

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 05/SM/2017 (Suo-Motu)

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

Date of Order: 18.04.2017

IN THE MATTER OF

Determination of levelled generic tariff for FY 2017-18 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 has 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 generic tariff of the following categories of Renewable Energy (RE) generating stations:

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

2. As per Regulation 7 of the RE Tariff Regulations, the Commission shall only

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 proposes to determine the generic tariff of the RE projects mentioned in the para 1 above for the first year of control period (i.e. FY 2017-18) as per the proposal enclosed as **Annexure-I**.
4. Comments / suggestions of the stakeholders on the above proposal are invited by 28th April 2017. A public hearing on the above proposal will be held on 5th May 2017.

Sd/-
[M. K. Iyer]
MEMBER

Sd/-
[A. S. Bakshi]
MEMBER

Sd/-
[A. K. Singhal]
MEMBER

Sd/-
[Gireesh B. Pradhan]
CHAIRPERSON

New Delhi
18th April 2017

PROPOSED LEVELLISED GENERIC TARIFF FOR VARIOUS RENEWABLE ENERGY TECHNOLOGIES FOR FY 2017-18

1. The proposed levelled generic tariffs for Small Hydro projects, Biomass with Rankine Cycle, Non-fossil fuel based co-generation, Biomass Gasifier and Biogas based projects, for FY 2017-18 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 proviso 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 proposed in Regulation 6 of the RE Tariff Regulations.

TARIFF STRUCTURE

4. Regulation 9 of the RE Tariff 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. Regulation 10 of the RE Tariff Regulations outlines the principles for tariff design for RE generating stations 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.*
 - 4) *The above principles shall also apply for project specific tariff."*

LEVELLISED TARIFF

6. Levellised Tariff is calculated by carrying out levellisation 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 Regulations, 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) proposed 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 10.66 %. 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 9.08 % $((10.66 \% \times 0.70 \times (1 - 34.61 \%)) + (14.0\% \times 0.30))$ (Income tax rate @ 34.61% (30% IT rate+ 12% surcharge +3% Education cess).

CAPITAL COST

8. Regulation 12 of the RE Tariff Regulations stipulates that the norms for the capital cost as proposed 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 up to inter-connection point. The Commission has proposed the normative capital cost, applicable for the first year of control period i.e. FY 2017-18, 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 proposed for first year

of control period will remain valid for the entire 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

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 proposed the normative capital cost for small hydro projects for first year of Control Period (FY 2017-18) 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 proposed the normative capital cost for the biomass power projects for first year of Control Period (FY 2017-18) as under:

Biomass Rankine Cycle Projects	Capital Cost (FY 2017-18) (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 proposed the normative capital cost for the Non-Fossil Fuel Based Cogeneration Projects as Rs.492.5 lakhs/MW for high boiler pressure projects for the first year of Control Period (i.e. FY 2017-18), and will remain valid for the entire 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 proposed the normative capital cost for the Biomass Gasifier power projects based on Rankine cycle to be Rs. 592.88 lakhs/MW for FY 2017-18 (first year of Control Period). 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 2017-18.

(E) Capital Cost of Biogas based Power Projects

16. The Commission under Regulation 70 has proposed the normative capital cost for Biogas based power projects to be Rs. 1185.76 lakhs/MW for FY 2017-18 (first year of Control Period). 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 first year (i.e. FY 2017-18) 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 2017-18 (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 2016) 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 Tariff Regulations provides that the loan tenure of 13 years is to be considered for the purpose of determination of tariff for RE projects.

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.

¹ Average of MAT rate, as on 1st April 2016, 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

Month	Tenor-wise MCLR Rates (Source: SBI Monthly Press Releases)
Sept 2016	9.10
Oct. 2016	9.05
Nov. 2016	8.90
Dec. 2016	8.90
Jan. 2017	8.00
Feb. 2017	8.00
Avg. for last Available 6 months	8.66

23. In terms of the above, interest rate for loan component has been determined as 10.66%.

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 11.66%). The interest on working capital has been worked out as specified below:

Details	Small Hydro	Biomass, Non-fossil fuel cogeneration 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 (%)	11.66%	11.66%

CALCULATION OF CAPACITY UTILIZATION FACTOR (CUF)/PLANT LOAD

FACTOR (PLF)

28. Regulation 18 of the RE Tariff Regulations, as defined below, proposes 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 proposed 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 proposed 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.

Region	Project Size	O&M expenses (Rs. lakhs/MW)
Himachal Pradesh, Uttarakhand, West Bengal and North Eastern States	Below 5 MW	36
	5 MW to 25 MW	27
Other States	Below 5 MW	29
	5 MW to 25 MW	21

(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 Lakhs per MW, which shall be escalated at the rate of 5.72% per annum over the tariff period.

(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 proposed as Rs. 21.13 Lakhs per MW which shall be escalated at the rate of 5.72% per annum over the tariff period.

(d) Biomass Gasifier: Regulation 66 of the RE Tariff Regulations proposed normative O&M expenses for Biomass Gasifier power projects to be 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.

(e) Biogas: Regulation 73 of the RE Tariff Regulations proposed normative O&M expenses for biogas to be 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.

CAPACITY UTILISATION FACTOR (CUF)

31. Regulation 29 of the RE Tariff Regulations proposed 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 proposed 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 stabilization)	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 proposed 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) proposed 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

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 Regulation 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.

(a) Calorific value

Regulation 41 of the RE Tariff Regulations provides that the calorific value of biomass fuel used for determination of tariff shall be 3100 kCal/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 shall be 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 proposed the Biomass fuel price during first year of the Control Period (i.e. FY 2017-18) 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 (Rs. /Tonne)
Andhra Pradesh	2873.22
Haryana	3270.39
Maharashtra	3344.85
Punjab	3420.56
Rajasthan	2854.60
Tamil Nadu	2826.05
Uttar Pradesh	2922.86
Other States	3073.05

42. The Commission, as per Regulation 49 of the RE Tariff Regulations, has proposed the price of Bagasse during first year of the Control Period (i.e. FY 2017-18) 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 (Rs. /Tonne)
Andhra Pradesh	1622.16
Haryana	2307.26
Maharashtra	2273.75
Punjab	2030.49
Tamil Nadu	1747.51
Uttar Pradesh	1809.57
Other States	1964.71

43. As per Regulation 68 of the RE Tariff Regulations, the biomass fuel price for Biomass gasifier based power projects applicable for FY 2017-18 shall be the same as for biomass based power projects (Rankine cycle), as determined in accordance with Regulation 42 and proposed in Clause 41 of this Order.

44. The Commission, as per Regulation 75 of the RE Tariff Regulations, has proposed the feed stock price for Biogas based power projects during first year of the Control Period (FY 2017-18) at Rs. 1228.72/MT (net of any cost recovery from digester effluent). 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 2017-18. This variable component shall be escalated at 5% to arrive at the base price for subsequent years of the Control Period, 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. 2017-18) is proposed.

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 34.61% (30% IT rate + 12% surcharge + 3% Education cess) has been considered. For the purpose of determining net depreciation benefits, depreciation @ 5.28% as per straight line method (Book depreciation as per Companies Act, 1956) has been compared with

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

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). Accelerated depreciation benefit has been computed as per existing provisions of Income Tax Act. Income tax benefits of accelerated depreciation and additional depreciation have been worked out as per normal tax rate on the net depreciation benefit. Per unit levelled accelerated depreciation benefit has been computed considering the post-tax weighted average cost of capital as discount factor.
49. In the light of the discussion made in the preceding paragraphs, the generic tariffs of different RE projects for the financial year 2017-18 have been arrived at and are proposed as under:

Generic Tariff for RE Technologies for FY 2017-18

Particular	Levelled Total Tariff (FY 2017-18) (Rs./kWh)
Small Hydro Power Project	
HP, Uttarakhand, WB and NE States (Below 5MW)	5.07
HP, Uttarakhand, WB and NE States (5MW to 25 MW)	4.29
Other States (Below 5 MW)	6.00
Other States (5 MW to 25 MW)	5.04

State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kW)	(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	2.68	4.37	7.06	0.13	6.93
Haryana	2.73	4.98	7.71	0.13	7.58
Maharashtra	2.74	5.09	7.84	0.13	7.70
Punjab	2.75	5.21	7.96	0.13	7.83
Rajasthan	2.68	4.35	7.03	0.13	6.89
Tamil Nadu	2.68	4.30	6.98	0.13	6.85
UP	2.69	4.45	7.14	0.13	7.01
Others	2.71	4.68	7.39	0.13	7.26

State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kW)	(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	2.83	4.47	7.31	0.15	7.16
Haryana	2.89	5.09	7.98	0.15	7.83
Maharashtra	2.90	5.21	8.11	0.15	7.96
Punjab	2.91	5.33	8.23	0.15	8.09
Rajasthan	2.83	4.45	7.28	0.15	7.13
Tamil Nadu	2.83	4.40	7.23	0.15	7.08
UP	2.84	4.55	7.39	0.15	7.25
Others	2.86	4.79	7.65	0.15	7.50

