expenses for biogas as Rs. 52.83 Lakhs/MW for the first year of Control Period operation, which shall be escalated at the rate of 5.72% per annum over the tariff period. Accordingly, the Commission has specified O&M cost

norm for Biogas based project as Rs. 55.85 Lakhs per MW for FY 2018-19.

CAPACITY UTILISATION FACTOR (CUF)

31. Regulation 29 of the RE Tariff Regulations specified the norms for Capacity Utilization Factor (CUF) of units generated in a year in respect of the Small Hydro generating stations as per the details given in the table below:

Renewable Energy Projects	CUF
Small Hydro	
(i) Himachal, Uttarakhand, West Bengal and North Eastern States	45 %
(ii) Other States	30 %

PLANT LOAD FACTOR (PLF)

32. Regulations 34, 63 and 71 of the RE Tariff Regulations specified the Plant Load Factor (PLF) of units generated in a year for Biomass, Biomass Gasifier, and Biogas based renewable energy generating stations as given in the table below:

Renewable Energy Projects	PLF
(A) Biomass	
(a) During stabilization (6 months)	60 %
(b) During remaining period of the first year (after	70 %
(c) Second year onwards	80 %
(B) Biomass Gasifier	85 %
(C) Biogas	90 %

33. Regulation 45 of the RE Tariff Regulations stipulates the PLF for Non-fossil Fuel based Co-generation projects as under, computed on the basis of plant availability for number of operating days considering the operations during crushing season and off-season and a load factor of 92%. The number of operating days for different States as specified in Regulation 45(2) are as under:

States	Operating days	PLF
Uttar Pradesh and Andhra Pradesh	120 days (crushing)+ 60 days (off-season) = 180 days	45 %
Tamil Nadu and Maharashtra	180 days (crushing)+ 60 days (off-season) = 240 days	60 %
Other States	150 days (crushing) + 60 days (off-season) = 210 days	53 %

AUXILIARY POWER CONSUMPTION

34. Regulations 30, 35, 46, 64 and 72 of the RE Tariff Regulations stipulate the auxiliary power consumption factor for different technologies as under:

Renewable Energy Projects	Auxiliary Consumption Factor
Small Hydro	1 %
Biomass Projects a) using water cooled condenser	i. During first year of operation: 11%; ii. From 2 nd year onwards: 10%.
b) using air cooled condenser	i. During first year of operation: 13%; ii. From 2 nd year onwards: 12%.

Non-fossil fuel co-generation	8.5 %
Biomass Gasifier	10 %
Biogas	12 %

STATION HEAT RATE

35. The Station Heat Rates (SHR) specified under Regulations 36 and 47 of the RE Tariff Regulations for biomass and non-fossil fuel based co-generation projects are as under:

Renewable Energy Projects	SHR(kCal / kWh)
Biomass	a. 4200: for project using travelling grate boilers; b. 4125: for project using AFBC boilers.
Non-fossil fuel co-generation (for power component)	3600

FUEL

(a) Fuel Mix

36. Sub-Regulation (1) of Regulation 38 of the RE Tariff Regulations stipulates that the Biomass based power generating stations are to be designed in a way that it uses different types of non-fossil fuels available within the vicinity of biomass power project such as crop residues, agro-industrial residues, forest residues etc. and

other biomass fuels as may be approved by the Ministry of Non-Renewable Energy (MNRE). Sub-Regulation (2) of the said Regulations stipulates that the biomass power generating companies are to ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

37. Regulation 65 of the RE Tariff Regulations stipulates that the normative specific fuel consumption shall be 1.25 kg per kWh for Biomass Gasifier based power generating stations.

38. Regulation 74 of the RE Tariff Regulations stipulates that the normative specific fuel consumption shall be 3 kg of substrate mix per kWh for Biogas based power generating stations.

(b) Calorific value

Regulation 41 of the RE Tariff Regulations provides that the calorific value of biomass fuel used for determination of tariff shall be 3100kCal/kg.

40. Regulation 48 of the of the RE Tariff Regulations provides the gross calorific value for bagasse to be considered in case of non-fossil fuel co-generation projects is 2250 kCal/kg, and for the use of biomass fuels other than bagasse, the calorific value as specified above shall be applicable.

(c) Fuel cost

41. The Commission, as per Regulation 42 of the RE Tariff Regulations, has specified

the Biomass fuel price during second year of the Control Period (i.e. FY 2018-19) in the table below. 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.

State	Biomass Price for FY 2018-19 (Rs. /Tonne)
Andhra Pradesh	3016.88
Haryana	3433.91
Maharashtra	3512.09
Punjab	3591.59
Rajasthan	2997.33
Tamil Nadu	2967.35
Uttar Pradesh	3069.00
Other States	3226.70

42. The Commission, as per Regulation 49 of the RE Tariff Regulations, has specified the Bagasse fuel price for second year of the Control Period (i.e. FY 2018-19) in the table below. 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.

State	Bagasse Price for FY 2018-19(Rs. /Tonne)
Andhra Pradesh	1703.27
Haryana	2422.62
Maharashtra	2387.44
Punjab	2132.01
Tamil Nadu	1834.89
Uttar Pradesh	1900.05
Other States	2062.95

43. As per Regulation 68 of the RE Tariff Regulations, the biomass fuel price for Biomass gasifier based power projects applicable for FY 2018-19 shall be the same as for biomass based power projects (Rankine cycle), as determined in accordance with Regulation 42 and specified in Clause 41 of this Order.

44. The Commission, as per Regulation 75 of the RE Tariff Regulations, has specified the feed stock price for Biogas based power projects. For second year of the Control Period, the Commission specifies the feed stock price for Biogas based power projects as Rs. 1290.16/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.

45. In case of Biomass power projects, Non-fossil fuel based co-generation projects, Biomass Gasifier based power projects and Biogas based projects, variable

component of tariff is calculated based on the fuel cost for FY 2018-19. This variable component will change each year based on an escalation factor of 5%, unless specifically reviewed and ordered by Commission. Hence, while calculating the total applicable tariff for Biomass power projects, Non-fossil fuel based co-generation projects, Biomass Gasifier based power projects and Biogas based projects, levellisation of only fixed component is considered and the variable component for the first year of operation (i.e. 2018-19) is specified.

Subsidy or incentive by the Central / State Government

46. Regulation 23 of the RE Tariff Regulations provides as under:

"The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants 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 as per relevant provisions under Income Tax Act and corporate income tax rate*
- 2) Capitalization of RE projects during second half of the fiscal year. Per unit benefit shall be derived on levellised basis at discount factor equivalent to Post Tax weighted average cost of capital".*

47. In terms of the above regulation, for the projects availing the benefit of accelerated depreciation, an applicable Income tax rate of 29.12%² (25% IT rate+ 12% surcharge +4% Education cess) has been considered. For the purpose of determining net depreciation benefits, depreciation @ 5.28% as per straight line

²25% Corporate Tax Rate announced in Budget 2018-19 for companies having turnover of up to Rs. 250 crores, Education Cess announced as 4%

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

48. 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 Regulation 23). Income tax benefits of accelerated depreciation and additional depreciation, has 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 Income Tax Act.

49. In the light of the discussion made in the preceding paragraphs, the generic tariffs of different RE projects for the financial year 2018-19 have been arrived at and are specified as under:

Generic Tariff for RE Technologies for FY 2018-19

Particular	Levelling Total Tariff (FY 2018-19) (Rs./kWh)
Small Hydro Power Project	
HP, Uttarakhand, WB and NE States (Below 5MW)	5.11
HP, Uttarakhand, WB and NE States (5MW to 25 MW)	4.32
Other States (Below 5 MW)	6.05
Other States (5 MW to 25 MW)	5.07

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levelling Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and travelling grate boiler					
AP	2.71	4.59	7.30	0.11	7.19
Haryana	2.76	5.23	7.99	0.11	7.88
Maharashtra	2.77	5.35	8.12	0.11	8.00
Punjab	2.78	5.47	8.25	0.11	8.14
Rajasthan	2.71	4.56	7.27	0.11	7.16
Tamil Nadu	2.70	4.52	7.22	0.11	7.11
UP	2.72	4.67	7.39	0.11	7.28
Others	2.74	4.91	7.65	0.11	7.54

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and travelling grate boiler					
AP	2.86	4.70	7.56	0.12	7.43
Haryana	2.91	5.35	8.26	0.12	8.14
Maharashtra	2.92	5.47	8.39	0.12	8.27
Punjab	2.93	5.59	8.52	0.12	8.40
Rajasthan	2.86	4.67	7.53	0.12	7.40
Tamil Nadu	2.85	4.62	7.47	0.12	7.35
UP	2.87	4.78	7.65	0.12	7.52
Others	2.89	5.02	7.91	0.12	7.79

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and travelling grate boiler					
AP	2.82	4.59	7.41	0.12	7.29
Haryana	2.87	5.23	8.10	0.12	7.97
Maharashtra	2.88	5.35	8.23	0.12	8.10
Punjab	2.89	5.47	8.36	0.12	8.23
Rajasthan	2.82	4.56	7.38	0.12	7.26
Tamil Nadu	2.81	4.52	7.33	0.12	7.21
UP	2.83	4.67	7.50	0.12	7.38
Others	2.84	4.91	7.76	0.12	7.63

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and travelling grate boiler					
AP	2.98	4.70	7.68	0.13	7.54
Haryana	3.03	5.35	8.38	0.13	8.24
Maharashtra	3.04	5.47	8.51	0.13	8.38
Punjab	3.05	5.59	8.64	0.13	8.51
Rajasthan	2.98	4.67	7.64	0.13	7.51
Tamil Nadu	2.97	4.62	7.59	0.13	7.46
UP	2.99	4.78	7.76	0.13	7.63
Others	3.00	5.02	8.03	0.13	7.90

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and AFBC boiler					
AP	2.70	4.51	7.21	0.11	7.10
Haryana	2.75	5.13	7.89	0.11	7.78
Maharashtra	2.76	5.25	8.01	0.11	7.90
Punjab	2.77	5.37	8.14	0.11	8.03
Rajasthan	2.70	4.48	7.18	0.11	7.07
Tamil Nadu	2.70	4.44	7.13	0.11	7.02
UP	2.71	4.59	7.30	0.11	7.19
Others	2.73	4.82	7.55	0.11	7.44

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and AFBC boiler					
AP	2.85	4.61	7.47	0.12	7.34
Haryana	2.90	5.25	8.16	0.12	8.03
Maharashtra	2.91	5.37	8.29	0.12	8.16
Punjab	2.92	5.49	8.42	0.12	8.29
Rajasthan	2.85	4.58	7.44	0.12	7.31
Tamil Nadu	2.85	4.54	7.39	0.12	7.26
UP	2.86	4.69	7.55	0.12	7.43
Others	2.88	4.94	7.81	0.12	7.69

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and AFBC boiler					
AP	2.81	4.51	7.32	0.12	7.20
Haryana	2.86	5.13	8.00	0.12	7.87
Maharashtra	2.87	5.25	8.12	0.12	8.00
Punjab	2.88	5.37	8.25	0.12	8.13
Rajasthan	2.81	4.48	7.29	0.12	7.17
Tamil Nadu	2.81	4.44	7.24	0.12	7.12
UP	2.82	4.59	7.41	0.12	7.29
Others	2.84	4.82	7.66	0.12	7.54

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and AFBC boiler					
AP	2.97	4.61	7.59	0.13	7.45
Haryana	3.02	5.25	8.27	0.13	8.14
Maharashtra	3.03	5.37	8.40	0.13	8.27
Punjab	3.04	5.49	8.54	0.13	8.40
Rajasthan	2.97	4.58	7.55	0.13	7.42
Tamil Nadu	2.97	4.54	7.50	0.13	7.37
UP	2.98	4.69	7.67	0.13	7.54
Others	3.00	4.94	7.93	0.13	7.80

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Bagasse Based Co-generation Project					
AP	3.13	2.98	6.10	0.17	5.93
Haryana	2.79	4.24	7.03	0.15	6.88
Maharashtra	2.50	4.17	6.68	0.13	6.55
Punjab	2.75	3.73	6.48	0.15	6.33
Tamil Nadu	2.42	3.21	5.63	0.13	5.50
UP	3.15	3.32	6.48	0.17	6.31
Others	2.74	3.61	6.35	0.15	6.20

State	Levelling Fixed Cost	Variable Cost (FY 2018-19)	Applicable Tariff Rate (FY 2018-19)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)	(Rs./kWh)
Biomass Gasifier Power Project					
AP	2.58	4.19	6.77	0.08	6.69
Haryana	2.63	4.77	7.40	0.08	7.32
Maharashtra	2.64	4.88	7.52	0.08	7.43
Punjab	2.65	4.99	7.64	0.08	7.55
Rajasthan	2.58	4.16	6.74	0.08	6.66
Tamil Nadu	2.58	4.12	6.70	0.08	6.62
UP	2.59	4.26	6.85	0.08	6.77
Others	2.61	4.48	7.09	0.08	7.01
Biogas based generation					
Biogas	3.40	4.40	7.79	0.19	7.60

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

S.No	Renewable Energy Projects	Annexure
A	Small Hydro Power Projects	
	<i>Projects Less than 5 MW for HP, Uttarakhand, West Bengal and NE States</i>	<i>Annexure 1A</i>
	<i>Projects between 5 MW and 25 MW for HP, Uttarakhand, West Bengal and NE States</i>	<i>Annexure 1B</i>
	<i>Projects less than 5 MW for other States</i>	<i>Annexure 1C</i>
	<i>Projects between 5 MW and 25 MW for other states</i>	<i>Annexure 1D</i>
B.1	Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using Travelling Gate	
	<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>Uttar Pradesh</i>	<i>Annexure 2.1G</i>
	<i>Others</i>	<i>Annexure 2.1H</i>
B.2	Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using Travelling Gate 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>Uttar Pradesh</i>	<i>Annexure 2.2G</i>
	<i>Others</i>	<i>Annexure 2.2H</i>
B.3	Biomass Power Projects [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>Uttar Pradesh</i>	<i>Annexure 2.3G</i>
	<i>Others</i>	<i>Annexure 2.3H</i>
B.4	Biomass Power Projects [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>
	<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>Uttar Pradesh</i>	<i>Annexure 2.4G</i>
	<i>Others</i>	<i>Annexure 2.4H</i>
B.5	Biomass Power Projects [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>Uttar Pradesh</i>	<i>Annexure 2.5G</i>
	<i>Others</i>	<i>Annexure 2.5H</i>

B.6	Biomass Power Projects [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>Uttar Pradesh</i>	<i>Annexure 2.6G</i>
	<i>Others</i>	<i>Annexure 2.6H</i>
B.7	Biomass Power Projects [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>Uttar Pradesh</i>	<i>Annexure 2.7G</i>
	<i>Others</i>	<i>Annexure 2.7H</i>
B.8	Biomass Power Projects [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>Uttar Pradesh</i>	<i>Annexure 2.8G</i>
	<i>Others</i>	<i>Annexure 2.8H</i>

C	Non-Fossil Fuel Based Cogeneration	
	<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>Uttar Pradesh</i>	<i>Annexure 3F</i>
	<i>Others</i>	<i>Annexure 3G</i>
D	Biomass Gasifier 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>Uttar Pradesh</i>	<i>Annexure 4G</i>
	<i>Others</i>	<i>Annexure 4H</i>
E	Biogas Based Power Projects	<i>Annexure 5A</i>

CERC RE Tariff Order 2018-19

Small Hydro Projects					Annexure 1A	
Small Hydro: Assumptions Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	HP, Uttarakhand, WB & NE States	
					Less than 5 MW	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Capacity Utilization Factor	%	45%	
			Auxiliary Consumption	%	1%	
			Useful Life	Years	35	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	1000.00	
3	Sources of Fund	Debt: Equity	Tariff Period	Years	35	
			Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	700.000	
			Total Equity Amount	Rs Lacs	300.000	
			Debt Component	Loan Amount	Rs Lacs	700.00
				Moratorium Period	years	0
				Repayment Period(incld Moratorium)	years	13
				Intrest Rate	%	9.97%
			Equity Component	Equity amount	Rs Lacs	300.00
				Return on Equity for first Project Life	% p.a	17.56%
Discount Rate		9.15%				
4	Financial Assumptions	Depreciation	Income Tax	%	29.120%	
			Depreciation Rate for first 13 years	%	5.28%	
			Depreciation Rate 14th year onwards	%	0.97%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			Intrest On Working Capital	%	10.97%	
6	Operation & Maintenance	O&M Expenses (2018-19)		Rs Lacs	38.06	
			Total O & M Expenses Escalation	%	5.72%	
7	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

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	
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	
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	
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	
O&M Expenses	Rs Lakh		38.06	40.24	42.54	44.97	47.54	50.26	53.14	56.18	59.39	62.79	66.38	70.18	74.19	78.44	82.92	87.66	92.68	97.98	103.59	109.51	115.77	122.40	129.40	136.80	144.62	152.90	161.64	170.89	180.66	191.00	201.92	213.47	225.68	238.59	252.24	
Depreciation	Rs Lakh		52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	
Interest on term loan	Rs Lakh		67.11	61.74	56.37	51.00	45.63	40.26	34.90	29.53	24.16	18.79	13.42	8.05	2.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Interest on working Capital	Rs Lakh		4.92	4.91	4.92	4.92	4.94	4.96	4.99	5.03	5.07	5.12	5.18	5.25	5.33	4.67	4.87	5.08	5.30	5.54	5.79	6.06	6.34	6.63	6.95	7.28	7.63	8.00	8.39	8.80	9.24	9.70	10.19	10.70	11.25	11.83	12.44	
Return on Equity	Rs Lakh		52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	
Total Fixed Cost	Rs Lakh		215.55	212.36	209.30	206.37	203.59	200.96	198.50	196.20	194.09	192.17	190.46	188.95	187.68	145.48	150.17	155.13	160.37	165.90	171.76	177.95	184.49	191.41	198.72	206.46	214.63	223.27	232.41	242.07	252.28	263.06	274.49	286.56	299.31	312.80	327.06	
Levilled tariff corresponding to Useful life																																						
Per Unit Cost of Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M expn	Rs/KWh	1.84	0.97	1.03	1.09	1.15	1.22	1.29	1.36	1.44	1.52	1.61	1.70	1.80	1.90	2.01	2.12	2.24	2.37	2.51	2.65	2.80	2.96	3.13	3.31	3.50	3.70	3.92	4.14	4.38	4.63	4.89	5.17	5.47	5.78	6.11	6.46	
Depreciation	Rs/KWh	1.04	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	
Int. on term loan	Rs/KWh	0.75	1.72	1.58	1.44	1.31	1.17	1.03	0.89	0.76	0.62	0.48	0.34	0.21	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		
Int. on working capital	Rs/KWh	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.12	0.12	0.13	0.14	0.14	0.15	0.16	0.16	0.17	0.18	0.19	0.20	0.21	0.23	0.24	0.25	0.26	0.27	0.29	0.30	0.32	
RoE	Rs/KWh	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	
Total COG	Rs/KWh		5.11	5.52	5.44	5.36	5.28	5.21	5.15	5.08	5.02	4.97	4.92	4.88	4.84	4.81	3.73	3.85	3.97	4.11	4.25	4.40	4.56	4.72	4.90	5.09	5.29	5.50	5.72	5.95	6.20	6.46	6.74	7.03	7.34	7.66	8.01	8.37
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	0.174	0.159	0.146	0.134	0.122	0.112	0.103	0.094	0.086	0.079	0.072	0.066	0.061	0.056	0.051	
Levilled Tariff	5.11	Rs/Unit																																				
Determination of Accelerated Depreciation																																						
Depreciation amount		90%																																				
Book Depreciation rate		5.28%																																				
Tax Depreciation rate		40%																																				
Additional depreciation		20.00%																																				
Income Tax (Normal Rates)		29.12%																																				
Capital Cost		1000.00																																				
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	26	27	28	29	30	31	32	33	34	35		
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	
Book Depreciation	Rs Lakh	26.40	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	
Accelerated Depreciation																																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Allowed during the year	%	30%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depm.	Rs Lakh	300.00	350.00	140.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	273.60	297.20	87.20	31.20	-2.40	-22.56	-34.66	-41.91	0.11	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	79.67	86.54	25.39	9.09	-0.70	-6.57	-10.09	-12.21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	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	
Energy generation	MU	1.95	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	
Per unit benefit	Rs/Unit	4.08	2.22	0.85	0.23	-0.02	-0.17	-0.26	-0.31	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	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.06	0.06	0.05		
Tax Benefit Levilled		14.70																																				
Electricity Generation (Levilled)		3.74																																				
Levilled benefit	0.39	Rs/Unit																																				