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State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kW)	(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	2.79	4.37	7.17	0.14	7.02
Haryana	2.85	4.98	7.82	0.14	7.68
Maharashtra	2.86	5.09	7.95	0.14	7.80
Punjab	2.87	5.21	8.07	0.14	7.93
Rajasthan	2.79	4.35	7.14	0.14	6.99
Tamil Nadu	2.79	4.30	7.09	0.14	6.95
UP	2.80	4.45	7.25	0.14	7.11
Others	2.82	4.68	7.50	0.14	7.35

State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	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	2.95	4.47	7.43	0.16	7.27
Haryana	3.01	5.09	8.10	0.16	7.94
Maharashtra	3.02	5.21	8.23	0.16	8.07
Punjab	3.03	5.33	8.35	0.16	8.20
Rajasthan	2.95	4.45	7.40	0.16	7.24
Tamil Nadu	2.95	4.40	7.35	0.16	7.19
UP	2.96	4.55	7.51	0.16	7.36
Others	2.98	4.79	7.77	0.16	7.61

State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs./kW)	(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	2.68	4.30	6.97	0.13	6.84
Haryana	2.73	4.89	7.62	0.13	7.48
Maharashtra	2.74	5.00	7.74	0.13	7.61
Punjab	2.75	5.11	7.86	0.13	7.73
Rajasthan	2.67	4.27	6.94	0.13	6.81
Tamil Nadu	2.67	4.23	6.90	0.13	6.76
UP	2.68	4.37	7.05	0.13	6.92
Others	2.70	4.59	7.30	0.13	7.16

State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	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	2.83	4.39	7.22	0.15	7.08
Haryana	2.88	5.00	7.88	0.15	7.74
Maharashtra	2.89	5.12	8.00	0.15	7.86
Punjab	2.90	5.23	8.13	0.15	7.98
Rajasthan	2.82	4.37	7.19	0.15	7.05
Tamil Nadu	2.82	4.32	7.14	0.15	7.00
UP	2.83	4.47	7.30	0.15	7.16
Others	2.85	4.70	7.55	0.15	7.41

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State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	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	2.79	4.30	7.08	0.14	6.94
Haryana	2.84	4.89	7.73	0.14	7.58
Maharashtra	2.85	5.00	7.85	0.14	7.70
Punjab	2.86	5.11	7.97	0.14	7.83
Rajasthan	2.79	4.27	7.05	0.14	6.91
Tamil Nadu	2.78	4.23	7.01	0.14	6.86
UP	2.79	4.37	7.16	0.14	7.02
Others	2.81	4.59	7.41	0.14	7.26

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State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	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	2.95	4.39	7.34	0.16	7.18
Haryana	3.00	5.00	8.00	0.16	7.84
Maharashtra	3.01	5.12	8.13	0.16	7.97
Punjab	3.02	5.23	8.25	0.16	8.09
Rajasthan	2.95	4.37	7.31	0.16	7.15
Tamil Nadu	2.94	4.32	7.26	0.16	7.11
UP	2.95	4.47	7.43	0.16	7.27
Others	2.97	4.70	7.67	0.16	7.52

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State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	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	3.11	2.84	5.95	0.20	5.75
Haryana	2.78	4.03	6.82	0.17	6.65
Maharashtra	2.49	3.98	6.47	0.15	6.32
Punjab	2.74	3.55	6.29	0.17	6.12
Tamil Nadu	2.41	3.06	5.47	0.15	5.32
UP	3.14	3.16	6.31	0.20	6.10
Others	2.73	3.44	6.17	0.17	6.00

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State	Levelling Fixed Cost	Variable Cost (FY 2017-18)	Applicable Tariff Rate (FY 2017-18)	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	2.54	3.99	6.53	0.10	6.43
Haryana	2.58	4.54	7.13	0.10	7.03
Maharashtra	2.59	4.65	7.24	0.10	7.14
Punjab	2.60	4.75	7.35	0.10	7.25
Rajasthan	2.54	3.96	6.50	0.10	6.4
Tamil Nadu	2.53	3.93	6.46	0.10	6.36
UP	2.54	4.06	6.60	0.10	6.50
Others	2.56	4.27	6.83	0.10	6.73
Biogas based Generation					
Biogas	3.37	4.19	7.56	0.23	7.33

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>

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	<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>

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	<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>

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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>

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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(incl'd Moratorium)	years	13
			Intrest Rate	%	10.66%
Equity Component					
			Equity amount	Rs Lacs	300.00
			Return on Equity for first Project Life	% p.a	17.56%
			Discount Rate		9.08%
4	Financial Assumptions	Depreciation	Income Tax	%	34.610%
5	Working Capital		Depreciation Rate for first 13 years	%	5.28%
			Depreciation Rate 14th year onwards	%	0.97%
		For Fixed Charges			
		O&M Charges	Months	1	
Maintenance Spare	(% of O&M exepenses)		15%		
Receivables for Debtors	Months		2		
Intrest On Working Capital	%		11.66%		
6	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	36.00	
		Total O & M Expenses Escalation	%	5.72%	
7	Generation and Sale Of Energy	Total No. of Hours	Hrs	8766	

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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	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	900.00
3	Sources of Fund		Tariff Period	Years	35
			<u>Debt: Equity</u>		
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	630.000
			Total Equity Amout	Rs Lacs	270.000
			<u>Debt Component</u>		
			Loan Amount	Rs Lacs	630.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
Intrest Rate	%	10.66%			
	<u>Equity Component</u>				
	Equity amount	Rs Lacs	270.00		
	Return on Equity for first Project Life	% p.a	17.56%		
	Discount Rate		9.08%		
4	Financial Assumptions	<u>Depreciation</u>	Income Tax	%	34.610%
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 exepenses)	15%			
Receivables for Debtors	Months	2			
Intrest On Working Capital	%	11.66%			
6	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	27.00	
		<u>Total O & M Expenses Escalation</u>	%	5.72%	
7	Generation and Sale Of Energy	Total No. of Hours	Hrs	8766	

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Determination of Tariff Component:																																					
Units Generation			1	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																																					
O&M Expenses	Rs Lakh		27.00	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	58.83	62.19	65.75	69.51	73.48	77.69	82.13	86.83	91.80	97.05	102.60	108.47	114.67	121.23	128.16	135.49	143.24	151.44	160.10	169.26	178.94
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		64.58	59.41	54.24	49.08	43.91	38.75	33.58	28.41	23.25	18.08	12.92	7.75	2.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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		4.45	4.42	4.39	4.37	4.36	4.36	4.34	4.34	4.35	4.36	4.38	4.40	4.44	4.76	3.91	4.07	4.24	4.42	4.61	4.81	5.02	5.24	5.48	5.73	5.99	6.27	6.57	6.88	7.21	7.56	7.93	8.32	8.73	9.16	9.62
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		190.95	187.30	183.74	180.28	176.92	173.67	170.54	167.53	164.65	161.91	159.31	156.86	154.58	115.55	118.88	122.40	126.13	130.07	134.24	138.64	143.29	148.21	153.42	158.92	164.73	170.88	177.38	184.25	191.52	199.20	207.31	215.90	224.97	234.57	244.71
Levilled tariff corresponding to Useful life																																					
Per Unit Cost of Generation			1	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	1.31	0.69	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	2.49	2.63	2.78	2.94	3.10	3.28	3.47	3.67	3.88	4.10	4.33	4.58
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	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	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
Int. on term loan	Rs/kWh	0.72	1.65	1.52	1.39	1.26	1.12	0.99	0.86	0.73	0.60	0.46	0.33	0.20	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.13	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
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	1.21
Total COG	Rs/kWh	4.29	4.89	4.80	4.70	4.62	4.53	4.45	4.37	4.29	4.22	4.15	4.08	4.02	3.96	2.96	3.04	3.13	3.23	3.33	3.44	3.55	3.67	3.80	3.93	4.07	4.22	4.38	4.54	4.72	4.90	5.10	5.31	5.53	5.76	6.01	6.27
Discount Factor			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	0.176	0.161	0.148	0.135	0.124	0.114	0.104	0.096	0.088	0.080	0.074	0.068	0.062	0.057	0.052
Levilled Tariff	4.29	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)		34.61%																																				
Capital Cost		900.0																																				
Years			1	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		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	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
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		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	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	0.00	0.00	0.00	0.00	0.00	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		85.22	92.57	27.16	9.72	-0.75	-7.03	-10.79	-13.06	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	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		4.36	2.37	0.70	0.25	-0.02	-0.18	-0.28	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	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		15.64																																				
Electricity Generation (Levilled)		3.74																																				
Levilled benefit	0.42	Rs/Unit																																				