CERC RE Tariff Order 2018-19

Small Hydro Projects					Annexure 1B
Small Hydro: Assumptions Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	HP, Uttarakhand, WB & NE States
					5 MW to 25 MW
1	Power Generation	Capacity	Installed Power Generation Capacity Capacity Utilization Factor Auxiliary Consumption Useful Life	MW % % Years	1 45% 1% 35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	900.00
3	Sources of Fund	Debt: Equity	Tariff Period	Years	35
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	630.000
			Total Equity Amount	Rs Lacs	270.000
		Debt Component	Loan Amount	Rs Lacs	630.00
			Moratorium Period	years	0
			Repayment Period(incl. Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	270.00
			Return on Equity for first Project Life	% p.a	17.56%
			Discount Rate		9.15%
4	Financial Assumptions	Depreciation	Income Tax	%	29.120%
			Depreciation Rate for first 13 years	%	5.28%
			Depreciation Rate 14th year onwards	%	0.97%
5	Working Capital	For Fixed Charges		Months	1
		O&M Charges			
		Maintenance Spare	(% of O&M exepenses)		15%
		Receivables for Debtors		Months	2
		Interest On Working Capital		%	10.97%
6	Operation & Maintenance	O&M Expenses (2018-19)		Rs Lacs	28.54
		Total O & M Expenses Escalation		%	5.72%
7	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Accelerated Depreciation																																						
Depreciation amount		90%																																				
Book Depreciation rate		5.28%																																				
Tax Depreciation rate		40%																																				
Additional depreciation		20.00%																																				
Income Tax (Normal Rates)		29.12%																																				
Capital Cost		900.0																																				
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	26	27	28	29	30	31	32	33	34	35		
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Book Depreciation	Rs Lakh	23.76	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	25.92	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		
Accelerated Depreciation																																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
Allowed during the year	%	30%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
Accelerated Deprn.	Rs Lakh	270.00	315.00	126.00	75.60	45.36	27.22	16.33	9.80	5.88	3.53	2.12	1.27	0.76	0.46	0.27	0.16	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Net Depreciation Benefit	Rs Lakh	246.24	267.48	78.48	28.08	-2.16	-20.30	-31.19	-37.72	0.10	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Tax Benefit	Rs Lakh	71.71	77.89	22.85	8.18	-0.63	-5.91	-9.08	-10.98	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	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		
Energy generation	MU	1.95	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		
Per unit benefit	Rs/Unit	3.67	1.99	0.99	0.21	-0.02	-0.15	-0.23	-0.28	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		
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04			
Tax Benefit Levelised		13.23																																				
Electricity Generation (Levelised)		3.74																																				
Levelised benefit	Rs/Unit	0.39																																				
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	
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		
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		
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
O&M Expenses	Rs Lakh		28.54	30.18	31.90	33.73	35.66	37.70	39.85	42.13	44.54	47.09	49.78	52.63	55.64	58.82	62.19	65.75	69.51	73.48	77.69	82.13	86.83	91.79	97.04	102.60	108.46	114.67	121.23	128.16	135.49	143.24	151.44	160.10	169.26	178.94	189.17	
Depreciation	Rs Lakh		47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	47.52	
Interest on term loan	Rs Lakh		60.40	55.56	50.73	45.90	41.07	36.24	31.41	26.57	21.74	16.91	12.08	7.25	2.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		4.17	4.15	4.14	4.13	4.13	4.13	4.13	4.15	4.16	4.19	4.22	4.26	4.30	3.67	3.83	3.98	4.15	4.33	4.52	4.72	4.93	5.15	5.38	5.63	5.89	6.17	6.46	6.77	7.10	7.45	7.81	8.20	8.61	9.04	9.50	
Return on Equity	Rs Lakh		47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	47.41	
Total Fixed Cost	Rs Lakh		188.03	184.82	181.70	178.68	175.78	172.99	170.32	167.78	165.37	163.11	161.01	159.06	157.28	118.64	122.16	125.87	129.80	133.96	138.35	142.99	147.90	153.09	158.57	164.37	170.50	176.98	183.83	191.08	198.74	206.83	215.39	224.44	234.01	244.12	254.82	
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	26	27	28	29	30	31	32	33	34	35		
O&M expn	Rs/kWh	1.38	0.73	0.77	0.82	0.86	0.91	0.97	1.02	1.08	1.14	1.21	1.27	1.35	1.42	1.51	1.59	1.68	1.78	1.88	1.99	2.10	2.22	2.35	2.48	2.63	2.78	2.94	3.10	3.28	3.47	3.67	3.88	4.10	4.33	4.58	4.84	
Depreciation	Rs/kWh	0.93	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22		
Int. on term loan	Rs/kWh	0.68	1.55	1.42	1.30	1.18	1.05	0.93	0.80	0.68	0.56	0.43	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		
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	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.23		
RoE	Rs/kWh	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21		
Total CDG	Rs/kWh	4.32	4.81	4.73	4.65	4.58	4.50	4.43	4.36	4.30	4.23	4.18	4.12	4.07	4.03	3.04	3.13	3.22	3.32	3.43	3.54	3.66	3.79	3.92	4.06	4.21	4.37	4.53	4.71	4.89	5.09	5.30	5.52	5.75	5.99	6.25		
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	0.174	0.159	0.146	0.134	0.122	0.112	0.103	0.094	0.086	0.079	0.072	0.066	0.061	0.056		
Levelised Tariff	Rs/Unit	4.32																																				

CERC RE Tariff Order 2018-19

Small Hydro Projects					Annexure 1C
Small Hydro: Assumptions Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Other States
					Less than 5 MW
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	30%
			Auxiliary Consumption	%	1%
			Useful Life	Years	35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	779.00
3	Sources of Fund		Tariff Period	Years	35
		<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	545.300
			Total Equity Amount	Rs Lacs	233.700
		<u>Debt Component</u>	Loan Amount	Rs Lacs	545.30
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
			Intrest Rate	%	9.97%
		<u>Equity Component</u>	Equity amount	Rs Lacs	233.70
			Return on Equity for first Project Life	% p.a	17.56%
			Discount Rate		9.15%
4	Financial Assumptions		Income Tax	%	29.120%
		<u>Depreciation</u>	Depreciation Rate for first 13 years	%	5.28%
			Depreciation Rate 14th year onwards	%	0.97%
5	Working Capital	<u>For Fixed Charges</u>		Months	1
		O&M Charges			
		Maintenance Spare	(% of O&M exepenses)		15%
		Receivables for Debtors		Months	2
		Intrest On Working Capital		%	10.97%
6	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	30.66
			Total O & M Expenses Escalation	%	5.72%
7	Generation and Sale Of Energy				
		Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

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
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
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
Fixed Cost																																					
O&M Expenses	Rs Lakh		30.66	32.41	34.27	36.23	38.30	40.49	42.81	45.26	47.84	50.58	53.47	56.53	59.77	63.19	66.80	70.62	74.66	78.93	83.45	88.22	93.26	98.60	104.24	110.20	116.50	123.17	130.21	137.66	145.54	153.86	162.66	171.97	181.80	192.20	203.20
Depreciation	Rs Lakh		41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13
Interest on term loan	Rs Lakh		52.28	48.09	43.91	39.73	35.55	31.37	27.18	23.00	18.82	14.64	10.46	6.27	2.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		3.87	3.87	3.88	3.89	3.90	3.92	3.95	3.98	4.02	4.06	4.12	4.17	4.24	4.33	4.43	4.54	4.66	4.79	4.93	5.07	5.21	5.36	5.51	5.66	5.81	5.97	6.13	6.30	6.47	6.64	6.82	7.00	7.18	7.36	7.54
Return on Equity	Rs Lakh		41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03	41.03
Total Fixed Cost	Rs Lakh		168.97	166.54	164.22	162.01	159.91	157.94	156.10	154.40	152.85	151.44	150.21	149.14	148.26	115.51	119.29	123.28	127.50	131.96	136.66	141.66	146.93	152.51	158.40	164.63	171.21	178.17	185.53	193.32	201.54	210.24	219.43	229.15	239.43	250.29	261.78
Levelised tariff corresponding to Useful life																																					
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
O&M expn	Rs/KWh	2.22	1.18	1.25	1.32	1.39	1.47	1.56	1.64	1.74	1.84	1.94	2.05	2.17	2.30	2.43	2.57	2.71	2.87	3.03	3.21	3.39	3.58	3.79	4.00	4.23	4.47	4.73	5.00	5.29	5.59	5.91	6.25	6.61	6.98	7.38	7.80
Depreciation	Rs/KWh	1.21	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Int. on term loan	Rs/KWh	0.88	2.01	1.85	1.69	1.53	1.37	1.20	1.04	0.88	0.72	0.56	0.40	0.24	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/KWh	0.17	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
RoE	Rs/KWh	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Total COG	Rs/KWh	6.05	6.49	6.40	6.31	6.22	6.14	6.07	6.00	5.93	5.87	5.82	5.77	5.73	5.69	4.44	4.58	4.74	4.90	5.07	5.25	5.44	5.64	5.86	6.08	6.32	6.58	6.84	7.13	7.43	7.74	8.08	8.43	8.80	9.20	9.61	10.05
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	0.174	0.159	0.146	0.134	0.122	0.112	0.103	0.094	0.086	0.079	0.072	0.066	0.061	0.056	0.051
Levelised Tariff	6.05	Rs/Unit																																			
Determination of Accelerated Depreciation																																					
Depreciation amount	90%																																				
Book Depreciation rate	5.28%																																				
Tax Depreciation rate	40%																																				
Additional depreciation	20.00%																																				
Income Tax (Normal Rates)	28.12%																																				
Capital Cost	779.0																																				
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	26	27	28	29	30	31	32	33	34	35
Book Depreciation	%		2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%
Book Depreciation	Rs Lakh		20.57	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13	41.13
Accelerated Depreciation																																					
Opening	%		100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Allowed during the year	%		30%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%		70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depn.	Rs Lakh		233.70	272.65	109.06	65.44	39.26	23.56	14.13	8.48	5.09	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh		213.13	231.52	67.93	24.30	-1.87	-17.57	-27.00	-32.65	0.08	0.03	0.01	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
Tax Benefit	Rs Lakh		62.06	67.42	19.78	7.08	-0.54	-5.12	-7.88	-9.51	0.00	0.01	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
Energy generation	MU		1.30	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
Per unit benefit	Rs/Unit		4.77	2.59	0.76	0.27	-0.02	-0.20	-0.30	-0.37	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	
Discounting Factor			1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.06	0.06	
Tax Benefit Levelised	11.45																																				
Electricity Generation (Levelised)	2.49																																				
Levelised benefit	0.46	Rs/Unit																																			

CERC RE Tariff Order 2018-19

Small Hydro Projects					Annexure 1D
Small Hydro: Assumptions Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Other States
					5 MW to 25 MW
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	30%
			Auxiliary Consumption	%	1%
			Useful Life	Years	35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	707.00
3	Sources of Fund	<u>Debt: Equity</u>	Tariff Period	Years	35
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	494.900
			Total Equity Amount	Rs Lacs	212.100
			<u>Debt Component</u>		
			Loan Amount	Rs Lacs	494.90
			Moratorium Period	years	0
			Repayment Period(incl. Moratorium)	years	13
			Interest Rate	%	9.97%
			<u>Equity Component</u>		
			Equity amount	Rs Lacs	212.10
			Return on Equity for first Project Life	% p.a	17.56%
			Discount Rate		9.15%
4	Financial Assumptions	<u>Depreciation</u>	Income Tax	%	29.120%
5	Working Capital		Depreciation Rate for first 13 years	%	5.28%
			Depreciation Rate 14th year onwards	%	0.97%
		<u>For Fixed Charges</u>			
		O&M Charges	Months	1	
Maintenance Spare	(% of O&M expenses)		15%		
Receivables for Debtors	Months	2			
Interest On Working Capital	%		10.97%		
6	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	22.20	
		Total O & M Expenses Escalation	%	5.72%	
7	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Accelerated Depreciation																																					
Depreciation amount	90%																																				
Book Depreciation rate	5.28%																																				
Tax Depreciation rate	40%																																				
Additional depreciation	20.00%																																				
Income Tax (Normal Rates)	29.12%																																				
Capital Cost	707.0																																				
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	26	27	28	29	30	31	32	33	34	35	
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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	18.66	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	20.36	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
Accelerated Depreciation																																					
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Allowed during the year	%	30%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depn.	Rs Lakh	212.10	247.45	98.98	58.39	35.63	21.38	12.83	7.70	4.62	2.77	1.66	1.00	0.60	0.36	0.22	0.13	0.08	0.05	0.03	0.02	0.01	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
Net Depreciation Benefit	Rs Lakh	193.44	210.12	61.65	22.06	-1.70	-15.95	-24.50	-29.63	0.08	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	56.33	61.19	17.95	6.42	-0.49	-4.64	-7.13	-8.63	0.00	0.01	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
Energy generation	MJ	1.30	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
Per unit benefit	Rs/Unit	4.33	2.35	0.69	0.25	-0.02	-0.18	-0.27	-0.33	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	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.06	0.06	0.05	
Tax Benefit Levelled		10.39																																			
Electricity Generation (Levelled)		2.49																																			
Levelled benefit	Rs/Unit	0.42																																			
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
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	
Net Generation	MJ		2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
Fixed Cost																																					
Unit	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M Expenses	Rs Lakh	22.20	23.47	24.81	26.23	27.73	29.32	31.00	32.77	34.64	36.63	38.72	40.94	43.28	45.75	48.37	51.14	54.06	57.15	60.42	63.88	67.53	71.40	75.48	79.80	84.36	89.19	94.29	99.68	105.38	111.41	117.78	124.52	131.64	139.17	147.13	
Depreciation	Rs Lakh	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33
Interest on term loan	Rs Lakh	47.44	43.65	39.85	36.06	32.26	28.47	24.67	20.88	17.08	13.28	9.49	5.69	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	3.26	3.25	3.24	3.23	3.23	3.23	3.23	3.24	3.26	3.27	3.30	3.32	3.36	2.87	2.98	3.11	3.24	3.38	3.52	3.68	3.84	4.01	4.20	4.39	4.59	4.81	5.04	5.28	5.53	5.80	6.09	6.39	6.71	7.04	7.40	
Return on Equity	Rs Lakh	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24	37.24
Total Fixed Cost	Rs Lakh	147.48	144.94	142.48	140.09	137.79	135.58	133.47	131.46	129.55	127.75	126.07	124.52	123.10	92.72	95.46	98.35	101.40	104.63	108.05	111.66	115.48	119.51	123.78	128.29	133.06	138.10	143.43	149.06	155.02	161.32	167.97	175.01	182.45	190.32	198.64	
Levelled 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	
O&M expn	Rs/KWh	1.61	0.85	0.90	0.95	1.01	1.07	1.13	1.19	1.26	1.33	1.41	1.49	1.57	1.66	1.76	1.86	1.96	2.08	2.20	2.32	2.45	2.59	2.74	2.90	3.06	3.24	3.43	3.62	3.83	4.05	4.28	4.52	4.78	5.06	5.35	5.65
Depreciation	Rs/KWh	1.10	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	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	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	0.80	1.82	1.68	1.53	1.38	1.24	1.09	0.95	0.80	0.66	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	
Int. on working capital	Rs/KWh	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.11	0.12	0.12	0.13	0.14	0.14	0.15	0.15	0.16	0.17	0.18	0.18	0.19	0.20	0.21	0.22	0.23	0.25	0.26	0.27	0.28	0.28	
RoE	Rs/KWh	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	1.43	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	
Total COG	Rs/KWh	5.07	5.66	5.57	5.47	5.38	5.29	5.21	5.13	5.05	4.98	4.91	4.84	4.78	4.73	3.56	3.67	3.78	3.89	4.02	4.15	4.29	4.44	4.59	4.75	4.93	5.11	5.30	5.51	5.73	5.95	6.20	6.45	6.72	7.01	7.31	7.63
Discount Factor			0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	0.174	0.159	0.146	0.134	0.122	0.112	0.103	0.094	0.086	0.079	0.072	0.066	0.061	0.056	0.051	
Levelled Tariff	Rs/Unit		5.07																																		

CERC RE Tariff Order 2018-19

				Select State	Annexure 2.1A AP
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.030
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	391.321
			Total Equity Amount	Rs Lacs	167.709
		Debt Component	Loan Amount	Rs Lacs	391.321
			Moratorium Period	years	0
			Repayment Period(inclد Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	167.709
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate(power plant)	%
					Depreciation Rate 14th year onwards
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3016.88
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		232.90	300.97	316.02	331.82	348.41	365.83	384.13	403.33	423.50	444.67	466.91	490.25	514.76	540.50	567.53	595.90	625.70	656.98	689.83	724.33

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		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	29.52	29.52	29.52
Interest on term loan	Rs Lakh		37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.70	20.56	21.45	22.40	23.40	24.45	25.56	26.73	27.96	29.26	30.62	32.06	33.57	34.96	36.69	38.51	40.43	42.44	44.55	46.77
Return on Equity	Rs Lakh		29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh		155.47	158.74	159.19	159.84	160.70	161.77	163.08	164.62	166.42	168.49	170.84	173.50	176.47	168.62	175.33	182.43	189.91	197.81	206.15	214.96

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.54	4.59	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.56	8.99	9.44	9.91	10.41	10.93	11.48
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.43	0.33	0.33	0.34	0.35	0.37	0.39	0.41	0.42	0.44	0.46	0.49	0.51	0.53	0.55	0.58	0.61	0.64	0.67	0.71	0.74
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	9.25	7.66	7.28	7.53	7.79	8.07	8.36	8.67	9.00	9.35	9.71	10.10	10.52	10.95	11.24	11.77	12.33	12.92	13.54	14.20	14.88

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.59	Rs/kWh
Levillised Tariff (Fixed)	2.71	Rs/kWh
Applicable Tariff (FY2018-19)	7.30	Rs/kWh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	559.030

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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

Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.11	(Rs/kWh)
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CERC RE Tariff Order 2018-19

				Select State	Annexure 2.1B Harayana	
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.030	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.321	
			Total Equity Amount	Rs Lacs	167.709	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	391.321
				Moratorium Period	years	0
				Repayment Period(incld Moratorium)	years	13
				Interest Rate	%	9.97%
			<u>Equity Component</u>	Equity amount	Rs Lacs	167.709
				Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.15%				
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	29.120%	
			<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			<u>For Variable Charges</u>	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
			6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period
During Stablization Period	Kcal/kwh	4200				
<u>Biomass</u>	Base Price	Rs/T			3433.91	
	GCV - Biomass	Kcal/kg			3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU			0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU			5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh			265.09	342.58	359.71	377.69	396.57	416.40	437.22	459.08	482.04	506.14	531.45	558.02	585.92	615.22	645.98	678.28	712.19	747.80	785.19	824.45
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh			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	29.52	29.52	29.52
Interest on term loan	Rs Lakh			37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			18.50	22.88	23.89	24.96	26.09	27.28	28.53	29.85	31.23	32.69	34.23	35.84	37.55	39.33	41.08	43.12	45.26	47.51	49.88	52.37
Return on Equity	Rs Lakh			29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh			157.26	161.06	161.64	162.41	163.39	164.60	166.04	167.74	169.69	171.92	174.45	177.29	180.45	172.79	179.72	187.03	194.74	202.89	211.48	220.55
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		7.45	5.23	5.43	5.70	5.98	6.28	6.60	6.93	7.27	7.64	8.02	8.42	8.84	9.28	9.75	10.23	10.75	11.28	11.85	12.44	13.06
O&M expn	Rs/kWh		1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh		0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh		0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.49	0.36	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	0.72	0.75	0.79	0.83
RoE	Rs/kWh		0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh		10.21	8.33	7.98	8.26	8.56	8.87	9.21	9.56	9.93	10.33	10.74	11.18	11.65	12.14	12.49	13.08	13.71	14.37	15.06	15.79	16.56
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)		5.23	Rs/Kwh																				
Levillised Tariff (Fixed)		2.76	Rs/Kwh																				
Applicable Tariff (FY2018-19)		7.99	Rs/kwh																				
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount		90%																					
Book Depreciation rate		5.28%																					
Tax Depreciation rate		40%																					
Additional depreciation		20.00%																					
Income Tax (Normal Rates)		29.12%																					
Capital Cost		559.030																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
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	
Accelerated Depreciation																							
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01	0.01	
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.01	0.01	
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.22	0.20	
Levillised benefit		0.11	(Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.1C

Select State

Maharashtra

Assumption for Biomass Power Project Parameters

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/M	559.030	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.321	
			Total Equity Amout	Rs Lacs	167.709	
		Debt Component	Loan Amount	Rs Lacs	391.321	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3512.09	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	O & M Expenses Escalation	Rs Lacs	42.29	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		271.12	350.38	367.89	386.29	405.60	425.88	447.18	469.54	493.01	517.66	543.55	570.73	599.26	629.22	660.69	693.72	728.41	764.83	803.07	843.22

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		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	29.52	29.52	29.52
Interest on term loan	Rs Lakh		37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.84	23.32	24.35	25.45	26.60	27.81	29.09	30.43	31.84	33.33	34.90	36.55	38.29	39.92	41.90	43.98	46.17	48.46	50.88	53.42
Return on Equity	Rs Lakh		29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh		157.60	161.50	162.09	162.89	163.90	165.13	166.60	168.32	170.30	172.57	175.13	178.00	181.19	173.57	180.54	187.89	195.65	203.84	212.48	221.60

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.62	5.35	5.55	5.83	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
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.49	0.37	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	0.70	0.73	0.77	0.81	0.85
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	10.39	8.45	8.11	8.40	8.70	9.02	9.36	9.72	10.11	10.51	10.94	11.39	11.86	12.37	12.72	13.33	13.97	14.64	15.35	16.09	16.87

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	5.35	Rs/Kwh
Levillised Tariff (Fixed)	2.77	Rs/Kwh
Applicable Tariff (FY2018-19)	8.12	Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	559.030

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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

Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.11	(Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.1D						
Select State						
Punjab						
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF (Stablization for 6 months)	%	60%	
			PLF (during first year after Stablization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/M	559.030	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.321	
			Total Equity Amount	Rs Lacs	167.709	
		Debt Component	Loan Amount	Rs Lacs	391.321	
			Moratorium Period	years	0	
			Repayment Period (incl Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3591.59	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																					
Units Generation																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU	0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU	5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh	277.26	358.31	376.22	395.03	414.78	435.52	457.30	480.17	504.17	529.38	555.85	583.64	612.83	643.47	675.64	709.42	744.89	782.14	821.25	862.31
Fixed Cost																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh	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	29.52	29.52	29.52
Interest on term loan	Rs Lakh	37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	19.18	23.76	24.82	25.93	27.11	28.35	29.65	31.02	32.47	33.99	35.59	37.28	39.05	40.71	42.73	44.86	47.09	49.43	51.89	54.48
Return on Equity	Rs Lakh	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh	157.94	161.94	162.56	163.38	164.41	165.67	167.16	168.91	170.93	173.22	175.81	178.72	181.95	174.37	181.38	188.77	196.57	204.81	213.50	222.67
Levillised tariff corresponding to Useful life																					
Per Unit Cost of Generation																					
Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.79	5.47	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	10.70	11.24	11.80	12.39	13.01
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.50	0.38	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	10.57	8.58	8.24	8.54	8.85	9.18	9.53	9.89	10.28	10.70	11.13	11.59	12.08	12.59	12.96	13.58	14.23	14.92	15.64	16.39
Levillised Tariff																					
Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor		1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.47 Rs/kWh																				
Levillised Tariff (Fixed)	2.78 Rs/kWh																				
Applicable Tariff (FY2018-19)	8.25 Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional depreciation	20.00%																				
Income Tax (Normal Rates)	29.12%																				
Capital Cost	559.030																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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
Accelerated Depreciation																					
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.11 (Rs/kWh)																				

CERC RE Tariff Order 2018-19

				Select State	Annexure 2.1D Punjab
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.030
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	391.321
			Total Equity Amout	Rs Lacs	167.709
		Debt Component	Loan Amount	Rs Lacs	391.321
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
			Equity amount	Rs Lacs	167.709
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
			Depreciation Rate(power plant)	%	5.280%
		Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
			Receivables for Debtors	Months	2
			For Variable Charges		
			Biomass Stock	Months	4
		Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3591.59
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	O & M Expenses Escalation	Rs Lacs	42.29
				%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																					
Units Generation																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU	0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU	5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh	277.26	358.31	376.22	395.03	414.78	435.52	457.30	480.17	504.17	529.38	555.85	583.64	612.83	643.47	675.64	709.42	744.89	782.14	821.25	862.31
Fixed Cost																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh	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	29.52	29.52	29.52
Interest on term loan	Rs Lakh	37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	19.18	23.76	24.82	25.93	27.11	28.35	29.65	31.02	32.47	33.99	35.59	37.28	39.05	40.71	42.73	44.86	47.09	49.43	51.89	54.48
Return on Equity	Rs Lakh	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh	157.94	161.94	162.56	163.38	164.41	165.67	167.16	168.91	170.93	173.22	175.81	178.72	181.95	174.37	181.38	188.77	196.57	204.81	213.50	222.67
Levillised tariff corresponding to Useful life																					
Per Unit Cost of Generation																					
Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.79	5.47	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	10.70	11.24	11.80	12.39	13.01
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.50	0.38	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	10.57	8.58	8.24	8.54	8.85	9.18	9.53	9.89	10.28	10.70	11.13	11.59	12.08	12.59	12.96	13.58	14.23	14.92	15.64	16.39
Levillised Tariff																					
Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor		1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.47 Rs/kWh																				
Levillised Tariff (Fixed)	2.78 Rs/kWh																				
Applicable Tariff (FY2018-19)	8.25 Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional depreciation	20.00%																				
Income Tax (Normal Rates)	29.12%																				
Capital Cost	559.030																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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
Accelerated Depreciation																					
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.11 (Rs/kWh)																				

CERC RE Tariff Order 2018-19

				Select State	Annexure 2.1E Rajasthan	
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
			2	Project Cost	Capital Cost/MW	Power Plant Cost
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.321	
			Total Equity Amout	Rs Lacs	167.709	
			Debt Component	Loan Amount	Rs Lacs	391.321
				Moratorium Period	years	0
				Repayment Period(incld Moratorium)	years	13
				Interest Rate	%	9.97%
			Equity Component	Equity amount	Rs Lacs	167.709
				Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.15%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
			5	Working Capital	For Fixed Charges	O&M Charges
Maintenance Spare	(% of O&M exepenses)	15%				
Receivables for Debtors	Months	2				
For Variable Charges	Biomass Stock	Months				4
	Interest On Working Capital	%				10.97%
6	Fuel Related Assumptions	Heat Rate				After Stabilisation period
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	2997.33	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)		Rs Lacs	42.29	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																								
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU			0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
Net Generation	MU			5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	
Biomass Cost	Rs Lakh			231.39	299.02	313.97	329.67	346.16	363.46	381.64	400.72	420.75	441.79	463.88	487.08	511.43	537.00	563.85	592.04	621.64	652.73	685.36	719.63	
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation	Rs Lakh			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	29.52	29.52	29.52	
Interest on term loan	Rs Lakh			37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			16.61	20.45	21.34	22.28	23.27	24.32	25.42	26.58	27.81	29.10	30.45	31.88	33.39	34.76	36.49	38.30	40.20	42.20	44.30	46.51	
Return on Equity	Rs Lakh			29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh			155.38	158.63	159.08	159.72	160.57	161.64	162.94	164.47	166.27	168.33	170.68	173.32	176.29	168.42	175.13	182.21	189.68	197.58	205.90	214.70	
Levillised tariff corresponding to Useful life																								
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh		6.50	4.56	4.74	4.97	5.22	5.48	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	
O&M expn	Rs/kWh		1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93	
Depreciation	Rs/kWh		0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27	
Int. on term loan	Rs/kWh		0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh		0.43	0.33	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	
RoE	Rs/kWh		0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	
Total COG	Rs/kWh		9.21	7.63	7.25	7.50	7.75	8.03	8.32	8.63	8.95	9.30	9.67	10.05	10.46	10.90	11.18	11.71	12.27	12.85	13.47	14.12	14.80	
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	
Variable Cost (FY2018-19)		4.56	Rs/Kwh																					
Levillised Tariff (Fixed)		2.71	Rs/Kwh																					
Applicable Tariff (FY2018-19)		7.27	Rs/kwh																					
Determination of Accelerated Depreciation for Biomass Power Project																								
Depreciation amount		90%																						
Book Depreciation rate		5.28%																						
Tax Depreciation rate		40%																						
Additional depreciation		20.00%																						
Income Tax (Normal Rates)		29.12%																						
Capital Cost		559.030																						
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
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%		
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		
Accelerated Depreciation																								
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%		
Allowed during the year	%	30%	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%		
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%		
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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	0.02	0.01		
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01	0.01		
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.01	0.01		
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00	0.00		
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.22	0.20		
Levillised benefit	0.11	(Rs/kWh)																						

CERC RE Tariff Order 2018-19

				Select State	Annexure 2.1F TN
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.030
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	391.321
			Total Equity Amout	Rs Lacs	167.709
		Debt Component	Loan Amount	Rs Lacs	391.321
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
			Equity amount	Rs Lacs	167.709
			Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.15%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate(power plant)	%	5.280%	
		Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		Receivables for Debtors	Months	2	
		For Variable Charges			
		Biomass Stock	Months	4	
Interest On Working Capital	%	10.97%			
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	2967.35
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		229.07	296.03	310.83	326.37	342.69	359.83	377.82	396.71	416.55	437.37	459.24	482.20	506.31	531.63	558.21	586.12	615.43	646.20	678.51	712.43

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		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	29.52	29.52	29.52
Interest on term loan	Rs Lakh		37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.49	20.28	21.16	22.10	23.08	24.12	25.21	26.36	27.57	28.85	30.19	31.61	33.10	34.46	36.17	37.97	39.85	41.84	43.92	46.11
Return on Equity	Rs Lakh		29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh		155.25	158.46	158.90	159.54	160.38	161.44	162.72	164.25	166.03	168.08	170.42	173.05	176.00	168.12	174.81	181.88	189.34	197.21	205.52	214.29

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.43	4.52	4.69	4.92	5.17	5.43	5.70	5.99	6.29	6.60	6.93	7.28	7.64	8.02	8.42	8.84	9.29	9.75	10.24	10.75	11.29
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.43	0.33	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	0.70	0.73
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	9.14	7.58	7.20	7.44	7.70	7.97	8.26	8.56	8.89	9.23	9.59	9.98	10.38	10.81	11.09	11.61	12.17	12.75	13.36	14.01	14.68

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.52 Rs/kWh
Levillised Tariff (Fixed)	2.70 Rs/kWh
Applicable Tariff (FY2018-19)	7.22 Rs/kWh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	559.030

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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

Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.11 (Rs/kWh)
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CERC RE Tariff Order 2018-19

Assumption for Biomass Power Project Parameters				Select State	Annexure 2.1G UP
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.030
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	391.321
			Total Equity Amout	Rs Lacs	167.709
			<u>Debt Component</u>	Loan Amount	Rs Lacs
			Moratorium Period	years	0
			Repayment Period(inclnd Moratorium)	years	13
			Interest Rate	%	9.97%
		<u>Equity Component</u>	Equity amount	Rs Lacs	167.709
			Return on Equity for Project Life	% p.a	17.56%
	Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	29.120%
		<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.280%
		Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	<u>For Fixed Charges</u>			
		O&M Charges		Months	1
		Maintenance Spare (% of O&M exepenses)			15%
		Receivables for Debtors		Months	2
		<u>For Variable Charges</u>			
	Biomass Stock		Months	4	
	Interest On Working Capital		%	10.97%	
6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		<u>Biomass</u>	Base Price	Rs/T	3069.00
		GCV - Biomass	Kcal/kg	3100	
	Biomass Price Escalation Factor			5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)		Rs Lacs	42.29
		O & M Expenses Escalation		%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU			0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU			5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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																							
Variable Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Biomass Cost	Rs Lakh			236.92	306.17	321.48	337.55	354.43	372.15	390.76	410.30	430.81	452.36	474.97	498.72	523.66	549.84	577.33	606.20	636.51	668.34	701.75	736.84
Fixed Cost																							
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh			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	29.52	29.52	29.52
Interest on term loan	Rs Lakh			37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			16.92	20.85	21.76	22.72	23.74	24.81	25.93	27.12	28.37	29.69	31.07	32.53	34.07	35.48	37.24	39.09	41.03	43.07	45.22	47.47
Return on Equity	Rs Lakh			29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh			155.69	159.03	159.50	160.17	161.04	162.13	163.45	165.01	166.83	168.92	171.30	173.97	176.97	169.14	175.88	183.00	190.52	198.45	206.82	215.66
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		6.65	4.67	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	9.60	10.08	10.59	11.12	11.67
O&M expn	Rs/kWh		1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh		0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh		0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.44	0.33	0.33	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.65	0.68	0.72	0.75
RoE	Rs/kWh		0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh		9.37	7.74	7.37	7.62	7.89	8.17	8.47	8.78	9.12	9.47	9.84	10.24	10.66	11.10	11.39	11.93	12.50	13.10	13.73	14.40	15.09
Levillised Tariff																							
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)																							
Levillised Tariff (Fixed)																							
Applicable Tariff (FY2018-19)																							

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		40%																				
Additional depreciation		20.00%																				
Income Tax (Normal Rates)		29.12%																				
Capital Cost		559.030																				
Years ----->																						
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
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
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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	0.02	0.01
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levillised benefit		0.11	(Rs/kWh)																			

CERC RE Tariff Order 2018-19

				Select State	Others	
Annexure 2.1H						
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.030	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.321	
			Total Equity Amount	Rs Lacs	167.709	
		Debt Component	Loan Amount	Rs Lacs	391.321	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	167.709	
			Return on Equity for Project Life	% p.a	17.56%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3226.70	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	O & M Expenses Escalation	Rs Lacs	42.29	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU			0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU			5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh			249.09	321.90	338.00	354.90	372.64	391.28	410.84	431.38	452.95	475.60	499.38	524.35	550.57	578.09	607.00	637.35	669.22	702.68	737.81	774.70
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh			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	29.52	29.52	29.52
Interest on term loan	Rs Lakh			37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			17.60	21.72	22.68	23.69	24.75	25.87	27.05	28.30	29.61	30.98	32.44	33.96	35.57	37.06	38.90	40.83	42.86	44.99	47.23	49.59
Return on Equity	Rs Lakh			29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh			156.37	159.91	160.42	161.13	162.05	163.20	164.57	166.19	168.07	170.22	172.66	175.40	178.47	181.72	185.14	188.74	192.34	196.07	199.83	203.77
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		7.00	4.91	5.10	5.36	5.62	5.90	6.20	6.51	6.83	7.18	7.54	7.91	8.31	8.72	9.16	9.62	10.10	10.60	11.13	11.69	12.27
O&M expn	Rs/kWh		1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh		0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh		0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.46	0.35	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.79
RoE	Rs/kWh		0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh		9.73	8.00	7.63	7.90	8.18	8.47	8.79	9.12	9.47	9.84	10.23	10.65	11.09	11.55	12.03	12.43	13.03	13.65	14.31	15.00	15.72
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)				4.91	5.10	5.36	5.62	5.90	6.20	6.51	6.83	7.18	7.54	7.91	8.31	8.72	9.16	9.62	10.10	10.60	11.13	11.69	12.27
Levillised Tariff (Fixed)				2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74
Applicable Tariff (FY2018-19)				7.65	7.84	8.12	8.40	8.80	9.14	9.55	10.01	10.51	11.03	11.59	12.19	12.83	13.51	14.23	15.00	15.83	16.71	17.64	18.62
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount				90%																			
Book Depreciation rate				5.28%																			
Tax Depreciation rate				40%																			
Additional depreciation				20.00%																			
Income Tax (Normal Rates)				29.12%																			
Capital Cost				559.030																			
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
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	
Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%		
Allowed during the year	%	30%	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%		
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%		
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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		
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01		
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-8.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00		
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00		
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20		
Levillised benefit	0.11	(Rs/kWh)																					

CERC RE Tariff Order 2018-19

Annexure 2.2A

		Select State	AP			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3016.88	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																								
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity		MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation		MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption		MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Net Generation		MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	
Biomass Cost		Rs Lakh		232.90	300.97	316.02	331.82	348.41	365.83	384.13	403.33	423.50	444.67	466.91	490.25	514.76	540.50	567.53	595.90	625.70	656.98	689.83	724.33	
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses		Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation		Rs Lakh		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	
Interest on term loan		Rs Lakh		40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		16.83	20.68	21.58	22.52	23.52	24.57	25.67	26.83	28.06	29.35	30.71	32.15	33.41	35.02	36.76	38.58	40.49	42.50	44.62	46.84	
Return on Equity		Rs Lakh		31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost		Rs Lakh		162.75	165.79	166.02	166.45	167.07	167.92	169.00	170.32	171.89	173.73	175.86	178.29	167.40	172.13	178.84	185.93	193.42	201.32	209.66	218.47	
Levillised tariff corresponding to Useful life		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Per Unit Cost of Generation		Rs/kWh		4.70	4.88	5.12	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	
Variable COG		Rs/kWh		6.69	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97	
O&M expn		Rs/kWh		0.48	0.64	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	
Depreciation		Rs/kWh		0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on term loan		Rs/kWh		0.45	0.34	0.34	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	0.63	0.66	0.69	0.72	
Int. on working capital		Rs/kWh		0.53	0.64	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	
RoE		Rs/kWh		9.55	7.98	7.56	7.81	8.07	8.35	8.65	8.96	9.30	9.65	10.02	10.42	10.83	11.05	11.55	12.09	12.67	13.27	13.91	14.58	
Total COG		Rs/kWh		9.55	7.98	7.56	7.81	8.07	8.35	8.65	8.96	9.30	9.65	10.02	10.42	10.83	11.05	11.55	12.09	12.67	13.27	13.91	14.58	
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	
Variable Cost (FY2018-19)				4.70																				
Levillised Tariff (Fixed)				2.86																				
Applicable Tariff (FY2018-19)				7.56																				
Determination of Accelerated Depreciation for Biomass Power Project		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Depreciation amount				90%																				
Book Depreciation rate				5.28%																				
Tax Depreciation rate				40%																				
Additional depreciation				20.00%																				
Income Tax (Normal Rates)				29.12%																				
Capital Cost				600.440																				
Years		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%	
Book Depreciation		Rs Lakh		15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00	
Accelerated Depreciation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Opening		%		100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	
Allowed during the year		%		30%	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%	
Closing		%		70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Accelrated Deprn.		Rs Lakh		180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	
Net Depreciation Benefit		Rs Lakh		164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit		Rs Lakh		47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.00	
Net Energy generation		MU		2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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		1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00	
Discounting Factor				1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit		0.12 (Rs/kWh)																						