CERC RE Tariff Order 2017-18

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 Amout	Rs Lacs	233.700
		<u>Debt Component</u>	Loan Amount	Rs Lacs	545.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Intrest Rate	%	10.66%
		<u>Equity Component</u>	Equity amount	Rs Lacs	233.70
			Return on Equity for first Project Life	% p.a	17.56%
			Discount Rate		9.08%
4	Financial Assumptions		Income Tax	%	34.610%
		<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>			
		O&M Charges		Months	1
		Maintenance Spare	(% of O&M exepenses)		15%
		Receivables for Debtors		Months	2
		Intrest On Working Capital		%	11.66%
6	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	29.00
		Total O & M Expenses Escalation		%	5.72%
7	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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	2.60	2.60		
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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35				
O&M Expenses	Rs Lakh		29.00	30.66	32.41	34.27	36.23	38.30	40.49	42.81	45.25	47.84	50.58	53.47	56.53	59.76	63.18	66.80	70.62	74.66	78.93	83.44	88.21	93.26	98.60	104.23	110.20	116.50	123.16	130.21	137.66	145.53	153.86	162.66	171.96	181.80	192.19				
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	41.13	41.13	41.13	
Interest on term loan	Rs Lakh		55.89	51.42	46.95	42.48	38.01	33.54	29.06	24.59	20.12	15.65	11.18	6.71	2.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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		4.12	4.11	4.10	4.10	4.10	4.11	4.13	4.15	4.18	4.21	4.26	4.30	4.36	4.41	4.46	4.51	4.56	4.61	4.66	4.71	4.76	4.81	4.86	4.91	4.96	5.01	5.06	5.11	5.16	5.21	5.26	5.31	5.36	5.41	5.46	5.51	5.56	5.61	
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	41.03	41.03	41.03	41.03
Total Fixed Cost	Rs Lakh		171.17	168.35	165.63	163.01	160.50	158.11	155.85	153.71	151.72	149.87	148.18	146.65	145.29	142.77	141.57	140.51	139.58	138.77	138.06	137.45	136.92	136.47	136.09	135.77	135.50	135.27	135.08	134.92	134.79	134.69	134.61	134.55	134.51	134.48	134.46	134.45	134.44	134.44	134.44
Levelised tariff corresponding to Useful life																																									
Per Unit Cost of Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35				
O&M expn	Rs/kWh	2.10	1.11	1.18	1.24	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	3.20	3.39	3.58	3.79	4.00	4.23	4.47	4.73	5.00	5.29	5.59	5.91	6.25	6.60	6.98	7.38				
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	1.58	1.58		
Int. on term loan	Rs/kWh	0.94	2.15	1.98	1.80	1.63	1.46	1.29	1.12	0.94	0.77	0.60	0.43	0.26	0.09	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	0.00	0.00		
Int. on working capital	Rs/kWh	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.15	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.37	0.39					
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	1.58			
Total COG	Rs/kWh	6.00	6.57	6.47	6.36	6.26	6.16	6.07	5.98	5.90	5.83	5.76	5.69	5.63	5.58	5.53	5.48	5.43	5.39	5.35	5.31	5.28	5.25	5.22	5.19	5.16	5.13	5.10	5.08	5.06	5.04	5.02	5.01	5.00	5.00	5.00	5.00	5.00	5.00		
Discount Factor			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	0.176	0.161	0.148	0.135	0.124	0.114	0.104	0.096	0.088	0.080	0.074	0.068	0.062	0.057	0.052				
Levelised Tariff	6.00	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)	34.61%																																					
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%	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	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	22.44	0.00	0.00	0.00	0.00	0.00	0.00	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 Deprn.	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	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	0.02	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	73.77	80.13	23.51	8.41	-0.65	-6.08	-9.34	-11.30	0.00	0.01	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	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	2.60	2.60
Per unit benefit	Rs/Unit	5.67	3.08	0.90	0.32	-0.02	-0.23	-0.36	-0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.68	0.62	0.57	0.52	0.48																											

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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		Tariff Period	Years	35
		<u>Debt: Equity</u>			
			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'd Moratorium)	years	13
			Intrest Rate	%	10.66%
		<u>Equity Component</u>			
			Equity amount	Rs Lacs	212.10
			Return on Equity for first Project Life	% p.a	17.56%
			Discount Rate		9.08%
4	Financial Assumptions		Income Tax	%	34.610%
		<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>			
		O&M Charges		Months	1
		Maintenance Spare	(% of O&M exepenses)		15%
		Receivables for Debtors		Months	2
		Intrest On Working Capital		%	11.66%
6	Operation & Maintenance				
		O&M Expenses (2017-18)		Rs Lacs	21.00
		<u>Total O & M Expenses Escalation</u>		%	5.72%
7	Generation and Sale Of Energy				
		Total No. of Hours		Hrs	8766

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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	1	1	
Net Generation	MU		2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60

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		21.00	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	117.79	124.52	131.65	139.18			
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	37.33	37.33
Interest on term loan	Rs Lakh		50.73	46.67	42.61	38.55	34.49	30.44	26.38	22.32	18.26	14.20	10.15	6.09	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		3.48	3.46	3.44	3.42	3.41	3.40	3.40	3.39	3.40	3.41	3.42	3.44	3.47	2.93	3.05	3.17	3.31	3.45	3.59	3.75	3.91	4.09	4.27	4.46	4.67	4.89	5.12	5.36	5.62	5.89	6.17	6.48	6.80	7.14	7.49			
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	37.24	37.24
Total Fixed Cost	Rs Lakh		149.78	146.90	144.09	141.36	138.71	136.14	133.66	131.28	129.00	126.82	124.76	122.82	121.00	90.31	92.91	95.65	98.55	101.61	104.85	108.28	111.90	115.72	119.77	124.05	128.57	133.35	138.41	143.75	149.40	155.37	161.69	168.37	175.42	182.88	190.77			

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	RskWh	1.52	0.81	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	3.07	3.24	3.43	3.62	3.83	4.05	4.28	4.52	4.78	5.06	5.35	
Depreciation	RskWh	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	0.26	0.26
Int. on term loan	RskWh	0.85	1.95	1.79	1.64	1.48	1.32	1.17	1.01	0.86	0.70	0.55	0.39	0.23	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	RskWh	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	0.11	0.12	0.12	0.13	0.13	0.14	0.14	0.15	0.16	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.29	
RoE	RskWh	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	1.43	1.43
Total COG	RskWh	5.04	5.75	5.64	5.53	5.43	5.33	5.23	5.13	5.04	4.95	4.87	4.79	4.72	4.65	3.47	3.57	3.67	3.79	3.90	4.03	4.16	4.30	4.44	4.60	4.76	4.94	5.12	5.32	5.52	5.74	5.97	6.21	6.47	6.74	7.02	7.33	

Discount Factor																																							
	Unit	1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	0.176	0.161	0.148	0.135	0.124	0.114	0.104	0.096	0.088	0.080	0.074	0.068	0.062	0.057	0.052			
Levelised Tariff	5.04 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)		34.61%																																					
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%	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		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	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
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%	
Accelerated Depm.	Rs Lakh		212.10	247.45	98.98	59.39	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	0.01	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	
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	0.00	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		66.95	72.72	21.34	7.63	-0.59	-5.52	-8.48	-10.26	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	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	2.60	
Per unit benefit	Rs/Unit		5.14	2.79	0.82	0.29	-0.02	-0.21	-0.33	-0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	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 Levelised			12.28																																				
Electricity Generation (Levelised)			2.49																																				
Levelised benefit	0.49 Rs/Unit																																						

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		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	559.033	
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(inclld Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	2873.22	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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																							
Biomass Cost		Rs Lakh		221.80	286.64	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
Fixed Cost																							
O&M Expenses		Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		17.05	20.95	21.86	22.81	23.81	24.87	25.99	27.16	28.40	29.71	31.08	32.53	34.06	35.45	37.20	39.05	40.98	43.02	45.16	47.41
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		156.13	159.11	159.22	159.52	160.02	160.73	161.66	162.82	164.23	165.89	167.83	170.06	172.60	164.39	170.86	177.68	184.89	192.50	200.53	209.01
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	6.24	4.37	4.54	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.56	8.99	9.44	9.91	10.41	10.93
O&M expn		Rs/kWh	0.98	0.79	0.67	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	0.27
Int. on term loan		Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.39	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	8.92	7.45	7.06	7.29	7.53	7.79	8.07	8.36	8.67	8.99	9.34	9.70	10.09	10.50	10.76	11.27	11.81	12.37	12.96	13.59	14.24
Levillised Tariff																							
Discount Factor		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable Cost (FY2017-18)																							
Levillised Tariff (Fixed)				1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Applicable Tariff (FY2017-18)				7.06 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)	34.61%																					
Capital Cost	559.033																					
Years ----->																						
Book Depreciation	%	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	Rs Lakh	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%
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levillised benefit	0.13 (Rs/kWh)																					

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Annexure 2.1B						
			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	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	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3270.39	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		0.63	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	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	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		252.47	326.26	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	
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		18.88	23.31	24.33	25.41	26.54	27.74	29.00	30.32	31.72	33.19	34.74	36.37	38.09	39.88	41.64	43.71	45.88	48.16	50.56	53.08	
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		157.95	161.46	161.69	162.12	162.75	163.59	164.66	165.98	167.54	169.37	171.49	173.90	176.63	168.62	175.30	182.35	189.79	197.64	205.93	214.68	
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	Rsk/Wh	7.10	4.98	5.17	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	
O&M expn	Rsk/Wh	0.98	0.79	0.67	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	Rsk/Wh	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	Rsk/Wh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	Rsk/Wh	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	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84	
RoE	Rsk/Wh	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	Rsk/Wh	9.83	8.09	7.73	7.99	8.27	8.56	8.88	9.21	9.56	9.93	10.32	10.74	11.18	11.64	11.95	12.52	13.12	13.75	14.42	15.11	15.84	
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)	4.98	Rs/Kwh																					
Levillised Tariff (Fixed)	2.73	Rs/Kwh																					
Applicable Tariff (FY2017-18)	7.71	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)	34.61%																					
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%	
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	-29.46	-16.06	0.02	0.01
Tax Benefit	Rs Lakh	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.13	(Rs/kWh)																				