CERC RE Tariff Order 2018-19

Annexure 2.2B

		Select State	Hararyana			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period(incl'd Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3433.91	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh		265.09	342.58	359.71	377.69	396.57	416.40	437.22	459.08	482.04	506.14	531.45	558.02	585.92	615.22	645.98	678.28	712.19	747.80	785.19	824.45

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70
Interest on term loan	Rs Lakh		40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.63	23.01	24.02	25.09	26.21	27.39	28.64	29.95	31.33	32.79	34.32	35.93	37.38	39.20	41.14	43.18	45.32	47.58	49.94	52.43
Return on Equity	Rs Lakh		31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh		164.54	168.12	168.46	169.01	169.77	170.75	171.96	173.43	175.16	177.17	179.47	182.07	171.38	176.30	183.23	190.54	198.25	206.40	214.99	224.06

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.61	5.35	5.55	5.83	6.12	6.43	6.75	7.08	7.44	7.81	8.20	8.61	9.04	9.49	9.97	10.47	10.99	11.54	12.12	12.72	13.36
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh	0.48	0.64	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	0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.50	0.38	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
RoE	Rs/kWh	0.53	0.64	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
Total COG	Rs/kWh	10.53	8.67	8.28	8.56	8.86	9.18	9.51	9.87	10.25	10.65	11.07	11.52	11.99	12.27	12.83	13.44	14.08	14.75	15.46	16.21	16.99

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	5.35	Rs/kWh
Levillised Tariff (Fixed)	2.91	Rs/kWh
Applicable Tariff (FY2018-19)	8.26	Rs/kWh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	600.440

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01

Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.00
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.12	(Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.2C

		Select State	Maharashtra		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.308
			Total Equity Amount	Rs Lacs	180.132
		Debt Component	Loan Amount	Rs Lacs	420.308
			Moratorium Period	years	0
			Repayment Period(inclld Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	180.132
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
			Depreciation Rate(power plant)	%	5.280%
			Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3512.09
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																					
Units Generation																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU	0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU	4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh	271.12	350.38	367.89	386.29	405.60	425.88	447.18	469.54	493.01	517.66	543.55	570.73	599.26	629.22	660.69	693.72	728.41	764.83	803.07	843.22
Fixed Cost																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70
Interest on term loan	Rs Lakh	40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	18.97	23.44	24.48	25.57	26.71	27.92	29.19	30.53	31.94	33.43	35.00	36.64	38.33	39.98	41.96	44.04	46.23	48.53	50.94	53.48
Return on Equity	Rs Lakh	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh	164.88	168.55	168.92	169.49	170.27	171.28	172.52	174.01	175.77	177.81	180.14	182.78	172.12	177.08	184.05	191.40	199.16	207.35	215.99	225.11
Levillised tariff corresponding to Useful life																					
Per Unit Cost of Generation																					
Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.79	5.47	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
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51	0.38	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	0.83
RoE	Rs/kWh	0.53	0.64	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
Total COG	Rs/kWh	10.71	8.80	8.41	8.70	9.01	9.33	9.68	10.04	10.43	10.84	11.27	11.73	12.21	12.50	13.07	13.69	14.34	15.03	15.75	16.51
Levillised Tariff																					
Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor		1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)		5.47																			
Levillised Tariff (Fixed)		2.92																			
Applicable Tariff (FY2018-19)	Rs/kWh	8.39																			
Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount		90%																			
Book Depreciation rate		5.28%																			
Tax Depreciation rate		40%																			
Additional depreciation		20.00%																			
Income Tax (Normal Rates)		29.12%																			
Capital Cost		600.440																			
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00
Accelerated Depreciation																					
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01
Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.00
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.12 (Rs/kWh)																				

CERC RE Tariff Order 2018-19

				Select State	Annexure 2.2D Punjab	
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	180.132	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M expenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh	4200				
Biomass	Base Price	Rs/T			3591.59	
	GCV - Biomass	Kcal/kg			3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																								
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU			0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Net Generation	MU			4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	
Biomass Cost	Rs Lakh			277.26	358.31	376.22	395.03	414.78	435.52	457.30	480.17	504.17	529.38	555.85	583.64	612.83	643.47	675.64	709.42	744.89	782.14	821.25	862.31	
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation	Rs Lakh			31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	
Interest on term loan	Rs Lakh			40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			19.31	23.89	24.94	26.05	27.23	28.46	29.76	31.13	32.57	34.09	35.68	37.36	38.88	40.78	42.80	44.92	47.15	49.50	51.96	54.55	
Return on Equity	Rs Lakh			31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh			165.22	169.00	169.38	169.98	170.78	171.82	173.09	174.61	176.40	178.46	180.83	183.51	172.88	177.88	184.88	192.28	200.08	208.31	217.01	226.18	
Levillised tariff corresponding to Useful life																								
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh		7.96	5.59	5.81	6.10	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	
O&M expn	Rs/kWh		1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97	
Depreciation	Rs/kWh		0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	
Int. on term loan	Rs/kWh		0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh		0.52	0.39	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	
RoE	Rs/kWh		0.53	0.64	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	
Total COG	Rs/kWh		10.90	8.93	8.54	8.84	9.16	9.49	9.84	10.21	10.61	11.03	11.47	11.94	12.43	12.73	13.31	13.94	14.61	15.31	16.05	16.82	17.64	
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	
Variable Cost (FY2018-19)				5.59	Rs/Kwh																			
Levillised Tariff (Fixed)				2.93	Rs/Kwh																			
Applicable Tariff (FY2018-19)				8.52	Rs/Kwh																			
Determination of Accelerated Depreciation for Biomass Power Project																								
Depreciation amount				90%																				
Book Depreciation rate				5.28%																				
Tax Depreciation rate				40%																				
Additional depreciation				20.00%																				
Income Tax (Normal Rates)				29.12%																				
Capital Cost				600.440																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
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%		
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00		
Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%			
Allowed during the year	%	30%	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%			
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%			
Accelrated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.02			
Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01			
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.00			
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00			
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20			
Levillised benefit	0.12 (Rs/kWh)																							

CERC RE Tariff Order 2018-19

			Select State	Annexure 2.2E		
				Rajasthan		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
			2	Project Cost	Capital Cost/MW	Power Plant Cost
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	180.132	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M expenses)		15%	
		Receivables for Debtors	Months	2		
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stabilization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	2997.33	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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																							
Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Biomass Cost	Rs Lakh		231.39	299.02	313.97	329.67	346.16	363.46	381.64	400.72	420.75	441.79	463.88	487.08	511.43	537.00	563.85	592.04	621.64	652.73	685.36	719.63	
Fixed Cost																							
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation	Rs Lakh		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	
Interest on term loan	Rs Lakh		40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.75	20.57	21.46	22.40	23.39	24.43	25.53	26.69	27.91	29.19	30.54	31.97	33.22	34.83	36.55	38.36	40.27	42.27	44.37	46.58	
Return on Equity	Rs Lakh		31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh		162.66	165.68	165.91	166.33	166.95	167.79	168.86	170.17	171.74	173.57	175.69	178.11	180.22	182.64	185.72	189.19	193.19	197.08	200.41	203.21	
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh	6.65	4.67	4.85	5.09	5.34	5.61	5.89	6.18	6.49	6.82	7.16	7.52	7.89	8.29	8.70	9.14	9.59	10.07	10.58	11.11	11.66	
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97	
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh	0.44	0.34	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.65	0.68	0.72	0.75	
RoE	Rs/kWh	0.53	0.64	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	
Total COG	Rs/kWh	9.50	7.95	7.53	7.78	8.04	8.31	8.61	8.92	9.25	9.60	9.97	10.36	10.78	11.00	11.49	12.03	12.60	13.20	13.84	14.50	15.20	
Levillised Tariff																							
Levillised Tariff	Unit	Year →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	
Variable Cost (FY2018-19)			4.67																				
Levillised Tariff (Fixed)			2.86																				
Applicable Tariff (FY2018-19)			7.53																				
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount			90%																				
Book Depreciation rate			5.28%																				
Tax Depreciation rate			40%																				
Additional depreciation			20.00%																				
Income Tax (Normal Rates)			29.12%																				
Capital Cost			600.440																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00	
Accelerated Depreciation																							
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	
Accelerated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	0.01	
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.01	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.20	
Levillised benefit			0.12																				

CERC RE Tariff Order 2018-19

Annexure 2.2F

		Select State	TN			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M expenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stabilization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	2967.35	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																						
Units Generation																						
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU	0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Net Generation	MU	4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	
Biomass Cost	Rs Lakh	229.07	296.03	310.83	326.37	342.69	359.83	377.82	396.71	416.55	437.37	459.24	482.20	506.31	531.63	558.21	586.12	615.43	646.20	678.51	712.43	
Fixed Cost																						
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation	Rs Lakh	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	
Interest on term loan	Rs Lakh	40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	16.62	20.41	21.29	22.22	23.20	24.23	25.32	26.46	27.67	28.94	30.28	31.70	32.93	34.53	36.24	38.03	39.92	41.90	43.98	46.17	
Return on Equity	Rs Lakh	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh	162.53	165.52	165.73	166.14	166.76	167.59	168.64	169.95	171.50	173.32	175.43	177.84	180.63	183.82	187.39	191.33	195.65	200.37	205.51	211.08	
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation																						
Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh	6.58	4.62	4.80	5.04	5.29	5.55	5.83	6.12	6.43	6.75	7.09	7.44	7.81	8.20	8.61	9.05	9.50	9.97	10.47	10.99	11.54
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.44	0.34	0.33	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.59	0.62	0.65	0.68	0.71	0.75
RoE	Rs/kWh	0.53	0.64	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
Total COG	Rs/kWh	9.43	7.90	7.48	7.72	7.98	8.26	8.55	8.85	9.18	9.53	9.90	10.28	10.70	10.91	11.40	11.93	12.50	13.10	13.72	14.38	15.07
Levillised Tariff																						
Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor		1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	
Variable Cost (FY2018-19)		4.62																				
Levillised Tariff (Fixed)		2.85																				
Applicable Tariff (FY2018-19)		7.47																				
Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		40%																				
Additional depreciation		20.00%																				
Income Tax (Normal Rates)		29.12%																				
Capital Cost		600.440																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Accelrated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.12	(Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.2G

Assumption for Biomass Power Project Parameters		Select State	UP			
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
			2	Project Cost	Capital Cost/MW	Power Plant Cost
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	180.132	
			Return on Equity for Project Life	% p.a.	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M expenses)		15%	
		Receivables for Debtors	Months	2		
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stabilization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3069.00	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh		236.92	306.17	321.48	337.55	354.43	372.15	390.76	410.30	430.81	452.36	474.97	498.72	523.66	549.84	577.33	606.20	636.51	668.34	701.75	736.84	
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation	Rs Lakh		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70
Interest on term loan	Rs Lakh		40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Return on working Capital	Rs Lakh		17.06	20.97	21.88	22.84	23.85	24.92	26.04	27.22	28.47	29.78	31.16	32.62	33.90	35.55	37.31	39.15	41.10	43.14	45.28	47.54	
Return on Equity	Rs Lakh		31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh		162.97	166.08	166.33	166.77	167.41	168.27	169.37	170.70	172.30	174.16	176.31	178.76	181.90	185.65	189.39	193.39	197.65	202.18	206.99	212.00	217.22
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		6.81	4.78	4.96	5.21	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	10.31	10.83	11.37	11.94
O&M expn	Rs/kWh		1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh		0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh		0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.45	0.34	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	0.67	0.70	0.73	0.77
RoE	Rs/kWh		0.53	0.64	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
Total COG	Rs/kWh		9.67	8.07	7.65	7.90	8.17	8.46	8.76	9.08	9.41	9.77	10.15	10.55	10.98	11.21	11.71	12.26	12.85	13.46	14.10	14.76	15.49
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)		4.78	Rs/kWh																				
Levillised Tariff (Fixed)		2.87	Rs/kWh																				
Applicable Tariff (FY2018-19)		7.65	Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount		90%																					
Book Depreciation rate		5.28%																					
Tax Depreciation rate		40%																					
Additional depreciation		20.00%																					
Income Tax (Normal Rates)		29.12%																					
Capital Cost		600.440																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00	
Accelerated Depreciation		%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	
Accelerated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	0.01	
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-9.18	-5.02	0.01	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit		0.12	(Rs/kWh)																				

CERC RE Tariff Order 2018-19

		Select State		Others		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	180.132	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M expenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stabilization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3226.70	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy			Hrs	8766	
		Total No. of Hours				

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																						
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh		249.09	321.90	338.00	354.90	372.64	391.28	410.84	431.38	452.95	475.60	499.38	524.35	550.57	578.09	607.00	637.35	669.22	702.68	737.81	774.70
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70
Interest on term loan	Rs Lakh		40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.74	21.85	22.81	23.81	24.87	25.99	27.16	28.40	29.71	31.08	32.53	34.05	35.41	37.12	38.96	40.89	42.92	45.06	47.30	49.65
Return on Equity	Rs Lakh		31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh		163.65	166.96	167.25	167.73	168.43	169.34	170.49	171.88	173.53	175.46	177.67	180.19	182.90	185.85	189.05	192.50	196.21	200.18	204.42	208.93
Levillised tariff corresponding to Useful life	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		7.16	5.02	5.22	5.48	5.75	6.04	6.34	6.66	6.99	7.34	7.71	8.09	8.50	8.92	9.37	9.84	10.33	10.84	11.39	11.96
O&M expn	Rs/kWh		1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87
Depreciation	Rs/kWh		0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh		0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.47	0.36	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	0.77
RoE	Rs/kWh		0.53	0.64	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
Total COG	Rs/kWh		10.04	8.33	7.92	8.19	8.47	8.77	9.08	9.42	9.78	10.15	10.55	10.97	11.42	11.87	12.34	12.82	13.31	13.81	14.32	14.84
Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.02	Rs/kWh																				
Levillised Tariff (Fixed)	2.89	Rs/kWh																				
Applicable Tariff (FY2018-19)	7.91	Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional depreciation	20.00%																					
Income Tax (Normal Rates)	29.12%																					
Capital Cost	600.440																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00
Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Accelerated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.12	(Rs/kWh)																				

Assumption for Biomass Power Project Parameters		Select State	AP		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF (Stabilization for 6 months)	%	60%
			PLF (during first year after Stabilization)	%	70%
			PLF (second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.560
			Total Equity Amount	Rs Lacs	183.240
		Debt Component	Loan Amount	Rs Lacs	427.560
			Moratorium Period	years	0
			Repayment Period (incl. Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	183.240
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate (power plant)	%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M expenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	3016.88
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		232.90	300.97	316.02	331.82	348.41	365.83	384.13	403.33	423.50	444.67	466.91	490.25	514.76	540.50	567.53	595.90	625.70	656.98	689.83	724.33

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	18.64	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh		40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.87	20.72	21.61	22.55	23.55	24.59	25.70	26.86	28.09	29.38	30.74	32.17	33.42	35.04	36.77	38.59	40.51	42.52	44.63	46.85
Return on Equity	Rs Lakh		32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh		164.57	167.56	167.73	168.10	168.67	169.46	170.48	171.74	173.26	175.04	177.11	179.49	168.31	173.00	179.72	186.81	194.30	202.20	210.54	219.35

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.54	4.59	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.56	8.99	9.44	9.91	10.41	10.93	11.48
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.44	0.33	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	0.71	0.74
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	9.36	7.84	7.42	7.66	7.92	8.19	8.48	8.79	9.11	9.46	9.82	10.20	10.61	10.82	11.30	11.84	12.40	12.99	13.61	14.27	14.95

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.59	Rs/Kwh
Levillised Tariff (Fixed)	2.82	Rs/Kwh
Applicable Tariff (FY2018-19)	7.41	Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	610.80

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	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

Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-17.55	0.02	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-5.11	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.12	(Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.3B

		Select State	Harayana			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
			2	Project Cost	Capital Cost/MW	Power Plant Cost
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.560	
			Total Equity Amout	Rs Lacs	183.240	
		Debt Component	Loan Amount	Rs Lacs	427.560	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	183.240	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3433.91	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		265.09	342.58	359.71	377.69	396.57	416.40	437.22	459.08	482.04	506.14	531.45	558.02	585.92	615.22	645.98	678.28	712.19	747.80	785.19	824.45

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	18.64	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh		40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.66	23.04	24.05	25.12	26.24	27.42	28.66	29.98	31.36	32.81	34.34	35.95	37.40	39.21	41.16	43.20	45.34	47.59	49.96	52.45
Return on Equity	Rs Lakh		32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh		166.37	169.88	170.17	170.66	171.36	172.28	173.45	174.85	176.53	178.48	180.72	183.27	172.29	177.18	184.10	191.42	199.13	207.27	215.87	224.94

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.45	5.23	5.43	5.70	5.98	6.28	6.60	6.93	7.27	7.64	8.02	8.42	8.84	9.28	9.75	10.23	10.75	11.28	11.85	12.44	13.06
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.49	0.37	0.37	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	0.72	0.75	0.79	0.83
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	10.32	8.51	8.12	8.40	8.69	9.00	9.33	9.68	10.04	10.43	10.85	11.28	11.75	12.01	12.55	13.15	13.78	14.44	15.13	15.86	16.63

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	5.23 Rs/Kwh
Levillised Tariff (Fixed)	2.87 Rs/Kwh
Applicable Tariff (FY2018-19)	8.10 Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	610.80

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	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

Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-17.55	0.02	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-5.11	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.12 (Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.3C

		Select State	Maharashtra		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.560
			Total Equity Amout	Rs Lacs	183.240
		Debt Component	Loan Amount	Rs Lacs	427.560
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
			Equity amount	Rs Lacs	183.240
			Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.15%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate(power plant)	%	5.280%	
Depreciation Rate 14th year onwards	%	3.051%			
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	3512.09
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																						
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	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																						
Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Biomass Cost	Rs Lakh		271.12	350.38	367.89	386.29	405.60	425.88	447.18	469.54	493.01	517.66	543.55	570.73	599.26	629.22	660.69	693.72	728.41	764.83	803.07	843.22
Fixed Cost																						
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25
Interest on term loan	Rs Lakh		40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.00	23.48	24.51	25.60	26.74	27.95	29.22	30.56	31.97	33.45	35.02	36.66	38.14	40.00	41.98	44.06	46.25	48.54	50.96	53.50
Return on Equity	Rs Lakh		32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh		166.70	170.32	170.63	171.14	171.86	172.81	174.00	175.44	177.14	179.12	181.40	183.98	173.03	177.96	184.93	192.28	200.04	208.23	216.87	225.99
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.62	5.35	5.55	5.83	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
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.48	0.64	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	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.50	0.37	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	0.67	0.70	0.73	0.77	0.81	0.85
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	10.49	8.63	8.25	8.53	8.83	9.15	9.49	9.84	10.22	10.62	11.04	11.49	11.96	12.24	12.79	13.40	14.04	14.71	15.42	16.16	16.94
Levillised Tariff																						
Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.35	Rs/kWh																				
Levillised Tariff (Fixed)	2.88	Rs/kWh																				
Applicable Tariff (FY2018-19)	8.23	Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional depreciation	20.00%																					
Income Tax (Normal Rates)	29.12%																					
Capital Cost	610.80																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	6.65	3.99	2.39	1.44	0.86	0.52	0.31	0.19	0.11	0.07	0.04	0.02	0.02	0.01
Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-17.55	0.02	0.01	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-5.11	0.01	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levillised benefit	0.12	(Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.3D							
Select State				Punjab			
Assumption for Biomass Power Project Parameters							
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions		
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1		
			Auxillary Consumption during stabilisation	%	11%		
			Auxillary Consumption after stabilisation	%	10%		
			PLF(Stablization for 6 months)	%	60%		
			PLF(during first year after Stabilization)	%	70%		
			PLF(second year onwards)	%	80%		
			Useful Life	Years	20		
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80		
3	Financial Assumptions	Debt: Equity	Debt	%	70%		
			Equity	%	30%		
			Total Debt Amount	Rs Lacs	427.560		
			Total Equity Amount	Rs Lacs	183.240		
			Debt Component		Loan Amount	Rs Lacs	427.560
				Moratorium Period	years	0	
				Repayment Period(incl Moratorium)	years	13	
				Interest Rate	%	9.97%	
		Equity Component		Equity amount	Rs Lacs	183.240	
				Return on Equity for Project Life	% p.a	17.56%	
		Discount Rate (equiv. to WACC)	%	9.15%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%		
			Depreciation	Depreciation Rate(power plant)	%	5.280%	
				Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1		
			Maintenance Spare (% of O&M exepenses)		15%		
			Receivables for Debtors	Months	2		
			For Variable Charges		Biomass Stock	Months	4
					Interest On Working Capital	%	10.97%
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh	4200					
Biomass	Base Price	Rs/T			3591.59		
	GCV - Biomass	Kcal/kg			3100		
	Biomass Price Escalation Factor				5.00%		
7	Operation & Maintenance	O&M Expenses (2018-19)		Rs Lacs	42.29		
		O & M Expenses Escalation		%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766		

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																					
Units Generation																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU	0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU	5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh	277.26	358.31	376.22	395.03	414.78	435.52	457.30	480.17	504.17	529.38	555.85	583.64	612.83	643.47	675.64	709.42	744.89	782.14	821.25	862.31
Fixed Cost																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25
Interest on term loan	Rs Lakh	40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	19.34	23.92	24.97	26.08	27.25	28.49	29.79	31.15	32.59	34.11	35.71	37.39	38.90	40.79	42.81	44.94	47.17	49.51	51.98	54.56
Return on Equity	Rs Lakh	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh	167.05	170.76	171.09	171.63	172.38	173.35	174.57	176.03	177.76	179.78	182.08	184.70	173.79	178.76	185.76	193.16	200.96	209.19	217.88	227.06
Levillised tariff corresponding to Useful life																					
Per Unit Cost of Generation																					
Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.79	5.47	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	10.70	11.24	11.80	12.39	13.01
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82
Depreciation	Rs/kWh	0.48	0.64	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	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51	0.38	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
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	10.68	8.76	8.38	8.67	8.98	9.30	9.65	10.01	10.40	10.80	11.24	11.69	12.17	12.46	13.03	13.65	14.30	14.99	15.71	16.46
Levillised Tariff																					
Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor		1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.47 Rs/Kwh																				
Levillised Tariff (Fixed)	2.89 Rs/Kwh																				
Applicable Tariff (FY2018-19)	8.36 Rs/Kwh																				
Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional depreciation	20.00%																				
Income Tax (Normal Rates)	29.12%																				
Capital Cost	610.80																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00
Accelerated Depreciation																					
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	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
Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-17.55	0.02	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-5.11	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.12 (Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.3E

		Select State	Rajasthan			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
			2	Project Cost	Capital Cost/MW	Power Plant Cost
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.560	
			Total Equity Amout	Rs Lacs	183.240	
		Debt Component	Loan Amount	Rs Lacs	427.560	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	183.240	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	2997.33	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		231.39	299.02	313.97	329.67	346.16	363.46	381.64	400.72	420.75	441.79	463.88	487.08	511.43	537.00	563.85	592.04	621.64	652.73	685.36	719.63

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25
Interest on term loan	Rs Lakh		40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.78	20.61	21.50	22.43	23.42	24.46	25.56	26.71	27.93	29.22	30.57	31.99	33.24	34.84	36.57	38.38	40.28	42.28	44.38	46.59
Return on Equity	Rs Lakh		32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh		164.48	167.45	167.61	167.98	168.54	169.33	170.34	171.59	173.10	174.88	176.95	179.31	182.12	185.21	188.60	192.07	195.73	199.59	203.66	207.94

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.50	4.56	4.74	4.97	5.22	5.48	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
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.48	0.64	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	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.43	0.33	0.33	0.34	0.36	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.61	0.64	0.67	0.70	0.74
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	9.32	7.81	7.39	7.63	7.88	8.15	8.44	8.75	9.07	9.41	9.77	10.15	10.56	10.77	11.25	11.78	12.34	12.92	13.54	14.19	14.87

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.56	Rs/Kwh
Levillised Tariff (Fixed)	2.82	Rs/Kwh
Applicable Tariff (FY2018-19)	7.38	Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	610.80

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%	
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	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

Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-17.55	0.02	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-5.11	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.12	(Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.3F

		Select State	TN		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.560
			Total Equity Amout	Rs Lacs	183.240
		Debt Component	Loan Amount	Rs Lacs	427.560
			Moratorium Period	years	0
			Repayment Period(incl Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	183.240
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate(power plant)	%	5.280%	
			Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		Receivables for Debtors	Months	2	
		For Variable Charges			
		Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	2967.35
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		229.07	296.03	310.83	326.37	342.69	359.83	377.82	396.71	416.55	437.37	459.24	482.20	506.31	531.63	558.21	586.12	615.43	646.20	678.51	712.43

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	18.64	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh		40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.65	20.44	21.32	22.25	23.23	24.26	25.35	26.49	27.70	28.97	30.31	31.72	32.95	34.54	36.25	38.05	39.93	41.92	44.00	46.19
Return on Equity	Rs Lakh		32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh		164.35	167.28	167.44	167.79	168.35	169.12	170.13	171.37	172.87	174.64	176.69	179.04	167.84	172.51	179.20	186.27	193.72	201.60	209.91	218.68

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.43	4.52	4.69	4.92	5.17	5.43	5.70	5.99	6.29	6.60	6.93	7.28	7.64	8.02	8.42	8.84	9.29	9.75	10.24	10.75	11.29
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.43	0.33	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	0.70	0.73
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	9.25	7.76	7.34	7.58	7.81	8.10	8.38	8.68	9.00	9.34	9.70	10.08	10.48	10.68	11.16	11.68	12.24	12.82	13.43	14.08	14.75

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.52 Rs/Kwh
Levillised Tariff (Fixed)	2.81 Rs/Kwh
Applicable Tariff (FY2018-19)	7.33 Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	610.80

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00

Accelerated Depreciation	%	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	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

Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-17.55	0.02	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-5.11	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.12	(Rs/kWh)
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		Select State	UP		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/M	610.80
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.560
			Total Equity Amount	Rs Lacs	183.240
		Debt Component	Loan Amount	Rs Lacs	427.560
			Moratorium Period	years	0
			Repayment Period(incl. Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	183.240
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate(power plant)	%
				Depreciation Rate 14th year onwards	%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	3069.00
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																						
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		236.92	306.17	321.48	337.55	354.43	372.15	390.76	410.30	430.81	452.36	474.97	498.72	523.66	549.84	577.33	606.20	636.51	668.34	701.75	736.84
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25
Interest on term loan	Rs Lakh		40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.09	21.01	21.92	22.87	23.88	24.95	26.07	27.25	28.49	29.81	31.19	32.64	33.92	35.56	37.32	39.17	41.11	43.15	45.30	47.55
Return on Equity	Rs Lakh		32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh		164.79	167.85	168.03	168.42	169.01	169.81	170.85	172.13	173.67	175.47	177.56	179.96	168.81	173.53	180.27	187.39	194.90	202.83	211.21	220.05
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.65	4.67	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	9.60	10.08	10.59	11.12	11.67
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.48	0.64	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	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.44	0.34	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.65	0.68	0.72	0.75
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	9.48	7.92	7.51	7.76	8.02	8.29	8.59	8.90	9.23	9.58	9.95	10.34	10.75	10.97	11.46	12.00	12.57	13.17	13.80	14.46	15.16
Levillised Tariff	Unit	Year →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)		4.67 Rs/kWh																				
Levillised Tariff (Fixed)		2.83 Rs/kWh																				
Applicable Tariff (FY2018-19)		7.50 Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		40%																				
Additional depreciation		20.00%																				
Income Tax (Normal Rates)		29.12%																				
Capital Cost		610.80																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	6.65	3.99	2.39	1.44	0.86	0.52	0.31	0.19	0.11	0.07	0.04	0.02	0.02	0.01
Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-32.18	-17.55	0.02	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-9.37	-5.11	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit		0.12																				

CERC RE Tariff Order 2018-19

Annexure 2.3H

			Select State	Others		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF (Stablization for 6 months)	%	60%	
			PLF (during first year after Stablization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.560	
			Total Equity Amount	Rs Lacs	183.240	
		Debt Component	Loan Amount	Rs Lacs	427.560	
			Moratorium Period	years	0	
			Repayment Period (incl Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3226.70	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		249.09	321.90	338.00	354.90	372.64	391.28	410.84	431.38	452.95	475.60	499.38	524.35	550.57	578.09	607.00	637.35	669.22	702.68	737.81	774.70

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	18.64	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh		40.99	37.71	34.43	31.15	27.87	24.59	21.31	18.03	14.76	11.48	8.20	4.92	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.77	21.89	22.84	23.84	24.90	26.02	27.19	28.43	29.73	31.10	32.55	34.07	35.42	37.14	38.98	40.91	42.94	45.07	47.31	49.67
Return on Equity	Rs Lakh		32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17	32.17
Total Fixed Cost	Rs Lakh		165.47	168.73	168.96	169.39	170.02	170.88	171.97	173.31	174.90	176.77	178.93	181.39	170.31	175.10	181.93	189.13	196.73	204.75	213.22	222.16

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.00	4.91	5.10	5.36	5.62	5.90	6.20	6.51	6.83	7.18	7.54	7.91	8.31	8.72	9.16	9.62	10.10	10.60	11.13	11.69	12.27
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.49	0.44	0.39	0.34	0.29	0.23	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.46	0.35	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	0.79
RoE	Rs/kWh	0.52	0.63	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
Total COG	Rs/kWh	9.84	8.17	7.77	8.03	8.31	8.60	8.91	9.23	9.58	9.95	10.34	10.75	11.18	11.42	11.93	12.50	13.09	13.72	14.38	15.07	15.79

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.91 Rs/kWh
Levillised Tariff (Fixed)	2.84 Rs/kWh
Applicable Tariff (FY2018-19)	7.76 Rs/kWh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	610.80

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	16.13	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	32.25	17.59	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	183.24	213.78	85.51	51.31	30.78	18.47	11.08	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

Net Depreciation Benefit	Rs Lakh	167.11	181.53	53.26	19.06	-1.47	-13.78	-21.17	-25.60	-28.26	-29.86	-30.81	-31.39	-31.73	-31.94	-32.06	-32.14	-32.18	-17.55	0.02	0.01
Tax Benefit	Rs Lakh	48.66	52.86	15.51	5.55	-0.43	-4.01	-6.16	-7.45	-8.23	-8.69	-8.97	-9.14	-9.24	-9.30	-9.34	-9.36	-9.37	-5.11	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.92	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.12 (Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.4A

		Select State	AP			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		Receivables for Debtors	Months	2		
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3016.88	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018 - 19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity		MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation		MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption		MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation		MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost		Rs Lakh		232.90	300.97	316.02	331.82	348.41	365.83	384.13	403.33	423.50	444.67	466.91	490.25	514.76	540.50	567.53	595.90	625.70	656.98	689.83	724.33
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses		Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation		Rs Lakh		34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44
Interest on term loan		Rs Lakh		43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		17.00	20.85	21.74	22.67	23.66	24.71	25.81	26.96	28.19	29.47	30.83	32.26	33.49	35.10	36.84	38.66	40.57	42.58	44.70	46.92
Return on Equity		Rs Lakh		34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost		Rs Lakh		171.84	174.61	174.55	174.70	175.04	175.61	176.40	177.43	178.72	180.28	182.13	184.27	171.93	176.51	183.23	190.32	197.81	205.71	214.05	222.85
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG		Rs/kWh	6.69	4.70	4.88	5.12	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
O&M expn		Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation		Rs/kWh	0.52	0.69	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Int. on term loan		Rs/kWh	0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital		Rs/kWh	0.45	0.34	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.57	0.60	0.63	0.66	0.69	0.72	0.76
RoE		Rs/kWh	0.57	0.69	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	9.67	8.16	7.71	7.95	8.21	8.48	8.77	9.08	9.41	9.76	10.13	10.52	10.93	11.13	11.62	12.17	12.74	13.34	13.98	14.65	15.35
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)				4.70																			
Levillised Tariff (Fixed)				2.98																			
Applicable Tariff (FY2018-19)				7.68																			
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount				90%																			
Book Depreciation rate				5.28%																			
Tax Depreciation rate				40%																			
Additional depreciation				20.00%																			
Income Tax (Normal Rates)				29.12%																			
Capital Cost				652.200																			
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00	
Accelerated Depreciation		Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Opening		%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	
Allowed during the year		%	30%	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%	
Closing		%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Accelerated Deprn.		Rs Lakh	195.66	228.27	91.31	54.78	32.87	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	
Net Depreciation Benefit		Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-18.74	0.03	0.02	
Tax Benefit		Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-8.79	-9.28	-9.58	-9.76	-9.87	-9.93	-9.97	-9.99	-10.01	-5.46	0.01	0.00	
Net Energy generation		MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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	
Discounting Factor			1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit		0.13																					

CERC RE Tariff Order 2018-19

Annexure 2.4B

		Select State	Harayana			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stablization for 6 months)	%	60%	
			PLF (during first year after Stablization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amount	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate (power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3433.91	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2018 - 19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy			Hrs	8766	
		Total No. of Hours				

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh		265.09	342.58	359.71	377.69	396.57	416.40	437.22	459.08	482.04	506.14	531.45	558.02	585.92	615.22	645.98	678.28	712.19	747.80	785.19	824.45

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44
Interest on term loan	Rs Lakh		43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.80	23.17	24.18	25.24	26.35	27.53	28.77	30.08	31.46	32.91	34.43	36.04	37.46	39.28	41.22	43.26	45.40	47.66	50.02	52.51
Return on Equity	Rs Lakh		34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost	Rs Lakh		173.64	176.93	176.99	177.26	177.73	178.43	179.36	180.55	181.99	183.72	185.73	188.06	175.91	180.69	187.61	194.92	202.64	210.78	219.38	228.45

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.61	5.35	5.55	5.83	6.12	6.43	6.75	7.08	7.44	7.81	8.20	8.61	9.04	9.49	9.97	10.47	10.99	11.54	12.12	12.72	13.36
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh	0.52	0.69	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Int. on term loan	Rs/kWh	0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.50	0.38	0.38	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
RoE	Rs/kWh	0.57	0.69	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	10.65	8.85	8.42	8.70	8.99	9.31	9.64	9.99	10.36	10.76	11.18	11.62	12.09	12.34	12.90	13.51	14.15	14.82	15.53	16.28	17.06

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	5.35 Rs/Kwh
Levillised Tariff (Fixed)	3.03 Rs/Kwh
Applicable Tariff (FY2018-19)	8.38 Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	652.200

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	195.66	228.27	91.31	54.78	32.87	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

Net Depreciation Benefit	Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-18.74	0.03	0.02
Tax Benefit	Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-8.79	-9.28	-9.58	-9.76	-9.87	-9.93	-9.97	-9.99	-10.01	-5.46	0.01	0.00
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.13 (Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.4C

Assumption for Biomass Power Project Parameters		Select State	Maharashtra		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF (Stablization for 6 months)	%	60%
			PLF (during first year after Stablization)	%	70%
			PLF (second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	456.54
			Total Equity Amount	Rs Lacs	195.66
		Debt Component	Loan Amount	Rs Lacs	456.54
			Moratorium Period	years	0
			Repayment Period (incl. Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	195.66
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
			Depreciation	Depreciation Rate (power plant)	%
					Depreciation Rate 14th year onwards
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	3512.09
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018 - 19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																						
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh		271.12	350.38	367.89	386.29	405.60	425.88	447.18	469.54	493.01	517.66	543.55	570.73	599.26	629.22	660.69	693.72	728.41	764.83	803.07	843.22
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44
Interest on term loan	Rs Lakh		43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.13	23.61	24.63	25.72	26.86	28.06	29.33	30.66	32.07	33.55	35.11	36.75	38.21	40.06	42.04	44.12	46.31	48.61	51.02	53.56
Return on Equity	Rs Lakh		34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost	Rs Lakh		173.98	177.37	177.45	177.74	178.24	178.96	179.92	181.13	182.61	184.36	186.41	188.77	176.65	181.47	188.43	195.79	203.54	211.73	220.38	229.50
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.79	5.47	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
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh	0.52	0.69	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Int. on term loan	Rs/kWh	0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51	0.39	0.38	0.40	0.42	0.44	0.45	0.48	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
RoE	Rs/kWh	0.57	0.69	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	10.83	8.98	8.55	8.84	9.14	9.46	9.80	10.16	10.54	10.95	11.38	11.83	12.31	12.57	13.14	13.76	14.41	15.10	15.82	16.58	17.38
Levillised Tariff	Unit	Year →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.47	Rs/kWh																				
Levillised Tariff (Fixed)	3.04	Rs/kWh																				
Applicable Tariff (FY2018-19)	8.51	Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional depreciation	20.00%																					
Income Tax (Normal Rates)	29.12%																					
Capital Cost	652.200																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%
Accelerated Depn.	Rs Lakh	195.66	228.27	91.31	54.78	32.87	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	0.03	0.02
Net Depreciation Benefit	Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-18.74	0.03	0.03	0.02
Tax Benefit	Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-8.79	-9.28	-9.58	-9.76	-9.87	-9.93	-9.97	-9.99	-10.01	-5.46	0.01	0.01	0.00
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levillised benefit	0.13	(Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.4D						
			Select State	Punjab		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stabilization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
		3	Financial Assumptions	Debt: Equity	Debt	%
Equity	%				30%	
Total Debt Amount	Rs Lacs				456.54	
Total Equity Amout	Rs Lacs				195.66	
Debt Component	Loan Amount			Rs Lacs	456.54	
	Moratorium Period			years	0	
	Repayment Period(incld Moratorium)			years	13	
	Interest Rate			%	9.97%	
Equity Component	Equity amount			Rs Lacs	195.66	
	Return on Equity for Project Life			% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			For Variable Charges			
			Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3591.59	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018 - 19)		Rs Lacs	42.29	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh		277.26	358.31	376.22	395.03	414.78	435.52	457.30	480.17	504.17	529.38	555.85	583.64	612.83	643.47	675.64	709.42	744.89	782.14	821.25	862.31

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44
Interest on term loan	Rs Lakh		43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.48	24.05	25.10	26.21	27.37	28.60	29.89	31.26	32.69	34.21	35.80	37.47	38.97	40.86	42.88	45.00	47.23	49.58	52.04	54.63
Return on Equity	Rs Lakh		34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost	Rs Lakh		174.32	177.81	177.92	178.23	178.75	179.50	180.49	181.73	183.23	185.02	187.10	189.49	177.41	182.26	189.27	196.66	204.47	212.70	221.39	230.56

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.96	5.59	5.81	6.10	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
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh	0.52	0.69	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Int. on term loan	Rs/kWh	0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.52	0.39	0.39	0.41	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.61	0.63	0.66	0.69	0.73	0.77	0.80	0.84	0.89
RoE	Rs/kWh	0.57	0.69	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	11.01	9.11	8.69	8.98	9.29	9.62	9.97	10.33	10.73	11.14	11.58	12.04	12.53	12.81	13.38	14.02	14.68	15.38	16.12	16.90	17.71

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	5.59 Rs/Kwh
Levillised Tariff (Fixed)	3.05 Rs/Kwh
Applicable Tariff (FY2018-19)	8.64 Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	652.200

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	195.66	228.27	91.31	54.78	32.87	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

Net Depreciation Benefit	Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-18.74	0.03	0.02
Tax Benefit	Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-8.79	-9.28	-9.58	-9.76	-9.87	-9.93	-9.97	-9.99	-10.01	-5.46	0.01	0.00
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.13 (Rs/kWh)
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CERC RE Tariff Order 2018-19