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					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/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(inclد Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	3344.85	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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																						
Biomass Cost	Rs Lakh	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		258.21	333.69	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
Fixed Cost																						
O&M Expenses	Rs Lakh	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Depreciation	Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
Interest on term loan	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 working Capital	Rs Lakh		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Lakh		19.22	23.75	24.79	25.89	27.05	28.27	29.56	30.91	32.34	33.84	35.42	37.09	38.84	40.47	42.48	44.59	46.80	49.13	51.57	54.14
Total Fixed Cost	Rs Lakh		158.29	161.90	162.16	162.60	163.26	164.13	165.23	166.57	168.16	170.03	172.17	174.62	177.38	169.41	176.13	183.22	190.71	198.61	206.94	215.74
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	7.26	5.09	5.29	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
O&M exn	Rs/kWh	0.98	0.79	0.67	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	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.38	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.64	0.67	0.71	0.74	0.78	0.82	0.86
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	10.00	8.21	7.85	8.12	8.41	8.71	9.03	9.37	9.72	10.10	10.51	10.93	11.38	11.85	12.18	12.76	13.37	14.01	14.69	15.40	16.14
Levillised Tariff																						
Discount Factor	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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	Rs/Kwh		5.09																			
Levillised Tariff (Fixed)	Rs/Kwh		2.74																			
Applicable Tariff (FY2017-18)	Rs/Kwh		7.84																			

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)		34.61%																				
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%	5.28%	5.28%	
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	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%	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%
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		52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.16	-10.18	-10.19	-10.19	-5.56	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		2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.13	(Rs/kWh)																				

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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/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 (incl'd Moratorium)	years	13
		Equity Component	Interest Rate	%	10.66%
			Equity amount	Rs Lacs	167.710
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	3420.56
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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																						
Biomass Cost	Rs Lakh	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			264.06	341.24	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
Fixed Cost																						
O&M Expenses	Rs Lakh	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	17.06	17.06	17.06	17.06	17.06	17.06	17.06
Interest on term loan	Rs Lakh		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.57	24.20	25.27	26.39	27.57	28.82	30.13	31.52	32.97	34.51	36.12	37.82	39.61	41.28	43.32	45.47	47.73	50.11	52.60	55.22
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		158.64	162.35	162.63	163.10	163.78	164.67	165.80	167.17	168.79	170.69	172.87	175.35	178.15	170.22	176.98	184.11	191.64	199.59	207.97	216.82
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	7.42	5.21	5.41	5.68	5.96	6.26	6.57	6.90	7.25	7.61	7.99	8.39	8.81	9.25	9.71	10.20	10.70	11.24	11.80	12.39	13.01
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.51	0.39	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.65	0.69	0.72	0.76	0.79	0.83	0.87
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	10.18	8.34	7.98	8.25	8.55	8.85	9.18	9.53	9.89	10.28	10.69	11.13	11.59	12.07	12.41	13.00	13.62	14.28	14.96	15.69	16.45
Levillised Tariff																						
Discount Factor	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	Rs/kWh		5.21																			
Levillised Tariff (Fixed)	Rs/kWh		2.75																			
Applicable Tariff (FY2017-18)	Rs/kWh		7.96																			
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)		34.61%																				
Capital Cost		559.033																				
Years																						
Book Depreciation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	Rs Lakh	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%	
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%	0.01%	
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%	
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.13 (Rs/kWh)																					

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Annexure 2.1E

		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	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(inclد Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	2854.60	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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			220.37	284.78	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

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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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			40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			16.97	20.84	21.74	22.69	23.69	24.74	25.85	27.02	28.25	29.55	30.91	32.35	33.87	35.25	36.99	38.83	40.75	42.78	44.91	47.14	
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			156.04	159.00	159.10	159.40	159.89	160.59	161.52	162.67	164.07	165.73	167.66	169.88	172.41	164.19	170.65	177.47	184.66	192.26	200.28	208.74	

Levilled tariff corresponding to Useful life																								
Per Unit Cost of Generation		Unit	Levilled	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh			6.20	4.35	4.51	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
O&M expn	Rs/kWh			0.98	0.79	0.67	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	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh			0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.38	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
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			8.88	7.42	7.03	7.26	7.50	7.76	8.03	8.32	8.62	8.95	9.29	9.66	10.04	10.45	10.70	11.21	11.75	12.31	12.90	13.52	14.17

Levilled 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.35	Rs/kWh
Levilled Tariff (Fixed)	2.68	Rs/kWh
Applicable Tariff (FY2017-18)	7.03	Rs/kWh

Determination of Accelerated Depreciation for Biomass Power Project																							
Years	Unit	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)		34.61%																					
Capital Cost		559.033																					
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%	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%	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%	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	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	0.00
Tax Benefit	Rs Lakh	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	0.01	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	6.31
Per unit benefit	Rs/Unit	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.18	0.16
Levilled benefit	0.13	(Rs/kWh)																					

CERC RE Tariff Order 2017-18

Annexure 2.1F

		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/M	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	%	10.66%
		Equity Component	Equity amount	Rs Lacs	167.710
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	2826.05
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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		0.63	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	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	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		218.16	281.93	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.84	20.67	21.56	22.50	23.49	24.53	25.63	26.79	28.01	29.30	30.65	32.08	33.58	34.95	36.68	38.49	40.40	42.41	44.52	46.74	
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		155.91	158.83	158.93	159.21	159.70	160.39	161.30	162.44	163.83	165.48	167.40	169.61	172.12	163.88	170.33	177.13	184.31	191.89	199.89	208.33	

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	6.13	4.30	4.47	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
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.27
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.42	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	8.81	7.38	6.98	7.21	7.45	7.70	7.97	8.26	8.56	8.88	9.22	9.58	9.96	10.37	10.62	11.12	11.65	12.21	12.79	13.41	14.05

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.30	Rs/kWh
Levillised Tariff (Fixed)	2.68	Rs/kWh
Applicable Tariff (FY2017-18)	6.98	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)	34.61%
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

	%	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																					
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.13	(Rs/kWh)
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Annexure 2.1G

		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	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(incld Moratorium)	years	13
				Interest Rate	%	10.66%
		Equity Component		Equity amount	Rs Lacs	167.710
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	2922.86	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	40.00	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		0.63	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	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	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		225.64	291.59	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.28	21.25	22.17	23.13	24.16	25.23	26.36	27.56	28.82	30.14	31.54	33.01	34.56	35.98	37.76	39.63	41.60	43.66	45.84	48.12	
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		156.35	159.40	159.53	159.85	160.36	161.09	162.03	163.21	164.64	166.33	168.29	170.54	173.10	164.91	171.41	178.27	185.50	193.14	201.21	209.72	

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	6.34	4.45	4.62	4.85	5.09	5.35	5.62	5.90	6.19	6.50	6.83	7.17	7.53	7.90	8.30	8.71	9.15	9.60	10.08	10.59	11.12
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.45	0.34	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.73	0.76
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	9.03	7.53	7.15	7.38	7.63	7.89	8.17	8.46	8.78	9.11	9.46	9.83	10.23	10.64	10.91	11.43	11.97	12.54	13.15	13.78	14.44

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.45	Rs/kWh
Levillised Tariff (Fixed)	2.69	Rs/kWh
Applicable Tariff (FY2017-18)	7.14	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)	34.61%
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	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 Depn.	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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.13	(Rs/kWh)
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Annexure 2.1H						
			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	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 (incl. Moratorium)	years	13
				Interest Rate	%	10.66%
			Equity Component	Equity amount	Rs Lacs	167.710
				Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.08%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh	4200				
Biomass	Base Price	Rs/T				3073.05
	GCV - Biomass	Kcal/kg				3100
	Biomass Price Escalation Factor					5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		237.23	306.58	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	17.06	17.06	17.06	17.06	17.06	17.06	17.06
Interest on term loan	Rs Lakh		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.97	22.14	23.10	24.12	25.19	26.31	27.50	28.75	30.07	31.46	32.92	34.46	36.08	37.58	39.44	41.39	43.45	45.61	47.88	50.26
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		157.04	160.29	160.46	160.83	161.39	162.17	163.17	164.41	165.89	167.64	169.67	171.99	174.62	166.51	173.09	180.03	187.36	195.09	203.25	211.86

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	6.67	4.68	4.86	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
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.47	0.35	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	0.62	0.66	0.69	0.72	0.76	0.80
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	9.38	7.77	7.40	7.64	7.90	8.18	8.47	8.78	9.11	9.46	9.83	10.22	10.64	11.07	11.36	11.90	12.47	13.07	13.69	14.35	15.05

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.68	Rs/kWh																				
Levillised Tariff (Fixed)	2.71	Rs/kWh																				
Applicable Tariff (FY2017-18)	7.39	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)	34.61%																					
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%
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.18	-10.19	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit	0.13	(Rs/kWh)																				