		Select State		Annexure 2.4E		
				Rajasthan		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
		3	Financial Assumptions	Debt: Equity	Debt	%
Equity	%				30%	
Total Debt Amount	Rs Lacs				456.54	
Total Equity Amount	Rs Lacs				195.66	
Debt Component	Loan Amount			Rs Lacs	456.54	
	Moratorium Period			years	0	
	Repayment Period (incl. Moratorium)			years	13	
Equity Component	Interest Rate			%	9.97%	
	Equity amount			Rs Lacs	195.66	
	Return on Equity for Project Life			% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate (power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stabilization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	2997.33	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018 - 19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours	Hrs	8766		

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																						
Units Generation																						
Units	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU	0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Net Generation	MU	4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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																						
Units	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Biomass Cost	Rs Lakh	231.39	299.02	313.97	329.67	346.16	363.46	381.64	400.72	420.75	441.79	463.88	487.08	511.43	537.00	563.85	592.04	621.64	652.73	685.36	719.63	
Fixed Cost																						
Units	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation	Rs Lakh	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	
Interest on term loan	Rs Lakh	43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh	16.91	20.74	21.62	22.55	23.54	24.57	25.67	26.82	28.03	29.31	30.66	32.08	33.30	34.91	36.63	38.44	40.35	42.35	44.45	46.66	
Return on Equity	Rs Lakh	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	
Total Fixed Cost	Rs Lakh	171.76	174.50	174.44	174.57	174.92	175.47	176.26	177.29	178.57	180.12	181.96	184.10	171.74	176.32	183.02	190.11	197.58	205.47	213.80	222.59	
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation																						
Units	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh	6.65	4.67	4.85	5.09	5.34	5.61	5.89	6.18	6.49	6.82	7.16	7.52	7.89	8.29	8.70	9.14	9.59	10.07	10.58	11.11	11.66
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh	0.52	0.69	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Int. on term loan	Rs/kWh	0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.45	0.34	0.34	0.35	0.37	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	0.69	0.72	0.76
RoE	Rs/kWh	0.57	0.69	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	9.62	8.13	7.67	7.91	8.17	8.44	8.73	9.04	9.37	9.71	10.08	10.47	10.88	11.07	11.56	12.10	12.67	13.27	13.91	14.57	15.27
Levillised Tariff																						
Units	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	4.67																					
Levillised Tariff (Fixed)	2.98																					
Applicable Tariff (FY2018-19)	7.64																					
Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional depreciation	20.00%																					
Income Tax (Normal Rates)	29.12%																					
Capital Cost	652.200																					
Years																						
Units	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Accelrated Deprn.	Rs Lakh	195.66	228.27	91.31	54.78	32.87	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	
Net Depreciation Benefit	Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-18.74	0.03	0.02	
Tax Benefit	Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-8.79	-9.28	-9.58	-9.76	-9.87	-9.93	-9.97	-9.99	-10.01	-5.46	0.01	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.13																					

CERC RE Tariff Order 2018-19

		Select State	Annexure 2.4F			
			TN			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amount	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(inclcd Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
			Equity amount	Rs Lacs	195.66	
			Return on Equity for Project Life	% p.a	17.56%	
Discount Rate (equiv. to WACC)	%	9.15%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	2967.35	
			GCV - Biomass	Kcal/kg	3100	
Biomass Price Escalation Factor		5.00%				
7	Operation & Maintenance	O&M Expenses (2018 - 19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU			0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU			4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh			229.07	296.03	310.83	326.37	342.69	359.83	377.82	396.71	416.55	437.37	459.24	482.20	506.31	531.63	558.21	586.12	615.43	646.20	678.51	712.43
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh			34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44
Interest on term loan	Rs Lakh			43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			16.79	20.57	21.45	22.37	23.34	24.37	25.45	26.59	27.80	29.06	30.40	31.81	33.32	34.81	36.32	38.11	40.00	41.98	44.06	46.25
Return on Equity	Rs Lakh			34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost	Rs Lakh			171.63	174.33	174.26	174.39	174.72	175.27	176.05	177.06	178.33	179.88	181.70	183.82	171.46	176.02	182.71	189.77	197.23	205.11	213.42	222.19
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		6.58	4.62	4.80	5.04	5.29	5.55	5.83	6.12	6.43	6.75	7.09	7.44	7.81	8.20	8.61	9.05	9.50	9.97	10.47	10.99	11.54
O&M expn	Rs/kWh		1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh		0.52	0.69	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Int. on term loan	Rs/kWh		0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.44	0.34	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
RoE	Rs/kWh		0.57	0.69	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		9.55	8.08	7.62	7.86	8.11	8.38	8.67	8.97	9.30	9.64	10.00	10.39	10.79	10.98	11.47	12.01	12.57	13.17	13.79	14.45	15.14
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)		4.62	Rs/kWh																				
Levillised Tariff (Fixed)		2.97	Rs/kWh																				
Applicable Tariff (FY2018-19)		7.59	Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount		90%																					
Book Depreciation rate		5.28%																					
Tax Depreciation rate		40%																					
Additional depreciation		20.00%																					
Income Tax (Normal Rates)		29.12%																					
Capital Cost		652.200																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00	
Accelerated Depreciation		%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.01%	
Accelerated Deprn.	Rs Lakh	195.66	228.27	91.31	54.78	32.87	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	0.03	0.02	
Net Depreciation Benefit	Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-18.74	0.03	0.02	0.02	
Tax Benefit	Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-8.79	-9.28	-9.58	-9.76	-9.87	-9.93	-9.99	-10.01	-10.01	-5.46	0.01	0.00	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit		0.13	(Rs/kWh)																				

CERC RE Tariff Order 2018-19

					Annexure 2.4G
			Select State	UP	
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF (Stablization for 6 months)	%	60%
			PLF (during first year after Stablization)	%	70%
			PLF (second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20
		3	Financial Assumptions	Debt: Equity	Debt
Equity	%				30%
Debt Component	Total Debt Amount			Rs Lacs	456.54
	Total Equity Amout			Rs Lacs	195.66
	Loan Amount			Rs Lacs	456.54
	Moratorium Period			years	0
Equity Component	Repayment Period (inclcd Moratorium)			years	13
	Interest Rate			%	9.97%
	Equity amount			Rs Lacs	195.66
	Return on Equity for Project Life			% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
		Depreciation	Depreciation Rate (power plant)	%	5.28%
			Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	10.97%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	3069.00
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018 - 19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU			0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU			4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh			236.92	306.17	321.48	337.55	354.43	372.15	390.76	410.30	430.81	452.36	474.97	498.72	523.66	549.84	577.33	606.20	636.51	668.34	701.75	736.84
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh			34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44
Interest on term loan	Rs Lakh			43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			17.22	21.14	22.04	22.99	24.00	25.06	26.18	27.35	28.59	29.90	31.28	32.73	33.99	35.63	37.39	39.23	41.18	43.22	45.36	47.62
Return on Equity	Rs Lakh			34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost	Rs Lakh			172.07	174.90	174.86	175.02	175.38	175.96	176.77	177.82	179.13	180.71	182.58	184.75	172.43	177.03	183.78	190.90	198.41	206.34	214.71	223.55
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		6.81	4.78	4.96	5.21	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	10.31	10.83	11.37	11.94
O&M expn	Rs/kWh		1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh		0.52	0.69	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
Int. on term loan	Rs/kWh		0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.46	0.35	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	0.61	0.64	0.67	0.70	0.74	0.77
RoE	Rs/kWh		0.57	0.69	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		9.79	8.25	7.80	8.04	8.31	8.59	8.88	9.20	9.53	9.88	10.26	10.66	11.08	11.28	11.76	12.33	12.92	13.53	14.17	14.85	15.56
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)		4.78	Rs/kWh																				
Levillised Tariff (Fixed)		2.99	Rs/kWh																				
Applicable Tariff (FY2018-19)		7.76	Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount		90%																					
Book Depreciation rate		5.28%																					
Tax Depreciation rate		40%																					
Additional depreciation		20.00%																					
Income Tax (Normal Rates)		29.12%																					
Capital Cost		652.200																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00	
Accelerated Depreciation		%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	
Accelerated Deprn.	Rs Lakh	195.66	228.27	91.31	54.78	32.87	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	0.03	0.02	
Net Depreciation Benefit	Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-34.36	-18.74	0.03	0.02	
Tax Benefit	Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-9.28	-9.58	-9.76	-9.87	-9.87	-9.93	-9.99	-10.01	-10.01	-10.01	-5.46	0.01	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit		0.13	(Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.4H						
			Select State	Others		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
		3	Financial Assumptions	Debt: Equity	Debt	%
Equity	%				30%	
Total Debt Amount	Rs Lacs				456.54	
Total Equity Amount	Rs Lacs				195.66	
Debt Component	Loan Amount			Rs Lacs	456.54	
	Moratorium Period			years	0	
	Repayment Period (incl. Moratorium)			years	13	
Equity Component	Interest Rate			%	9.97%	
	Equity amount			Rs Lacs	195.66	
	Return on Equity for Project Life			% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate (power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stabilization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3226.70	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018 - 19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU			5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU			0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Net Generation	MU			4.96	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh			249.09	321.90	338.00	354.90	372.64	391.28	410.84	431.38	452.95	475.60	499.38	524.35	550.57	578.09	607.00	637.35	669.22	702.68	737.81	774.70
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh			34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44
Interest on term loan	Rs Lakh			43.77	40.27	36.76	33.26	29.76	26.26	22.76	19.26	15.76	12.25	8.75	5.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			17.90	22.01	22.96	23.96	25.02	26.13	27.30	28.53	29.83	31.20	32.64	34.16	35.49	37.20	39.04	40.97	43.00	45.14	47.38	49.73
Return on Equity	Rs Lakh			34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost	Rs Lakh			172.75	175.78	175.78	175.98	176.40	177.03	177.89	179.00	180.37	182.01	183.94	186.18	173.93	178.61	185.43	192.64	200.24	208.26	216.73	225.67
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		7.16	5.02	5.22	5.48	5.75	6.04	6.34	6.66	6.99	7.34	7.71	8.09	8.50	8.92	9.37	9.84	10.33	10.84	11.39	11.96	12.55
O&M expn	Rs/kWh		1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh		0.52	0.69	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Int. on term loan	Rs/kWh		0.38	0.88	0.65	0.60	0.54	0.48	0.43	0.37	0.31	0.26	0.20	0.14	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.47	0.36	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	0.81
RoE	Rs/kWh		0.57	0.69	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		10.16	8.51	8.06	8.33	8.60	8.90	9.21	9.54	9.89	10.26	10.66	11.07	11.51	11.74	12.26	12.84	13.45	14.09	14.76	15.47	16.21
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)				5.02 Rs/kWh																			
Levillised Tariff (Fixed)				3.00 Rs/kWh																			
Applicable Tariff (FY2018-19)				8.03 Rs/kWh																			
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount				90%																			
Book Depreciation rate				5.28%																			
Tax Depreciation rate				40%																			
Additional depreciation				20.00%																			
Income Tax (Normal Rates)				29.12%																			
Capital Cost				652.200																			
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	17.22	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	18.78	0.00	0.00
Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	
Accelrated Deprn.	Rs Lakh	195.66	228.27	91.31	54.78	32.87	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	0.03	0.02	
Net Depreciation Benefit	Rs Lakh	178.44	193.83	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.10	-34.24	-34.32	-34.36	-18.74	0.03	0.02	0.02	
Tax Benefit	Rs Lakh	51.96	56.44	16.56	5.93	-0.46	-4.28	-6.58	-7.96	-8.79	-9.28	-9.58	-9.76	-9.87	-9.93	-9.97	-9.99	-10.01	-5.46	0.01	0.01	0.00	
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	2.10	0.91	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	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit				0.13 (Rs/kWh)																			

CERC RE Tariff Order 2018-19

Annexure 2.5A

Assumption for Biomass Power Project Parameters			Select State	AP		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.033	
		3	Financial Assumptions	Debt: Equity	Debt	%
Equity	%				30%	
Total Debt Amount	Rs Lacs				391.323	
Debt Component	Total Equity Amount			Rs Lacs	167.710	
	Loan Amount			Rs Lacs	391.323	
	Moratorium Period			years	0	
	Repayment Period(inclد Moratorium)			years	13	
Equity Component	Interest Rate			%	9.97%	
	Equity amount			Rs Lacs	167.710	
	Return on Equity for Project Life			% p.a	17.56%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3016.88	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	O & M Expenses Escalation	Rs Lacs	42.29	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																							
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	
Biomass Cost	Rs Lakh		228.74	295.60	310.38	325.90	342.19	359.30	377.27	396.13	415.94	436.73	458.57	481.50	505.57	530.85	557.39	585.26	614.53	645.25	677.52	711.39	
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	
Depreciation	Rs Lakh		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	29.52	29.52	29.52	
Interest on term loan	Rs Lakh		37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.47	20.25	21.14	22.07	23.05	24.09	25.18	26.33	27.54	28.81	30.16	31.57	33.06	34.42	36.13	37.92	39.80	41.78	43.86	46.05	
Return on Equity	Rs Lakh		29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	
Total Fixed Cost	Rs Lakh		155.23	158.44	158.88	159.51	160.35	161.41	162.69	164.22	166.00	168.05	170.38	173.01	175.96	168.08	174.77	181.83	189.29	197.16	205.47	214.24	
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh	6.42	4.51	4.68	4.92	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	
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93	
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh	0.43	0.32	0.32	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	0.73	
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	
Total COG	Rs/kWh	9.13	7.57	7.19	7.43	7.69	7.96	8.25	8.56	8.88	9.22	9.58	9.97	10.37	10.80	11.07	11.60	12.15	12.74	13.35	13.99	14.67	
Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190	
Variable Cost (FY2018-19)	4.51 Rs/Kwh																						
Levillised Tariff (Fixed)	2.70 Rs/Kwh																						
Applicable Tariff (FY2018-19)	7.21 Rs/Kwh																						
Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount	90%																						
Book Depreciation rate	5.28%																						
Tax Depreciation rate	40%																						
Additional depreciation	20.00%																						
Income Tax (Normal Rates)	29.12%																						
Capital Cost	559.033																						
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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%	
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	
Accelerated Depreciation																							
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	
Allowed during the year	%	30%	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%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	
Accelerated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01	0.01	
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.01	0.00	
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit	0.11 (Rs/kWh)																						

CERC RE Tariff Order 2018-19

Annexure 2.5B

		Select State	Harayana			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.033	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.323	
			Total Equity Amout	Rs Lacs	167.710	
		Debt Component	Loan Amount	Rs Lacs	391.323	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare (% of O&M exepenses) Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital		Months	1	
				Months	15%	
				Months	2	
				Months	4	
				%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3433.91	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19) O & M Expenses Escalation		Rs Lacs	42.29	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																					
Units Generation																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU	0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU	5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh	260.36	336.46	353.28	370.95	389.49	408.97	429.42	450.89	473.43	497.10	521.96	548.06	575.46	604.23	634.44	666.17	699.47	734.45	771.17	809.73
Fixed Cost																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh	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	29.52	29.52	29.52
Interest on term loan	Rs Lakh	37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	18.23	22.54	23.54	24.59	25.70	26.86	28.09	29.39	30.75	32.19	33.70	35.29	36.96	38.52	40.43	42.44	44.55	46.77	49.10	51.55
Return on Equity	Rs Lakh	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh	157.00	160.72	161.28	162.03	163.00	164.18	165.61	167.28	169.21	171.42	173.92	176.73	179.86	172.18	179.07	186.35	194.03	202.14	210.70	219.73
Levillised tariff corresponding to Useful life																					
Per Unit Cost of Generation																					
Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.31	5.13	5.33	5.60	5.88	6.17	6.48	6.80	7.14	7.50	7.88	8.27	8.68	9.12	9.57	10.05	11.08	11.64	12.22	12.83
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.48	0.36	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	0.71	0.74	0.78
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	10.07	8.23	7.88	8.15	8.44	8.75	9.08	9.43	9.79	10.18	10.59	11.03	11.48	11.97	12.30	12.89	13.51	14.16	14.84	15.56
Levillised Tariff																					
Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor		1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.13 Rs/kWh																				
Levillised Tariff (Fixed)	2.75 Rs/kWh																				
Applicable Tariff (FY2018-19)	7.89 Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional depreciation	20.00%																				
Income Tax (Normal Rates)	29.12%																				
Capital Cost	559.033																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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
Accelerated Depreciation																					
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.11 (Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.5C

Assumption for Biomass Power Project Parameters			Select State	Maharashtra		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.033	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.323	
			Total Equity Amount	Rs Lacs	167.710	
		Debt Component	Loan Amount	Rs Lacs	391.323	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4125	
Biomass	Base Price			Rs/T	3512.09	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		266.28	344.12	361.33	379.39	398.36	418.28	439.19	461.15	484.21	508.42	533.84	560.53	588.56	617.99	648.89	681.33	715.40	751.17	788.73	828.16

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		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	29.52	29.52	29.52
Interest on term loan	Rs Lakh		37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.56	22.97	23.99	25.06	26.19	27.38	28.64	29.96	31.35	32.82	34.36	35.99	37.69	39.29	41.24	43.29	45.44	47.70	50.08	52.58
Return on Equity	Rs Lakh		29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh		157.33	161.15	161.73	162.50	163.49	164.70	166.15	167.85	169.81	172.05	174.58	177.43	180.59	172.95	179.88	187.20	194.92	203.08	211.68	220.76

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.48	5.25	5.45	5.72	6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.33	9.79	10.28	10.80	11.33	11.90	12.50	13.12
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.49	0.37	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	0.69	0.72	0.76	0.79	0.83
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	10.24	8.35	8.01	8.29	8.59	8.90	9.24	9.59	9.97	10.36	10.78	11.22	11.69	12.19	12.53	13.13	13.76	14.42	15.12	15.85	16.62

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	5.25 Rs/kWh
Levillised Tariff (Fixed)	2.76 Rs/kWh
Applicable Tariff (FY2018-19)	8.01 Rs/kWh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	559.033

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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

Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.11 (Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.5D

Assumption for Biomass Power Project Parameters			Select State	Punjab			
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions		
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1		
			Auxillary Consumption during stabilisation	%	11%		
			Auxillary Consumption after stabilisation	%	10%		
			PLF(Stablization for 6 months)	%	60%		
			PLF(during first year after Stablization)	%	70%		
			PLF(second year onwards)	%	80%		
			Useful Life	Years	20		
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.033		
3	Financial Assumptions	Debt: Equity	Debt	%	70%		
			Equity	%	30%		
			Total Debt Amount	Rs Lacs	391.323		
			Total Equity Amount	Rs Lacs	167.710		
			Debt Component			Loan Amount	Rs Lacs
					Moratorium Period	years	0
					Repayment Period(incld Moratorium)	years	13
					Interest Rate	%	9.97%
		Equity Component			Equity amount	Rs Lacs	167.710
					Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%		
			Depreciation	Depreciation Rate(power plant)	%	5.280%	
				Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1		
			Maintenance Spare (% of O&M exepenses)		15%		
		Receivables for Debtors	Months	2			
		For Variable Charges	Biomass Stock	Months	4		
		Interest On Working Capital	%	10.97%			
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125		
			During Stablization Period	Kcal/kwh	4125		
		Biomass	Base Price	Rs/T	3591.59		
			GCV - Biomass	Kcal/kg	3100		
			Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2018-19)		Rs Lacs	42.29		
		O & M Expenses Escalation		%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766		

CERC RE Tariff Order 2018-19

Annexure 2.5E

Assumption for Biomass Power Project Parameters		Select State	Rajasthan			
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.033	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.323	
			Total Equity Amount	Rs Lacs	167.710	
		Debt Component	Loan Amount	Rs Lacs	391.323	
			Moratorium Period	years	0	
			Repayment Period(inclnd Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2997.33	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	O & M Expenses Escalation	Rs Lacs	42.29	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh		227.25	293.68	308.37	323.78	339.97	356.97	374.82	393.56	413.24	433.90	455.60	478.38	502.30	527.41	553.78	581.47	610.54	641.07	673.12	706.78

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		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	29.52	29.52	29.52
Interest on term loan	Rs Lakh		37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.38	20.15	21.03	21.95	22.93	23.96	25.04	26.18	27.39	28.65	29.99	31.39	32.87	34.23	35.93	37.71	39.58	41.55	43.62	45.79
Return on Equity	Rs Lakh		29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh		155.15	158.33	158.77	159.40	160.23	161.28	162.56	164.08	165.85	167.89	170.21	172.84	175.78	178.89	181.62	184.06	186.22	188.10	189.72	191.10

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.38	4.48	4.65	4.89	5.13	5.39	5.66	5.94	6.24	6.55	6.87	7.22	7.58	7.96	8.36	8.77	9.21	9.67	10.16	10.67	11.20
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82	1.93
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.43	0.32	0.32	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.48	0.50	0.52	0.54	0.57	0.60	0.63	0.66	0.69	0.73
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	9.08	7.54	7.16	7.40	7.66	7.93	8.21	8.51	8.84	9.18	9.53	9.92	10.32	10.74	11.02	11.54	12.09	12.67	13.28	13.92	14.59

Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.48	Rs/kWh
Levillised Tariff (Fixed)	2.70	Rs/kWh
Applicable Tariff (FY2018-19)	7.18	Rs/kWh

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.12%
Capital Cost	559.033

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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

Accelerated Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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

Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.11	(Rs/kWh)
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CERC RE Tariff Order 2018-19

Annexure 2.5F

		Select State	TN		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	391.323
			Total Equity Amout	Rs Lacs	167.710
		Debt Component	Loan Amount	Rs Lacs	391.323
			Moratorium Period	years	0
			Repayment Period(inclcd Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	167.710
			Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.15%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate(power plant)	%	5.280%	
		Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	10.97%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	2967.35
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																					
Units Generation																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU	5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU	0.63	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU	5.07	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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
Biomass Cost	Rs Lakh	224.98	290.74	305.28	320.55	336.57	353.40	371.07	389.63	409.11	429.56	451.04	473.59	497.27	522.14	548.24	575.66	604.44	634.66	666.39	699.71
Fixed Cost																					
Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh	42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh	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	29.52	29.52	29.52
Interest on term loan	Rs Lakh	37.51	34.51	31.51	28.51	25.51	22.51	19.51	16.51	13.51	10.50	7.50	4.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh	16.26	19.98	20.85	21.77	22.74	23.76	24.83	25.96	27.16	28.41	29.73	31.13	32.59	33.93	35.62	37.38	39.24	41.19	43.24	45.40
Return on Equity	Rs Lakh	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45	29.45
Total Fixed Cost	Rs Lakh	155.02	158.17	158.60	159.22	160.04	161.08	162.35	163.86	165.62	167.65	169.96	172.57	175.49	167.59	174.26	181.29	188.72	196.57	204.84	213.58
Levillised tariff corresponding to Useful life																					
Per Unit Cost of Generation																					
Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.32	4.44	4.61	4.84	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
O&M expn	Rs/kWh	1.04	0.83	0.71	0.75	0.79	0.84	0.88	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.72	1.82
Depreciation	Rs/kWh	0.44	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.32	0.74	0.55	0.50	0.45	0.40	0.36	0.31	0.26	0.21	0.17	0.12	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.42	0.32	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	0.56	0.59	0.62	0.65	0.69
RoE	Rs/kWh	0.48	0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total COG	Rs/kWh	9.02	7.49	7.11	7.35	7.60	7.87	8.15	8.45	8.77	9.11	9.46	9.84	10.24	10.66	10.93	11.45	11.99	12.57	13.17	13.80
Levillised Tariff																					
Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor		1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)		4.44																			
Levillised Tariff (Fixed)		2.70																			
Applicable Tariff (FY2018-19)	Rs/kWh	7.13																			
Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount		90%																			
Book Depreciation rate		5.28%																			
Tax Depreciation rate		40%																			
Additional depreciation		20.00%																			
Income Tax (Normal Rates)		29.12%																			
Capital Cost		559.033																			
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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%
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
Accelerated Depreciation																					
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	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
Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	44.54	48.38	14.20	5.08	-0.39	-3.67	-5.64	-6.82	-7.53	-7.96	-8.21	-8.37	-8.46	-8.51	-8.55	-8.57	-8.58	-4.68	0.01	0.00
Net Energy generation	MU	2.54	6.31	6.31	6.31	6.31	6.31	6.31	6.31	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	1.76	0.77	0.22	0.08	-0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.11 (Rs/kWh)																				

CERC RE Tariff Order 2018-19

Annexure 2.5G

Assumption for Biomass Power Project Parameters			Select State	UP		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.033	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.323	
			Total Equity Amount	Rs Lacs	167.710	
		<u>Debt Component</u>	Loan Amount	Rs Lacs	391.323	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
		<u>Equity Component</u>	Interest Rate	%	9.97%	
			Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	29.120%	
			<u>Depreciation</u>	Depreciation Rate (power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1	
			Maintenance Spare (% of O&M expenses)		15%	
			Receivables for Debtors	Months	2	
			<u>For Variable Charges</u>	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period	Kcal/kwh	4125	
			During Stabilization Period	Kcal/kwh	4125	
		<u>Biomass</u>	Base Price	Rs/T	3069.00	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.5H

Assumption for Biomass Power Project Parameters			Select State	Others		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	559.033	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	391.323	
			Total Equity Amout	Rs Lacs	167.710	
			Debt Component		Loan Amount	Rs Lacs
				Moratorium Period	years	0
				Repayment Period(inclcd Moratorium)	years	13
				Interest Rate	%	9.97%
		Equity Component		Equity amount	Rs Lacs	167.710
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
		Depreciation	Depreciation Rate(power plant)	%	5.280%	
			Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
		Maintenance Spare	(% of O&M exepenses)		15%	
		Receivables for Debtors		Months	2	
		For Variable Charges	Biomass Stock	Months	4	
		Interest On Working Capital		%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3226.70	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)		Rs Lacs	42.29	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.6A

Assumption for Biomass Power Project Parameters		Select State	AP		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.308
			Total Equity Amount	Rs Lacs	180.132
		Debt Component	Loan Amount	Rs Lacs	420.308
			Moratorium Period	years	0
			Repayment Period(incl Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	180.132
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate(power plant)	%	5.28%	
			Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		Receivables for Debtors	Months	2	
		For Variable Charges			
		Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3016.88
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Annexure 2.6B

Assumption for Biomass Power Project Parameters		Select State	Harayana			
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period(incl Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh	4125				
Biomass	Base Price	Rs/T			3433.91	
	GCV - Biomass	Kcal/kg			3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	O & M Expenses Escalation	Rs Lacs	42.29	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Power Projects																						
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gross Generation	MU		5.70	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	
Auxiliary Consumption	MU		0.74	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Net Generation	MU		4.96	6.17	6.17	6.17	6.17	6.17	6.17	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
Biomass Cost	Rs Lakh		260.36	336.46	353.28	370.95	389.49	408.97	429.42	450.89	473.43	497.10	521.96	548.06	575.46	604.23	634.44	666.17	699.47	734.45	771.17	809.73
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		42.29	44.71	47.27	49.97	52.83	55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68
Depreciation	Rs Lakh		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70
Interest on term loan	Rs Lakh		40.29	37.07	33.85	30.62	27.40	24.18	20.95	17.73	14.51	11.28	8.06	4.84	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.37	22.67	23.66	24.71	25.81	26.98	28.20	29.49	30.85	32.28	33.79	35.38	36.80	38.59	40.50	42.50	44.61	46.83	49.16	51.61
Return on Equity	Rs Lakh		31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63	31.63
Total Fixed Cost	Rs Lakh		164.28	167.78	168.10	168.63	169.37	170.33	171.53	172.97	174.68	176.66	178.94	181.52	170.79	175.69	182.58	189.86	197.54	205.65	214.21	223.24
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.48	5.25	5.45	5.72	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
O&M expn	Rs/kWh	1.06	0.85	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.87	1.97
Depreciation	Rs/kWh	0.48	0.64	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	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.35	0.81	0.60	0.55	0.50	0.44	0.39	0.34	0.29	0.24	0.18	0.13	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.49	0.37	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	0.84
RoE	Rs/kWh	0.53	0.64	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
Total COG	Rs/kWh	10.38	8.57	8.17	8.45	8.74	9.06	9.39	9.74	10.11	10.50	10.92	11.36	11.82	12.09	12.64	13.24	13.87	14.54	15.23	15.97	16.74
Levillised Tariff	Unit	Year →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190
Variable Cost (FY2018-19)	5.25	Rs/kWh																				
Levillised Tariff (Fixed)	2.90	Rs/kWh																				
Applicable Tariff (FY2018-19)	8.16	Rs/kWh																				
Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional depreciation	20.00%																					
Income Tax (Normal Rates)	29.12%																					
Capital Cost	600.440																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	15.85	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	17.29	0.00	0.00
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	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
Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.19	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	0.01
Tax Benefit	Rs Lakh	47.84	51.96	15.25	5.46	-0.42	-3.94	-6.06	-7.33	-8.09	-8.55	-8.82	-8.99	-9.08	-9.14	-9.18	-9.20	-9.21	-5.02	0.01	0.01	0.00
Net Energy generation	MU	2.48	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	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	1.93	0.84	0.25	0.09	-0.01	-0.06	-0.10	-0.12	-0.13	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit	0.12	(Rs/kWh)																				

		Select State	Maharashtra		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF (Stabilization for 6 months)	%	60%
			PLF (during first year after Stabilization)	%	70%
			PLF (second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.308
			Total Equity Amount	Rs Lacs	180.132
		Debt Component	Loan Amount	Rs Lacs	420.308
			Moratorium Period	years	0
			Repayment Period (incl'd Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	180.132
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate (power plant)	%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	3512.09
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

		Select State	Punjab		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF (Stabilization for 6 months)	%	60%
			PLF (during first year after Stabilization)	%	70%
			PLF (second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.308
			Total Equity Amount	Rs Lacs	180.132
		Debt Component	Loan Amount	Rs Lacs	420.308
			Moratorium Period	years	0
			Repayment Period (incl. Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	180.132
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate (power plant)	%	5.28%	
			Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	10.97%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	3591.59
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

		Select State	Rajasthan		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF (Stabilization for 6 months)	%	60%
			PLF (during first year after Stabilization)	%	70%
			PLF (second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.308
			Total Equity Amount	Rs Lacs	180.132
		Debt Component	Loan Amount	Rs Lacs	420.308
			Moratorium Period	years	0
			Repayment Period (inclcd Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	180.132
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
		Depreciation	Depreciation Rate (power plant)	%	5.28%
			Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	10.97%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	2997.33
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Annexure 2.6F

Assumption for Biomass Power Project Parameters		Select State	TN		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.308
			Total Equity Amout	Rs Lacs	180.132
		Debt Component	Loan Amount	Rs Lacs	420.308
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	180.132
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate(power plant)	%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	2967.35
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

		Select State	UP			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stabilization for 6 months)	%	60%	
			PLF(during first year after Stabilization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
			Debt Component	Loan Amount	Rs Lacs	420.308
				Moratorium Period	years	0
				Repayment Period(incl. Moratorium)	years	13
				Interest Rate	%	9.97%
			Equity Component	Equity amount	Rs Lacs	180.132
				Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.15%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.051%
			5	Working Capital	For Fixed Charges	O&M Charges
Maintenance Spare	(% of O&M exepenses)	15%				
Receivables for Debtors	Months	2				
For Variable Charges	Biomass Stock	Months				4
	Interest On Working Capital	%				10.97%
6	Fuel Related Assumptions	Heat Rate				After Stabilisation period
			During Stabilization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3069.00	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.6H

Assumption for Biomass Power Project Parameters			Select State	Others		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stabilization for 6 months)	%	60%	
			PLF (during first year after Stabilization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.308	
			Total Equity Amount	Rs Lacs	180.132	
		Debt Component	Loan Amount	Rs Lacs	420.308	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
			Equity amount	Rs Lacs	180.132	
			Return on Equity for Project Life	% p.a	17.56%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate (power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		Receivables for Debtors	Months	2		
		For Variable Charges				
		Biomass Stock	Months	4		
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stabilization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3226.70	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.7A

		Select State	AP			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.560	
			Total Equity Amout	Rs Lacs	183.240	
		Debt Component	Loan Amount	Rs Lacs	427.560	
			Moratorium Period	years	0	
			Repayment Period(incl'd Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	183.240	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3016.88	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018 -19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.7B

		Select State	Harayana			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.560	
			Total Equity Amout	Rs Lacs	183.240	
		Debt Component	Loan Amount	Rs Lacs	427.560	
			Moratorium Period	years	0	
			Repayment Period(incl'd Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	183.240	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3433.91	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018 -19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.7C

		Select State	Maharashtra		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.560
			Total Equity Amout	Rs Lacs	183.240
		Debt Component	Loan Amount	Rs Lacs	427.560
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	183.240
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate(power plant)	%
					Depreciation Rate 14th year onwards
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	3512.09
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018 -19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Annexure 2.7D

Assumption for Biomass Power Project Parameters			Select State	Punjab		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.560	
			Total Equity Amout	Rs Lacs	183.240	
			Debt Component	Loan Amount	Rs Lacs	427.560
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
			Equity Component	Equity amount	Rs Lacs	183.240
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.280%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3591.59	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018 -19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

				Select State	Annexure 2.7E Rajasthan			
Assumption for Biomass Power Project Parameters								
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions			
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1			
			Auxillary Consumption during stabilisation	%	11%			
			Auxillary Consumption after stabilisation	%	10%			
			PLF(Stablization for 6 months)	%	60%			
			PLF(during first year after Stablization)	%	70%			
			PLF(second year onwards)	%	80%			
			Useful Life	Years	20			
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80			
3	Financial Assumptions	Debt: Equity	Debt	%	70%			
			Equity	%	30%			
			Total Debt Amount	Rs Lacs	427.560			
			Total Equity Amout	Rs Lacs	183.240			
			Debt Component			Loan Amount	Rs Lacs	427.560
					Moratorium Period	years	0	
					Repayment Period(incld Moratorium)	years	13	
					Interest Rate	%	9.97%	
		Equity Component			Equity amount	Rs Lacs	183.240	
					Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%			
			Depreciation			Depreciation Rate(power plant)	%	5.280%
					Depreciation Rate 14th year onwards	%	3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1			
			Maintenance Spare	(% of O&M exepenses)	15%			
			Receivables for Debtors	Months	2			
			For Variable Charges			Biomass Stock	Months	4
						Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125			
			During Stablization Period	Kcal/kwh	4125			
		Biomass	Base Price	Rs/T	2997.33			
			GCV - Biomass	Kcal/kg	3100			
			Biomass Price Escalation Factor		5.00%			
7	Operation & Maintenance	O&M Expenses (2018 -19)		Rs Lacs	42.29			
		O & M Expenses Escalation		%	5.72%			
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766			

CERC RE Tariff Order 2018-19

Annexure 2.7F

		Select State	TN			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.560	
			Total Equity Amout	Rs Lacs	183.240	
			Debt Component	Loan Amount	Rs Lacs	427.560
		Moratorium Period		years	0	
		Repayment Period(incld Moratorium)		years	13	
		Interest Rate		%	9.97%	
		Equity Component		Equity amount	Rs Lacs	183.240
			Return on Equity for Project Life	% p.a	17.56%	
Discount Rate (equiv. to WACC)	%		9.15%			
4	Financial Assumptions		Fiscal Assumptions	Income Tax	%	29.120%
				Depreciation	Depreciation Rate(power plant)	%
		Depreciation Rate 14th year onwards	%		3.051%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			For Variable Charges			
			Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2967.35	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018 -19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.7G

		Select State	UP		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.560
			Total Equity Amout	Rs Lacs	183.240
			Debt Component	Loan Amount	Rs Lacs
		Moratorium Period		years	0
		Repayment Period(incld Moratorium)		years	13
		Interest Rate		%	9.97%
		Equity Component		Equity amount	Rs Lacs
			Return on Equity for Project Life	% p.a	17.56%
	Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate(power plant)	%
				Depreciation Rate 14th year onwards	%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
			Receivables for Debtors	Months	2
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3069.00
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2018 -19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Annexure 2.7H

Assumption for Biomass Power Project Parameters			Select State	Others	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	11%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.560
			Total Equity Amout	Rs Lacs	183.240
		Debt Component	Loan Amount	Rs Lacs	427.560
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	183.240
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation	Depreciation Rate(power plant)	%
					Depreciation Rate 14th year onwards
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	3226.70
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018 -19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Annexure 2.8A					
			Select State	AP	
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF (Stablization for 6 months)	%	60%
			PLF (during first year after Stablization)	%	70%
			PLF (second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20
		3	Financial Assumptions	Debt: Equity	Debt
Equity	%				30%
Total Debt Amount	Rs Lacs				456.54
Total Equity Amout	Rs Lacs			195.66	
Debt Component	Loan Amount			Rs Lacs	456.54
	Moratorium Period			years	0
	Repayment Period (inclcd Moratorium)			years	13
	Interest Rate			%	9.97%
Equity Component	Equity amount			Rs Lacs	195.66
	Return on Equity for Project Life			% p.a	17.56%
	Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
			Depreciation	Depreciation Rate (power plant)	%
		Depreciation Rate 14th year onwards		%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare (% of O&M exepenses)		15%
		Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	3016.88
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Annexure 2.8B

		Select State	Harayana			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	195.66	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		Receivables for Debtors	Months	2		
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3433.91	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.8C

		Select State	Maharashtra			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	195.66	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		Receivables for Debtors	Months	2		
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3512.09	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.8D

		Select State	Punjab		
Assumption for Biomass Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	13%
			Auxillary Consumption after stabilisation	%	12%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	456.54
			Total Equity Amout	Rs Lacs	195.66
		Debt Component	Loan Amount	Rs Lacs	456.54
			Moratorium Period	years	0
			Repayment Period(inclnd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
		Depreciation	Depreciation Rate(power plant)	%	5.28%
			Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
			Receivables for Debtors	Months	2
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3591.59
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy				
		Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Annexure 2.8E

		Select State	Rajasthan			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
			Debt Component		Loan Amount	Rs Lacs
				Moratorium Period	years	0
				Repayment Period(inclnd Moratorium)	years	13
				Interest Rate	%	9.97%
		Equity Component		Equity amount	Rs Lacs	195.66
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2997.33	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2018-19)	Rs Lacs	42.29	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.8F

		Select State	TN			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(inclnd Moratorium)	years	13	
		Equity Component	Interest Rate	%	9.97%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
			Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2967.35	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.8G

		Select State	UP			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
			2	Project Cost	Capital Cost/MW	Power Plant Cost
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(inclcd Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	195.66	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		For Variable Charges	Receivables for Debtors	Months	2	
			Biomass Stock	Months	4	
		Interest On Working Capital	%	10.97%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4125	
Biomass	Base Price			Rs/T	3069.00	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Annexure 2.8H

		Select State	Others			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/M	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	195.66	
			Return on Equity for Project Life	% p.a	17.56%	
Discount Rate (equiv. to WACC)	%	9.15%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare (% of O&M exepenses)		15%	
		Receivables for Debtors	Months	2		
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3226.70	
			GCV - Biomass	Kcal/kg	3100	
Biomass Price Escalation Factor		5.00%				
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs Lacs	42.29		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

					Annexure 3A	
					Select State	
					AP	
Non Fossil Fuel based co-generation Projects						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	8.50%	
			Auxillary Consumption after stabilisation	%	8.50%	
			PLF(Stablization for 6 months)	%	45%	
			PLF(during first year after Stablization)	%	45%	
			PLF(second year onwards)	%	45%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	344.750	
			Total Equity Amout	Rs Lacs	147.750	
		Debt Component	Loan Amount	Rs Lacs	344.75	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	147.75	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600	
			During Stablization Period	Kcal/kwh	3600	
		Biomass	Bagasse Price	Rs/T	1703.27	
			GCV - Bagasse	Kcal/kg	2250	
			Bagasse Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)		Rs. Lacs	22.34	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