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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 (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	420.310	
			Total Equity Amount	Rs Lacs	180.133	
		Debt Component	Loan Amount	Rs Lacs	420.310	
			Moratorium Period	years	0	
			Repayment Period (incl. Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	180.133	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stabilization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	2873.22	
			GCV - Biomass	Kcal/kg	3100	
		Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		221.80	286.64	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.20	21.09	21.99	22.94	23.94	25.00	26.11	27.28	28.51	29.81	31.18	32.63	33.88	35.52	37.27	39.11	41.05	43.09	45.23	47.48
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		163.61	166.35	166.22	166.28	166.53	167.00	167.69	168.61	169.77	171.19	172.89	174.88	163.53	167.90	174.37	181.20	188.40	196.01	204.04	212.52

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	4.47	4.64	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
O&M expn	Rs/kWh	1.00	0.81	0.89	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.35	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	0.60	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	9.21	7.77	7.34	7.57	7.82	8.08	8.35	8.65	8.96	9.29	9.64	10.01	10.40	10.59	11.06	11.58	12.13	12.71	13.32	13.95	14.62

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.47	Rs/kWh
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Levillised Tariff (Fixed)	2.83	Rs/kWh
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Applicable Tariff (FY2017-18)	7.31	Rs/kWh
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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)	34.61%
Capital Cost	600.443

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%	
Opening	%																					
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.15	(Rs/kWh)
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Annexure 2.2B

		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	600.44		
3	Financial Assumptions	Debt: Equity	Debt	%	70%		
			Equity	%	30%		
			Total Debt Amount	Rs Lacs	420.310		
			Total Equity Amount	Rs Lacs	180.133		
			Debt Component			Loan Amount	Rs Lacs
					Moratorium Period	years	0
					Repayment Period(incl Moratorium)	years	13
					Interest Rate	%	10.66%
		Equity Component			Equity amount	Rs Lacs	180.133
					Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%		
		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	%	11.66%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
During Stablization Period	Kcal/kwh				4200		
Biomass	Base Price			Rs/T	3270.39		
	GCV - Biomass			Kcal/kg	3100		
	Biomass Price Escalation Factor			%	5.00%		
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	40.00		
		O & M Expenses Escalation		%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766		

CERC RE Tariff Order 2017-18

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		252.47	326.26	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.02	23.45	24.47	25.54	26.67	27.86	29.11	30.43	31.83	33.29	34.84	36.46	37.91	39.75	41.71	43.78	45.95	48.23	50.63	53.15
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		165.43	168.70	168.69	168.87	169.26	169.86	170.69	171.76	173.09	174.68	176.55	178.72	181.56	185.13	189.81	195.86	203.30	212.16	222.44	234.19

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	7.28	5.09	5.29	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
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.28	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51	0.38	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.61	0.64	0.68	0.71	0.74	0.78	0.82	0.86
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	10.15	8.43	8.02	8.28	8.57	8.86	9.18	9.51	9.87	10.24	10.64	11.06	11.51	11.76	12.28	12.87	13.48	14.12	14.80	15.51	16.26

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	5.09 Rs/kWh
Levillised Tariff (Fixed)	2.89 Rs/kWh
Applicable Tariff (FY2017-18)	7.98 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)	34.61%
Capital Cost	600.443

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	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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.15 (Rs/kWh)
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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 (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	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period (incl. Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a.	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stabilization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3344.85
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		258.21	333.69	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.36	23.89	24.93	26.03	27.18	28.40	29.68	31.03	32.45	33.95	35.52	37.18	38.67	40.54	42.55	44.65	46.87	49.20	51.64	54.21
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		165.78	169.15	169.16	169.36	169.77	170.40	171.26	172.35	173.71	175.33	177.23	179.44	168.31	172.92	179.64	186.74	194.22	202.12	210.46	219.25

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	7.42	5.21	5.41	5.68	5.96	6.26	6.57	6.90	7.25	7.61	7.99	8.39	8.81	9.25	9.71	10.20	10.71	11.24	11.80	12.39	13.01
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.60	0.63	0.66	0.69	0.72	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	10.32	8.55	8.15	8.42	8.71	9.01	9.33	9.68	10.04	10.42	10.83	11.26	11.72	11.98	12.51	13.11	13.73	14.39	15.08	15.80	16.57

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	5.21	Rs/Kwh
Levillised Tariff (Fixed)	2.90	Rs/Kwh
Applicable Tariff (FY2017-18)	8.11	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)	34.61%
Capital Cost	600.443

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%
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.15	(Rs/kWh)
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Annexure 2.2D

		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
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period (incl. Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stabilization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3420.56
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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																							
Biomass Cost	Rs Lakh		264.06	341.24	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	
Fixed Cost																							
O&M Expenses	Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.71	24.34	25.40	26.52	27.70	28.94	30.25	31.63	33.08	34.61	36.22	37.91	39.43	41.35	43.39	45.54	47.80	50.18	52.67	55.29	
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		166.12	169.59	169.63	169.86	170.29	170.95	171.83	172.96	174.34	175.99	177.93	180.17	182.08	183.73	185.49	187.63	189.15	190.90	192.81	194.88	197.12
Levilled tariff corresponding to Useful life																							
Per Unit Cost of Generation																							
Variable COG	Rs/kWh	7.59	5.33	5.53	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	
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86	
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh	0.53	0.40	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.61	0.64	0.67	0.70	0.74	0.77	0.81	0.85	0.90	
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	10.50	8.68	8.28	8.55	8.85	9.16	9.49	9.84	10.21	10.61	11.02	11.46	11.93	12.20	12.75	13.35	13.99	14.66	15.36	16.10	16.88	
Levilled Tariff																							
Discount Factor			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)			5.33																				
Levilled Tariff (Fixed)			2.91																				
Applicable Tariff (FY2017-18)			8.23																				

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)		34.61%																				
Capital Cost		600.443																				
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	31.70	17.29	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	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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levilled benefit	0.15 (Rs/kWh)																					

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Annexure 2.2E

		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
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period(incl. Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	2854.60
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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	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	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	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	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		220.37	284.78	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		
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09		
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	31.70
Interest on term loan	Rs Lakh		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.11	20.98	21.88	22.82	23.81	24.86	25.97	27.13	28.36	29.65	31.01	32.45	33.99	35.32	37.06	38.90	40.82	42.85	44.98	47.21		
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	31.63
Total Fixed Cost	Rs Lakh		163.53	166.24	166.10	166.16	166.41	166.87	167.55	168.46	169.61	171.03	172.72	174.70	176.98	180.98	188.18	195.77	203.79	212.25				
Levilled tariff corresponding to Useful life																								
Par Unit Cost of Generation			Unit	Levilled	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rsk/Wh	6.34	4.45	4.61	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		
O&M expn	Rsk/Wh	1.00	0.81	0.89	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86		
Depreciation	Rsk/Wh	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	0.30	0.30
Int. on term loan	Rsk/Wh	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rsk/Wh	0.45	0.35	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.57	0.60	0.63	0.66	0.69	0.73	0.77		
RoE	Rsk/Wh	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	0.51	0.51
Total COG	Rsk/Wh	9.17	7.74	7.31	7.78	8.04	8.31	8.60	8.91	9.24	9.59	9.96	10.35	10.54	11.00	12.07	12.64	13.25	13.88	14.55				
Levilled 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192		
Variable Cost (FY2017-18)		4.45	Rs/Kwh																					
Levilled Tariff (Fixed)		2.83	Rs/Kwh																					
Applicable Tariff (FY2017-18)		7.28	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)		34.61%																					
Capital Cost		600.443																					
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%	5.28%
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	31.70	31.70	31.70	31.70
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%
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%
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%	0.01%
Accelerated Depn.	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	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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01		
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	6.17
Per unit benefit	Rs/Unit	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00		
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20		
Levilled benefit		0.15	(Rs/kWh)																				

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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 stabilisatio	%	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	420.310	
			Total Equity Amout	Rs Lacs	180.133	
			Debt Component	Loan Amount	Rs Lacs	420.310
				Moratorium Period	years	0
				Repayment Period(incld Moratorium)	years	13
				Interest Rate	%	10.66%
			Equity Component	Equity amount	Rs Lacs	180.133
				Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.08%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh	4200				
Biomass	Base Price	Rs/T			2826.05	
	GCV - Biomass	Kcal/kg			3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

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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		218.16	281.93	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.98	20.81	21.70	22.63	23.62	24.65	25.75	26.90	28.12	29.40	30.75	32.17	33.40	35.01	36.74	38.56	40.47	42.48	44.59	46.81
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		163.39	166.07	165.93	165.97	166.21	166.66	167.33	168.23	169.38	170.78	172.46	174.42	163.05	167.40	173.84	180.64	187.82	195.40	203.40	211.85
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		6.27	4.40	4.57	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
Variable COG	Rs/kWh		1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76
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		0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.57	0.60	0.62	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		9.10	7.70	7.26	7.49	7.73	7.98	8.25	8.54	8.85	9.17	9.52	9.88	10.27	10.46	10.92	11.43	11.97	12.54	13.14	13.77
Total COG	Rs/kWh		9.10	7.70	7.26	7.49	7.73	7.98	8.25	8.54	8.85	9.17	9.52	9.88	10.27	10.46	10.92	11.43	11.97	12.54	13.14	13.77
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)			4.40																			
Levillised Tariff (Fixed)			2.83																			
Applicable Tariff (FY2017-18)			7.23																			

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)		34.61%																				
Capital Cost		600.443																				
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%	
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.15 (Rs/kWh)																					

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Annexure 2.2G

		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	420.310		
			Total Equity Amount	Rs Lacs	180.133		
			Debt Component			Loan Amount	Rs Lacs
					Moratorium Period	years	0
					Repayment Period (incl. Moratorium)	years	13
					Interest Rate	%	10.66%
		Equity Component			Equity amount	Rs Lacs	180.133
					Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%		
		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		%		11.66%		
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200		
			During Stabilization Period	Kcal/kwh	4200		
		Biomass	Base Price	Rs/T	2922.86		
			GCV - Biomass	Kcal/kg	3100		
			Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	40.00		
		O & M Expenses Escalation		%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766		

CERC RE Tariff Order 2017-18

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																							
Biomass Cost	Rs Lakh		225.64	291.59	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	
Fixed Cost																							
O&M Expenses	Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.43	21.39	22.30	23.27	24.28	25.35	26.48	27.67	28.93	30.25	31.64	33.11	34.38	36.05	37.83	39.70	41.66	43.73	45.90	48.19	
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		163.84	166.64	166.53	166.60	166.88	167.36	168.06	169.00	170.18	171.63	173.35	175.36	164.03	168.43	174.92	181.78	189.02	196.66	204.72	213.23	
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	6.49	4.55	4.73	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	
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86	
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.51	0.54	0.56	0.58	0.61	0.64	0.68	0.71	0.74	0.78	
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	9.33	7.86	7.43	7.66	7.91	8.17	8.46	8.75	9.07	9.41	9.76	10.14	10.54	10.74	11.21	11.74	12.30	12.89	13.50	14.15	14.83	
Levillised Tariff																							
Discount Factor	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)		4.55	Rs/kWh																				
Levillised Tariff (Fixed)		2.84	Rs/kWh																				
Applicable Tariff (FY2017-18)		7.39	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)	34.61%																						
Capital Cost	600.443																						
Years ----->																							
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%	
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	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%	0.01%	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%	0.01%	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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	0.01	
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit	0.15	(Rs/kWh)																					

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Annexure 2.2H

		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/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.310	
			Total Equity Amount	Rs Lacs	180.133	
		Debt Component	Loan Amount	Rs Lacs	420.310	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	180.133	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3073.05	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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																						
Biomass Cost	Rs Lakh		237.23	306.58	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
Fixed Cost																						
O&M Expenses	Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.12	22.28	23.24	24.25	25.31	26.44	27.62	28.87	30.18	31.56	33.02	34.56	35.91	37.64	39.51	41.46	43.52	45.68	47.95	50.33
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		164.53	167.53	167.46	167.58	167.91	168.44	169.20	170.19	171.44	172.95	174.73	176.81	165.55	170.03	176.60	183.54	190.87	198.60	206.76	215.37
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	6.82	4.79	4.97	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	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.48	0.37	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.58	0.61	0.64	0.67	0.71	0.74	0.78	0.82
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	9.68	8.10	7.68	7.93	8.19	8.47	8.77	9.08	9.42	9.77	10.14	10.54	10.96	11.18	11.68	12.23	12.81	13.42	14.06	14.74	15.45
Levillised Tariff																						
Discount Factor			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.79																				
Levillised Tariff (Fixed)		2.86																				
Applicable Tariff (FY2017-18)		7.65																				

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)		34.61%																				
Capital Cost		600.443																				
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%	
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.15	(Rs/kWh)																				

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Annexure 2.3A

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	610.80	
		3	Financial Assumptions	Debt: Equity	Debt	%
Equity	%				30%	
Total Debt Amount	Rs Lacs			427.557		
Total Equity Amount	Rs Lacs			183.239		
Debt Component	Loan Amount			Rs Lacs	427.557	
	Moratorium Period			years	0	
	Repayment Period(incld Moratorium)			years	13	
Equity Component	Interest Rate			%	10.66%	
	Equity amount			Rs Lacs	183.239	
	Return on Equity for Project Life			% p.a	17.56%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4200	
Biomass	Base Price			Rs/T	2873.22	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		221.80	286.64	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.24	21.13	22.03	22.97	23.97	25.03	26.14	27.31	28.54	29.84	31.21	32.65	33.90	35.53	37.29	39.13	41.07	43.11	45.25	47.50
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		165.48	168.16	167.97	167.97	168.16	168.57	169.19	170.05	171.16	172.52	174.16	176.08	164.43	168.78	175.25	182.08	189.28	196.89	204.92	213.40
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	6.24	4.37	4.54	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.56	8.99	9.44	9.91	10.41	10.93
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.51
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	9.03	7.64	7.21	7.43	7.67	7.92	8.19	8.48	8.78	9.10	9.44	9.80	10.19	10.37	10.83	11.34	11.88	12.44	13.03	13.66	14.31
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.37 Rs/kWh																				
Levillised Tariff (Fixed)		2.79 Rs/kWh																				
Applicable Tariff (FY2017-18)		7.17 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)		34.61%																			
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%	5.28%	5.28%
Book Depreciation	Rs Lakh	16.12	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
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	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.14 (Rs/kWh)																				

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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	<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	610.80	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.557	
			Total Equity Amount	Rs Lacs	183.239	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	427.557
		Moratorium Period	years	0		
		Repayment Period (incl'd Moratorium)	years	13		
		Interest Rate	%	10.66%		
		<u>Equity Component</u>	Equity amount	Rs Lacs	183.239	
		Return on Equity for Project Life	% p.a	17.56%		
Discount Rate (equiv. to WACC)	%	9.08%				
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%	
			<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	%	11.66%	
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	3270.39	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

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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		252.47	326.26	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.06	23.49	24.50	25.57	26.70	27.89	29.14	30.46	31.85	33.32	34.86	36.49	37.93	39.76	41.73	43.80	45.97	48.25	50.65	53.17
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		167.30	170.51	170.44	170.56	170.89	171.43	172.20	173.21	174.47	176.00	177.81	179.92	168.46	173.01	179.69	186.74	194.18	202.03	210.32	219.07
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	7.10	4.98	5.17	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
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.48	0.50	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84
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	9.94	8.28	7.87	8.13	8.40	8.69	9.00	9.33	9.67	10.04	10.43	10.84	11.27	11.51	12.02	12.59	13.19	13.82	14.49	15.18	15.91
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.98	Rs/kWh																				
Levillised Tariff (Fixed)	2.85	Rs/kWh																				
Applicable Tariff (FY2017-18)	7.82	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)		34.61%																				
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	16.12	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%	0.01%
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	0.01	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levillised benefit	0.14	(Rs/kWh)																				

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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	427.557
			Total Equity Amount	Rs Lacs	183.239
			Loan Amount	Rs Lacs	427.557
		Debt Component	Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3344.85
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766

CERC RE Tariff Order 2017-18

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		258.21	333.69	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.40	23.93	24.96	26.06	27.21	28.43	29.71	31.05	32.47	33.97	35.55	37.21	38.68	40.56	42.56	44.67	46.89	49.21	51.66	54.23
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		167.65	170.96	170.91	171.05	171.40	171.97	172.76	173.80	175.09	176.65	178.50	180.64	169.22	173.80	180.52	187.61	195.10	203.00	211.33	220.13
Levilled tariff corresponding to Useful life	Unit	Levilled	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.26	5.09	5.29	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
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51	0.38	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.61	0.64	0.67	0.71	0.74	0.78	0.82	0.86
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	10.11	8.40	8.00	8.26	8.54	8.84	9.15	9.49	9.84	10.21	10.61	11.03	11.47	11.72	12.25	12.83	13.44	14.08	14.76	15.47	16.21
Levilled 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.09	Rs/Kwh																			
Levilled Tariff (Fixed)		2.86	Rs/Kwh																			
Applicable Tariff (FY2017-18)		7.95	Rs/Kwh																			
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		258.21	333.69	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.40	23.93	24.96	26.06	27.21	28.43	29.71	31.05	32.47	33.97	35.55	37.21	38.68	40.56	42.56	44.67	46.89	49.21	51.66	54.23
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		167.65	170.96	170.91	171.05	171.40	171.97	172.76	173.80	175.09	176.65	178.50	180.64	169.22	173.80	180.52	187.61	195.10	203.00	211.33	220.13
Levilled tariff corresponding to Useful life	Unit	Levilled	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	7.26	5.09	5.29	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
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51	0.38	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.61	0.64	0.67	0.71	0.74	0.78	0.82	0.86
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	10.11	8.40	8.00	8.26	8.54	8.84	9.15	9.49	9.84	10.21	10.61	11.03	11.47	11.72	12.25	12.83	13.44	14.08	14.76	15.47	16.21
Levilled 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.09	Rs/Kwh																			
Levilled Tariff (Fixed)		2.86	Rs/Kwh																			
Applicable Tariff (FY2017-18)		7.95	Rs/Kwh																			