					Annexure 3B
					Harayana
					Select State
Non Fossil Fuel based co-generation Projects					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	8.50%
			Auxillary Consumption after stabilisation	%	8.50%
			PLF(Stablization for 6 months)	%	53%
			PLF(during first year after Stablization)	%	53%
			PLF(second year onwards)	%	53%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	344.750
			Total Equity Amout	Rs Lacs	147.750
		Debt Component	Loan Amount	Rs Lacs	344.75
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	147.75
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate(power plant)	%	5.28%	
			Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital	O&M Charges	Months	1
			(% of O&M exepenses)		15%
			Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600
			During Stablization Period	Kcal/kwh	3600
		Biomass	Bagasse Price	Rs/T	2422.62
			GCV - Bagasse	Kcal/kg	2250
			Bagasse Price Escalation Factor	%	5.00%
7	Operation & Maintenance	O&M Expenses (2018-19) O & M Expenses Escalation		Rs. Lacs	22.34
				%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

					Annexure 3C	
					Select State	
					Maharashtra	
Non Fossil Fuel based co-generation Projects						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	8.50%	
			Auxillary Consumption after stabilisation	%	8.50%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	60%	
			PLF(second year onwards)	%	60%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	344.750	
			Total Equity Amount	Rs Lacs	147.750	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	344.75
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
			<u>Equity Component</u>	Equity amount	Rs Lacs	147.75
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.15%		
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	29.120%	
			<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.28%
			Depreciation Rate 14th year onwards	%	3.05%	
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			<u>For Variable Charges</u>	Biomass Stock	Months	4
			Interest On Working Capital	%	10.97%	
6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period	Kcal/kwh	3600	
			During Stablization Period	Kcal/kwh	3600	
		<u>Biomass</u>	Bagasse Price	Rs/T	2387.44	
			GCV - Bagasse	Kcal/kg	2250	
			Bagasse Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	O & M Expenses Escalation	Rs. Lacs	22.34	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

					Annexure 3D	
				Select State	Punjab	
Non Fossil Fuel based co-generation Projects						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	8.50%	
			Auxillary Consumption after stabilisation	%	8.50%	
			PLF(Stablization for 6 months)	%	53%	
			PLF(during first year after Stablization)	%	53%	
			PLF(second year onwards)	%	53%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	344.750	
			Total Equity Amount	Rs Lacs	147.750	
		Debt Component	Loan Amount	Rs Lacs	344.75	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	147.75	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital	(% of O&M exepenses)	O&M Charges	Months	1
				Maintenance Spare		15%
				Receivables for Debtors	Months	2
				Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600	
			During Stablization Period	Kcal/kwh	3600	
		Biomass	Bagasse Price	Rs/T	2132.01	
			GCV - Bagasse	Kcal/kg	2250	
			Bagasse Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19) O & M Expenses Escalation	O&M Expenses (2018-19)	Rs. Lacs	22.34	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

					Annexure 3E	
					Select State	
					TN	
Non Fossil Fuel based co-generation Projects						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	8.50%	
			Auxillary Consumption after stabilisation	%	8.50%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	60%	
			PLF(second year onwards)	%	60%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	344.750	
			Total Equity Amout	Rs Lacs	147.750	
		Debt Component	Loan Amount	Rs Lacs	344.75	
			Moratorium Period	years	0	
			Repayment Period(incl'd Moratorium)	years	13	
		Interest Rate		%	9.97%	
Equity Component	Equity amount	Rs Lacs	147.75			
	Return on Equity for Project Life	% p.a	17.56%			
	Discount Rate (equiv. to WACC)	%	9.15%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months	1	
				Months	15%	
				Months	2	
				Months	4	
				%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600	
			During Stablization Period	Kcal/kwh	3600	
		Biomass	Bagasse Price	Rs/T	1834.89	
			GCV - Bagasse	Kcal/kg	2250	
			Bagasse Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19) O & M Expenses Escalation		Rs. Lacs	22.34	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

					Annexure 3F	
					UP	
					Select State	
Non Fossil Fuel based co-generation Projects						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	8.50%	
			Auxillary Consumption after stabilisation	%	8.50%	
			PLF(Stablization for 6 months)	%	45%	
			PLF(during first year after Stablization)	%	45%	
			PLF(second year onwards)	%	45%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	344.750	
			Total Equity Amout	Rs Lacs	147.750	
		Debt Component	Loan Amount	Rs Lacs	344.75	
			Moratorium Period	years	0	
			Repayment Period(inclد Moratorium)	years	13	
			Interest Rate	%	9.97%	
		Equity Component	Equity amount	Rs Lacs	147.75	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%	
			Depreciation	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months	1	
				Months	15%	
				Months	2	
				Months	4	
				%	10.97%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600	
			During Stablization Period	Kcal/kwh	3600	
		Biomass	Bagasse Price	Rs/T	1900.05	
			GCV - Bagasse	Kcal/kg	2250	
			Bagasse Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19) O & M Expenses Escalation	Rs. Lacs	22.34		
			%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

					Annexure 3G
				Select State	Others
Non Fossil Fuel based co-generation Projects					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	8.50%
			Auxillary Consumption after stabilisation	%	8.50%
			PLF(Stablization for 6 months)	%	53%
			PLF(during first year after Stablization)	%	53%
			PLF(second year onwards)	%	53%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	344.750
			Total Equity Amout	Rs Lacs	147.750
		Debt Component	Loan Amount	Rs Lacs	344.75
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	9.97%
		Equity Component	Equity amount	Rs Lacs	147.75
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.15%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.120%
			Depreciation		
		Depreciation Rate(power plant)	%	5.28%	
			Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	10.97%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				3600
Biomass	Bagasse Price			Rs/T	2062.95
	GCV - Bagasse			Kcal/kg	2250
	Bagasse Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2018-19)	Rs. Lacs	22.34	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

				Select State	Annexure 4A AP
Assumption for Biomass Gasifier Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stabilization for 6 months)	%	85%
			PLF(during first year after Stabilization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.016
			Total Equity Amount	Rs Lacs	132.864
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
6	Fuel Related Assumptions	For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest On Working Capital	%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3016.88
7	Operation & Maintenance	O & M Expenses (2018-19)			
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

				Select State	Annexure 4B Harayana		
Assumption for Biomass Gasifier Power Project Parameters							
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions		
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1		
			Auxiliary Consumption during stabilisation	%	10%		
			Auxiliary Consumption after stabilisation	%	10%		
			PLF(Stabilization for 6 months)	%	85%		
			PLF(during first year after Stabilization)	%	85%		
			PLF(second year onwards)	%	85%		
			Useful Life	Years	20		
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880		
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88		
3	Financial Assumptions	Debt: Equity	Debt	%	70%		
			Equity	%	30%		
			Total Debt Amount	Rs Lacs	310.016		
			Total Equity Amount	Rs Lacs	132.864		
		Debt Component	Loan Amount	Rs Lacs	310.02		
			Moratorium Period	years	0		
			Repayment Period(incl'd Moratorium)	years	13		
			Interest Rate	%	9.97%		
		Equity Component	Equity amount	Rs Lacs	132.86		
			Return on Equity for Project Useful Life	% p.a	17.56%		
			Discount Rate (equiv. to WACC)		9.15%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%		
		Depreciation	Depreciation Rate(power plant)	%	5.28%		
			Depreciation Rate 14th year onwards	%	3.05%		
5	Working Capital	For Fixed Charges	O&M Charges	Months	1		
			Maintenance Spare	(% of O&M exepenses)	15%		
		For Variable Charges	Receivables for Debtors	Months	2		
			Biomass Stock	Months	4		
		6	Fuel Related Assumptions	Interest On Working Capital		%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25		
			Base Price	Rs/T	3433.91		
			Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O & M Expenses (2018-19)		Rs Lacs	55.85		
		O & M Expenses Escalation		%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766		

CERC RE Tariff Order 2018-19

				Select State	Annexure 4C Maharashtra
Assumption for Biomass Gasifier Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stabilization for 6 months)	%	85%
			PLF(during first year after Stabilization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.016
			Total Equity Amount	Rs Lacs	132.864
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
6	Fuel Related Assumptions	For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest On Working Capital	%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3512.09
7	Operation & Maintenance	O & M Expenses (2018-19)	Biomass Price Escalation Factor		5.00%
			O & M Expenses Escalation	Rs Lacs	55.85
8	Generation and Sale Of Energy	Total No. of Hours		%	5.72%
				Hrs	8766

CERC RE Tariff Order 2018-19

				Select State	Annexure 4D Punjab
Assumption for Biomass Gasifier Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stabilization for 6 months)	%	85%
			PLF(during first year after Stabilization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.016
			Total Equity Amount	Rs Lacs	132.864
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
6	Fuel Related Assumptions	For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest On Working Capital	%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3591.59
7	Operation & Maintenance	O & M Expenses (2018-19)	Biomass Price Escalation Factor		5.00%
			O & M Expenses Escalation	Rs Lacs	55.85
8	Generation and Sale Of Energy	Total No. of Hours		%	5.72%
				Hrs	8766

CERC RE Tariff Order 2018-19

				Annexure 4E	
Select State				Rajasthan	
Assumption for Biomass Gasifier Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stabilization for 6 months)	%	85%
			PLF(during first year after Stabilization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.016
			Total Equity Amount	Rs Lacs	132.864
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
6	Fuel Related Assumptions	For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest On Working Capital	%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	2997.33
7	Operation & Maintenance	O & M Expenses (2018-19)	Biomass Price Escalation Factor		5.00%
			O & M Expenses Escalation	Rs Lacs	55.85
8	Generation and Sale Of Energy	Total No. of Hours		%	5.72%
				Hrs	8766

CERC RE Tariff Order 2018-19

				Annexure 4F	
Select State				TN	
Assumption for Biomass Gasifier Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stabilization for 6 months)	%	85%
			PLF(during first year after Stabilization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.016
			Total Equity Amount	Rs Lacs	132.864
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
6	Fuel Related Assumptions	For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest On Working Capital	%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	2967.35
7	Operation & Maintenance	O & M Expenses (2018-19)	Biomass Price Escalation Factor		5.00%
			O & M Expenses Escalation	Rs Lacs	55.85
8	Generation and Sale Of Energy	Total No. of Hours		%	5.72%
				Hrs	8766

CERC RE Tariff Order 2018-19

				Annexure 4G	
Select State				UP	
Assumption for Biomass Gasifier Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stabilization for 6 months)	%	85%
			PLF(during first year after Stabilization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.016
			Total Equity Amount	Rs Lacs	132.864
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
6	Fuel Related Assumptions	For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest On Working Capital	%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3069.00
7	Operation & Maintenance	O & M Expenses (2018-19)	Biomass Price Escalation Factor		5.00%
			O & M Expenses Escalation	Rs Lacs	55.85
8	Generation and Sale Of Energy	Total No. of Hours		%	5.72%
				Hrs	8766

CERC RE Tariff Order 2018-19

				Annexure 4H	
Select State				Others	
Assumption for Biomass Gasifier Power Project Parameters					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilisation	%	10%
			Auxiliary Consumption after stabilisation	%	10%
			PLF(Stabilization for 6 months)	%	85%
			PLF(during first year after Stabilization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.880
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.016
			Total Equity Amount	Rs Lacs	132.864
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	9.97%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	29.12%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
6	Fuel Related Assumptions	For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest On Working Capital	%	10.97%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3226.70
7	Operation & Maintenance	O & M Expenses (2018-19)			
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2018-19

Determination of Tariff Component: Biomass Gasifier Power Projects																						
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45	7.45
Auxiliary Consumption	MU		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
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
Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Biomass Cost	Rs Lakh		300.53	315.56	331.34	347.90	365.30	383.56	402.74	422.88	444.02	466.22	489.53	514.01	539.71	566.70	595.03	624.78	656.02	688.82	723.26	759.43
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	128.64	136.00	143.78	152.00	160.70
Depreciation	Rs Lakh		23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	16.85	16.85	16.85	16.85	16.85	16.85	16.85
Interest on term loan	Rs Lakh		29.72	27.34	24.96	22.59	20.21	17.83	15.45	13.08	10.70	8.32	5.94	3.57	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		20.71	21.65	22.64	23.68	24.77	25.93	27.14	28.43	29.77	31.19	32.69	34.26	35.91	37.56	39.43	41.41	43.48	45.66	47.95	50.36
Return on Equity	Rs Lakh		23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33
Total Fixed Cost	Rs Lakh		152.99	154.75	156.74	158.97	161.46	164.23	167.29	170.65	174.34	178.36	182.75	187.52	192.68	192.83	201.30	210.23	219.66	229.62	240.14	251.24
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.45	4.48	4.71	4.94	5.19	5.45	5.72	6.01	6.31	6.62	6.95	7.30	7.66	8.05	8.45	8.87	9.32	9.78	10.27	10.79	11.32
O&M expn	Rs/kWh	1.27	0.83	0.88	0.93	0.98	1.04	1.10	1.16	1.23	1.30	1.37	1.45	1.54	1.62	1.72	1.81	1.92	2.03	2.14	2.27	2.40
Depreciation	Rs/kWh	0.33	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Int. on term loan	Rs/kWh	0.22	0.44	0.41	0.37	0.34	0.30	0.27	0.23	0.20	0.16	0.12	0.09	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.43	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.65	0.68	0.72	0.75
RoE	Rs/kWh	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Total COG	Rs/kWh	9.06	6.76	7.01	7.28	7.56	7.86	8.17	8.50	8.85	9.22	9.61	10.03	10.46	10.92	11.33	11.87	12.45	13.06	13.70	14.37	15.07
Levillised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.92	0.84	0.77	0.70	0.65	0.59	0.54	0.50	0.45	0.42	0.38	0.35	0.32	0.29	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)	4.48 Rs/Kwh																					
Levillised Tariff (Fixed)	2.61 Rs/Kwh																					
Applicable Tariff (FY2018-19)	7.09 Rs/Kwh																					
Determination of Accelerated Depreciation for Biomass Gasifier Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		40%																				
Additional Depreciation		20.00%																				
Income Tax (Normal Rates)		29.120%																				
Capital Cost		442.88																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%
Book Depreciation	Rs Lakh	11.69	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	12.75	0.00	0.00
Accelerated Depreciation																						
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%
Allowed during the year	%	30%	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%
Closing	%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	132.86	155.01	62.00	37.20	22.32	13.39	8.04	4.82	2.89	1.74	1.04	0.62	0.37	0.22	0.13	0.08	0.05	0.03	0.03	0.02	0.01
Net Depreciation Benefit	Rs Lakh	121.17	131.62	38.62	13.82	-1.06	-9.99	-15.35	-18.56	-20.49	-21.65	-22.34	-22.76	-23.01	-23.16	-23.25	-23.30	-23.34	-23.34	-12.73	0.02	0.01
Tax Benefit	Rs Lakh	35.29	38.33	11.25	4.02	-0.31	-2.91	-4.47	-5.41	-5.97	-6.30	-6.51	-6.63	-6.70	-6.74	-6.77	-6.79	-6.80	-6.80	-3.71	0.01	0.00
Net 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
Per unit benefit	Rs/Unit	1.05	0.57	0.17	0.06	0.00	-0.04	-0.07	-0.08	-0.09	-0.09	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.06	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.67	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.33	0.31	0.28	0.26	0.24	0.22	0.20	0.18
Levillised benefit	0.08 (Rs/kWh)																					

CERC RE Tariff Order 2018-19

Assumption for Biogas Based Power Project Parameters					Annexure 5A	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	12%	
			PLF	%	90%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)	Rs Lacs/MW	1185.76	
			Power Plant Cost (after subsidy)	Rs Lacs/MW	885.76	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	620.032	
			Total Equity Amout	Rs Lacs	265.728	
		<u>Debt Component</u>	Loan Amount	Rs Lacs	620.03	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	9.97%	
		<u>Equity Component</u>	Equity amount	Rs Lacs	265.73	
			Return on Equity for Project Useful Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.15%	
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	29.120%	
			<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.28%
				Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			<u>For Variable Charges</u>	Biomass Stock	Months	4
				Interest On Working Capital	%	10.97%
6	Fuel Related Assumptions	<u>Biomass</u>	Fuel Price	Rs/T	1290.16	
			Specific Fuel Consumption	kg/kWh	3	
			Substrates Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2018-19)	Total O & M Expenses Escalation	Rs Lacs	55.85	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2018-19

Determination of Accelerated Depreciation for Biogas based Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional depreciation	20.00%
Income Tax (Normal Rates)	29.120%
Capital Cost	885.760

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
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%		
Book Depreciation	Rs Lakh	23.38	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	25.51	0.00	0.00

Accelerated Depreciation

Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.01%	0.00%
Allowed during the year	%	30%	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%
Closing	%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	265.73	310.02	124.01	74.40	44.64	26.79	16.07	9.64	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	0.00	0.00
Net Depreciation Benefit	Rs Lakh	242.34	263.25	77.24	27.64	-2.13	-19.98	-30.70	-37.13	-40.98	-43.30	-44.69	-45.52	-46.02	-46.32	-46.50	-46.61	-46.67	-25.45	0.03	0.02	0.01	0.01	0.01
Tax Benefit	Rs Lakh	70.57	76.66	22.49	8.05	-0.62	-5.82	-8.94	-10.81	-11.93	-12.61	-13.01	-13.25	-13.40	-13.49	-13.54	-13.57	-13.59	-7.41	0.01	0.01	0.01	0.01	0.01
Net 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
Per unit benefit	Rs/Unit	2.03	1.10	0.32	0.12	-0.01	-0.08	-0.13	-0.16	-0.17	-0.18	-0.19	-0.19	-0.19	-0.19	-0.20	-0.20	-0.20	-0.11	0.00	0.00	0.00	0.00	0.00
Discounting Factor		3.60	3.42	3.08	2.78	2.51	2.26	2.04	1.83	1.65	1.49	1.34	1.21	1.09	0.98	0.89	0.80	0.72	0.65	0.59	0.53	0.48	0.43	0.38

Tax Benefit Levellised	12.50
Electricity Generation (Levellised)	6.57

Levellised benefit 0.19 (Rs/kWh)**Determination of Tariff Component: Biogas Based Power Projects**

Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89	7.89
Auxiliary Consumption	MU		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
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

Variable Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Biomass Cost	Rs Lakh		305.36	320.63	336.66	353.49	371.16	389.72	409.21	429.67	451.15	473.71	497.40	522.27	548.38	575.80	604.59	634.82	666.56	699.89	734.88	771.62

Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		55.85	59.04	62.42	65.99	69.77	73.76	77.98	82.44	87.15	92.14	97.41	102.98	108.87	115.10	121.68	128.64	136.00	143.78	152.00	160.70
Depreciation	Rs Lakh		46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	46.77	27.03	27.03	27.03	27.03	27.03	27.03	27.03
Interest on term loan	Rs Lakh		59.44	54.68	49.93	45.17	40.42	35.66	30.91	26.15	21.40	16.64	11.89	7.13	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.40	23.31	24.27	25.28	26.35	27.48	28.66	29.92	31.24	32.64	34.11	35.66	37.29	38.99	40.79	42.69	44.69	46.90	49.23	51.67
Return on Equity	Rs Lakh		46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66	46.66
Total Fixed Cost	Rs Lakh		231.12	230.46	230.04	229.87	229.96	230.32	230.97	231.93	233.21	234.84	236.82	239.19	241.96	227.47	235.95	244.92	254.38	264.36	274.91	286.05

Levellised Tariff	Unit	Year ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.916	0.839	0.769	0.705	0.646	0.591	0.542	0.496	0.455	0.417	0.382	0.350	0.321	0.294	0.269	0.247	0.226	0.207	0.190

Variable Cost (FY2018-19)	4.40	Rs/Kwh
Levellised Tariff (Fixed)	3.40	Rs/Kwh
Applicable Tariff (FY2018-19)	7.79	Rs/Kwh