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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 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	427.557	
			Total Equity Amount	Rs Lacs	183.239	
			Debt Component	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	10.66%	
			Equity Component	Equity amount	Rs Lacs	183.239
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3420.56	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		264.06	341.24	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.75	24.38	25.44	26.55	27.73	28.97	30.28	31.66	33.11	34.63	36.24	37.94	39.45	41.36	43.41	45.56	47.82	50.19	52.69	55.31
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		167.99	171.40	171.38	171.55	171.92	172.51	173.34	174.40	175.72	177.32	179.19	181.37	183.99	187.61	191.37	195.50	199.63	203.98	212.36	221.21

Levillised tariff corresponding to Useful life	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	R\$/kWh	7.42	5.21	5.41	5.68	5.96	6.26	6.57	6.90	7.25	7.61	7.99	8.39	8.81	9.25	9.71	10.20	10.70	11.24	11.80	12.39	13.01
O&M expn	R\$/kWh	0.98	0.79	0.67	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	R\$/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	R\$/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	R\$/kWh	0.52	0.39	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.80	0.83	0.88
RoE	R\$/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	R\$/kWh	10.29	8.52	8.12	8.39	8.68	8.98	9.31	9.65	10.01	10.39	10.80	11.23	11.68	12.14	12.61	13.07	13.69	14.35	15.03	15.76	16.52

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	5.21	Rs/Kwh
Levillised Tariff (Fixed)	2.87	Rs/Kwh
Applicable Tariff (FY2017-18)	8.07	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)	34.61%
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%	5.28%	5.28%	5.28%
Book Depreciation	Rs Lakh	16.12	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

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	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.14	(Rs/kWh)																			

CERC RE Tariff Order 2017-18

			Select State	Annexure 2.3E		
				Rajasthan		
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	610.80	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.557	
			Total Equity Amount	Rs Lacs	183.239	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0	
			Repayment Period (incl'd Moratorium)	years	13	
			Interest Rate	%	10.66%	
			<u>Equity Component</u>	Equity amount	Rs Lacs	183.239
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%	
			<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	%	11.66%	
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	2854.60	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		220.37	284.78	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	
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.15	21.02	21.91	22.85	23.84	24.89	25.99	27.16	28.38	29.67	31.04	32.47	33.71	35.34	37.08	38.91	40.84	42.87	44.99	47.23	
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	32.17
Total Fixed Cost	Rs Lakh		165.40	168.05	167.85	167.85	168.04	168.43	169.05	169.90	171.00	172.36	173.99	175.90	164.25	168.58	175.04	181.86	189.05	196.65	204.67	213.13	
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	6.20	4.35	4.51	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	
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.39	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	0.52	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	8.99	7.61	7.17	7.40	7.63	7.89	8.15	8.44	8.74	9.06	9.40	9.76	10.14	10.32	10.77	11.28	11.82	12.38	12.97	13.58	14.24	
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)	4.35	Rs/kWh																					
Levillised Tariff (Fixed)	2.79	Rs/kWh																					
Applicable Tariff (FY2017-18)	7.14	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)	34.61%																					
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	16.12	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-11.14	-6.07	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	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.14	(Rs/kWh)																				

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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	Power Plant Cost	Rs Lacs/MW	610.80
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.557
			Total Equity Amount	Rs Lacs	183.239
		Debt Component	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0
			Repayment Period (incl Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4200
Biomass	Base Price			Rs/T	2826.05
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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		218.16	281.93	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		17.02	20.85	21.73	22.67	23.65	24.69	25.78	26.93	28.14	29.42	30.77	32.19	33.42	35.03	36.76	38.58	40.49	42.50	44.61	46.82
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		165.27	167.88	167.67	167.66	167.84	168.23	168.84	169.68	170.76	172.11	173.72	175.63	163.96	168.27	174.72	181.52	188.70	196.28	204.28	212.72
Levilled tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levilled	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG		Rs/kWh	6.13	4.30	4.47	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
O&M expn		Rs/kWh	0.98	0.79	0.67	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	0.51
Int. on term loan		Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.71	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	8.92	7.56	7.13	7.35	7.58	7.83	8.10	8.38	8.67	8.99	9.33	9.68	10.06	10.24	10.69	11.19	11.72	12.28	12.86	13.48	14.12
Levilled 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)			4.30	Rs/kWh																			
Levilled Tariff (Fixed)			2.79	Rs/kWh																			
Applicable Tariff (FY2017-18)			7.09	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)		34.61%																					
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%	5.28%	5.28%	
Book Depreciation		Rs Lakh	16.12	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	
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	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	
Per unit benefit		Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	
Discounting Factor			1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levilled benefit		0.14	(Rs/kWh)																				

CERC RE Tariff Order 2017-18

Annexure 2.3G

		Select State	UP		
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	610.80
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.557
			Total Equity Amount	Rs Lacs	183.239
		<u>Debt Component</u>	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		<u>Equity Component</u>	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%
		<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		%	11.66%
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	2922.86
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766

CERC RE Tariff Order 2017-18

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		225.64	291.59	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.46	21.42	22.34	23.30	24.31	25.38	26.51	27.70	28.95	30.27	31.66	33.13	34.40	36.06	37.84	39.71	41.68	43.75	45.92	48.20
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		165.71	168.45	168.28	168.29	168.50	168.93	169.57	170.45	171.57	172.96	174.61	176.56	164.94	169.31	175.80	182.66	189.90	197.53	205.60	214.11

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	6.34	4.45	4.62	4.85	5.09	5.35	5.62	5.90	6.19	6.50	6.83	7.17	7.53	7.90	8.30	8.71	9.15	9.60	10.08	10.59	11.12
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.73	0.76
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	9.14	7.72	7.29	7.52	7.76	8.02	8.29	8.58	8.89	9.22	9.57	9.93	10.32	10.52	10.98	11.50	12.04	12.61	13.21	13.85	14.51

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.45	Rs/kWh
Levillised Tariff (Fixed)	2.80	Rs/kWh
Applicable Tariff (FY2017-18)	7.25	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)	34.61%
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	16.12	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.14	(Rs/kWh)
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				Select State	Others
Annexure 2.3H					
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/M	610.80
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.557
			Total Equity Amout	Rs Lacs	183.239
		<u>Debt Component</u>	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		<u>Equity Component</u>	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%
		<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		%	11.66%
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	3073.05
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	40.00
		O & M Expenses Escalation		%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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		0.63	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	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	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		237.23	306.58	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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	32.25
Interest on term loan	Rs Lakh		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.15	22.31	23.27	24.28	25.34	26.47	27.65	28.89	30.21	31.59	33.05	34.58	35.93	37.66	39.52	41.48	43.53	45.69	47.96	50.35	
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	32.17
Total Fixed Cost	Rs Lakh		166.40	169.34	169.21	169.27	169.54	170.01	170.71	171.64	172.82	174.27	176.00	178.02	166.46	170.91	177.48	184.42	191.75	199.48	207.64	216.25	

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	6.67	4.68	4.86	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
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.47	0.36	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.80
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	9.49	7.96	7.54	7.78	8.04	8.31	8.61	8.90	9.23	9.57	9.94	10.32	10.73	10.95	11.43	11.97	12.54	13.14	13.76	14.42	15.12

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.68/Rs/kWh
Levillised Tariff (Fixed)	2.82/Rs/kWh
Applicable Tariff (FY2017-18)	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)	34.61%
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	16.12	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%
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	0.01

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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.14 (Rs/kWh)
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CERC RE Tariff Order 2017-18

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 Amount	Rs Lacs	195.66
		Debt Component	Loan Amount	Rs Lacs	456.54
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	195.66
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	2873.22
			GCV - Biomass	Kcal/kg	3100
	Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2017 - 18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		221.80	286.64	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.38	21.27	22.16	23.11	24.10	25.15	26.25	27.42	28.65	29.94	31.31	32.74	33.97	35.60	37.36	39.20	41.14	43.17	45.31	47.56
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		172.97	175.40	174.97	174.72	174.68	174.84	175.22	175.84	176.70	177.82	179.22	180.90	168.07	172.29	178.76	185.59	192.80	200.40	208.43	216.91
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	4.47	4.64	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
O&M expn	Rsk/Wh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
Depreciation	Rsk/Wh	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	Rsk/Wh	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rsk/Wh	0.46	0.35	0.34	0.36	0.37	0.39	0.41	0.43	0.44	0.46	0.49	0.51	0.53	0.55	0.58	0.61	0.64	0.67	0.70	0.73	0.77
RoE	Rsk/Wh	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	Rsk/Wh	9.33	7.96	7.49	7.71	7.95	8.21	8.48	8.77	9.07	9.40	9.74	10.11	10.50	10.67	11.13	11.66	12.20	12.78	13.39	14.02	14.69
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.47																				
Levillised Tariff (Fixed)		2.95																				
Applicable Tariff (FY2017-18)		7.43																				

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)	34.61%
Capital Cost	652.205

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%	
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	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02	
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.16	(Rs/kWh)																				

CERC RE Tariff Order 2017-18

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 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	%	10.66%
		Equity Component	Equity amount	Rs Lacs	195.66
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			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	%	11.66%		
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3270.39
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017 - 18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		252.47	326.26	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.20	23.63	24.64	25.70	26.83	28.01	29.26	30.57	31.96	33.42	34.96	36.58	38.00	39.83	41.80	43.86	46.04	48.32	50.71	53.23
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		174.79	177.76	177.44	177.32	177.40	177.70	178.23	179.00	180.02	181.30	182.87	184.74	172.10	176.52	183.20	190.25	197.69	205.55	213.83	222.58
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	7.26	5.09	5.29	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
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86
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	10.27	8.62	8.17	8.43	8.70	8.99	9.31	9.64	9.99	10.36	10.75	11.16	11.61	11.83	12.35	12.94	13.55	14.19	14.87	15.58	16.33
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.09	Rs/kWh																			
Levillised Tariff (Fixed)		3.01	Rs/kWh																			
Applicable Tariff (FY2017-18)		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)		34.61%																				
Capital Cost		652.205																				
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%	0.01%	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%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-34.36	-18.74	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-11.89	-6.49	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit	0.16	(Rs/kWh)																				

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Annexure 2.4C

		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	
			<u>Debt Component</u>		Loan Amount	Rs Lacs
				Moratorium Period	years	0
				Repayment Period(incld Moratorium)	years	13
				Interest Rate	%	10.66%
		<u>Equity Component</u>		Equity amount	Rs Lacs	195.66
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			<u>Depreciation</u>	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	
			<u>For Variable Charges</u>	Biomass Stock	Months	4
				Interest On Working Capital	%	11.66%
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	3344.85	
			GCV - Biomass	Kcal/kg	3100	
		Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2017 - 18)		Rs Lacs	40.00	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		258.21	333.69	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.55	24.07	25.10	26.19	27.34	28.55	29.82	31.17	32.58	34.07	35.65	37.30	38.75	40.63	42.63	44.74	46.95	49.28	51.73	54.30
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		175.13	178.20	177.91	177.81	177.92	178.24	178.79	179.59	180.64	181.96	183.56	185.46	172.85	177.31	184.03	191.13	198.61	206.51	214.85	223.64
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	7.42	5.21	5.41	5.68	5.96	6.26	6.57	6.90	7.25	7.61	7.99	8.39	8.81	9.25	9.71	10.20	10.71	11.24	11.80	12.39	13.01
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.60	0.63	0.66	0.69	0.72	0.76	0.80	0.84	0.88
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	10.44	8.74	8.29	8.56	8.84	9.14	9.46	9.80	10.16	10.54	10.94	11.36	11.81	12.05	12.58	13.18	13.80	14.46	15.15	15.87	16.64
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	5.21 Rs/Kwh																					
Levillised Tariff (Fixed)	3.02 Rs/Kwh																					
Applicable Tariff (FY2017-18)	8.23 Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project																						
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Depreciation amount	%																					
Book Depreciation rate	%	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%	
Tax Depreciation rate	%																					
Additional depreciation	%																					
Income Tax (Normal Rates)	%																					
Capital Cost	Rs Lakh																					
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	
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	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02	
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.16 (Rs/kWh)																					

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Annexure 2.4D						
			Select State	Punjab		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	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 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	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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 expenses)		15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Biomass Stock	Months	4
				Interest On Working Capital	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	3420.56	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2017 - 18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

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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			264.06	341.24	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
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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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			46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			19.89	24.52	25.57	26.68	27.86	29.09	30.40	31.77	33.21	34.74	36.34	38.03	39.52	41.43	43.48	45.63	47.89	50.26	52.76	55.38
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			175.48	178.65	178.38	178.30	178.44	178.79	179.37	180.19	181.27	182.62	184.25	186.19	173.62	178.12	184.88	192.02	199.55	207.49	215.88	224.72
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		7.59	5.33	5.53	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
O&M expn	Rs/kWh		1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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		0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.53	0.40	0.40	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.64	0.67	0.70	0.74	0.78	0.81	0.85	0.90
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		10.62	8.87	8.42	8.70	8.99	9.29	9.62	9.96	10.33	10.72	11.13	11.56	12.02	12.27	12.82	13.42	14.06	14.73	15.43	16.17	16.95
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.33	Rs/kWh																				
Levillised Tariff (Fixed)		3.03	Rs/kWh																				
Applicable Tariff (FY2017-18)		8.35	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)		34.61%																				
Capital Cost		652.205																				
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%	0.01%	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%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.22	0.20
Levillised benefit	0.16	(Rs/kWh)																				

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		Select State	Rajasthan		
Annexure 2.4E					
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 (incl'd Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	195.66
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	2854.60
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance		O&M Expenses (2017 - 18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766

CERC RE Tariff Order 2017-18

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		220.37	284.78	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	
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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	34.44
Interest on term loan	Rs Lakh		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.30	21.16	22.05	22.98	23.97	25.01	26.11	27.27	28.49	29.78	31.13	32.56	33.78	35.40	37.15	38.98	40.91	42.93	45.06	47.30	
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	34.35
Total Fixed Cost	Rs Lakh		172.88	175.29	174.85	174.60	174.55	174.71	175.08	175.69	176.55	177.66	179.05	180.72	167.88	172.09	178.55	185.37	192.57	200.16	208.18	216.65	
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	6.34	4.45	4.61	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	
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86	
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.35	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.57	0.60	0.63	0.66	0.70	0.73	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	9.29	7.93	7.46	7.68	7.92	8.17	8.44	8.73	9.03	9.35	9.70	10.06	10.45	10.61	11.08	11.59	12.14	12.71	13.32	13.95	14.62	
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)	4.45	Rs/Kwh																					
Levillised Tariff (Fixed)	2.95	Rs/Kwh																					
Applicable Tariff (FY2017-18)	7.40	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)	34.61%																					
Capital Cost	652.205																					
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%	
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	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02	
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.16	(Rs/kWh)																				

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Annexure 2.4F

		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 Amount	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period (incl'd Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh	4200				
Biomass	Base Price	Rs/T			2826.05	
	GCV - Biomass	Kcal/kg			3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2017 - 18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

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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		218.16	281.93	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.16	20.99	21.87	22.80	23.78	24.81	25.90	27.04	28.25	29.53	30.87	32.29	33.49	35.10	36.83	38.65	40.56	42.56	44.67	46.89
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	175.12	174.67	174.42	174.35	174.50	174.87	175.46	176.31	177.41	178.78	180.45	167.59	171.79	178.23	185.03	192.21	199.79	207.79	216.24
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		6.27	4.40	4.57	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
Variable COG	Rs/kWh		4.40	4.40	4.57	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
O&M expn	Rs/kWh		1.00	0.81	0.89	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76
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
Int. on term loan	Rs/kWh		0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.45	0.35	0.34	0.35	0.37	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
Total COG	Rs/kWh		9.22	7.89	7.41	7.63	7.86	8.11	8.38	8.66	8.97	9.29	9.62	9.98	10.37	10.53	10.99	11.50	12.04	12.61	13.21	13.84
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.40 Rs/kWh																					
Levillised Tariff (Fixed)	2.95 Rs/kWh																					
Applicable Tariff (FY2017-18)	7.35 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)	34.61%																				
Capital Cost	652.205																				
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	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
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	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.16 (Rs/kWh)																				

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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/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	%	10.66%	
			Equity Component	Equity amount	Rs Lacs	195.66
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%			
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200	
			During Stablization Period	Kcal/kwh	4200	
		Biomass	Base Price	Rs/T	2922.86	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2017 - 18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

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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		225.64	291.59	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	
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		17.61	21.56	22.47	23.43	24.44	25.51	26.63	27.81	29.06	30.38	31.76	33.22	34.47	36.13	37.91	39.78	41.75	43.82	45.99	48.27	
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		173.19	175.69	175.28	175.05	175.02	175.20	175.60	176.23	177.12	178.26	179.67	181.38	168.57	172.82	179.31	186.17	193.41	201.05	209.11	217.62	
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		6.49	4.55	4.73	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
O&M expn	Rs/kWh		1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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		0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.36	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.61	0.64	0.68	0.71	0.75	0.78
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		9.45	8.05	7.57	7.80	8.05	8.31	8.58	8.88	9.19	9.52	9.87	10.24	10.64	10.81	11.29	11.82	12.37	12.96	13.57	14.22	14.90
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)	4.55	Rs/kwh																					
Levillised Tariff (Fixed)	2.96	Rs/kwh																					
Applicable Tariff (FY2017-18)	7.51	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)	34.61%																					
Capital Cost	652.205																					
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%	0.00%
Accelrated Deprn.	Rs Lakh	195.66	228.27	91.31	54.79	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	0.02
Net Depreciation Benefit	Rs Lakh	178.44	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-34.36	-18.74	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.88	-11.89	-6.49	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit	0.16	(Rs/kWh)																				

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		Select State		Annexure 2.4H 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 Amount	Rs Lacs	195.66
			Debt Component	Loan Amount	Rs Lacs
		Moratorium Period	years	0	
		Repayment Period (incl. Moratorium)	years	13	
		Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	195.66
		Return on Equity for Project Life	% p.a	17.56%	
Discount Rate (equiv. to WACC)	%	9.08%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			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 expenses)		15%
		Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4
		Interest On Working Capital	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4200
			During Stablization Period	Kcal/kwh	4200
		Biomass	Base Price	Rs/T	3073.05
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017 - 18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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		237.23	306.58	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		18.30	22.46	23.41	24.41	25.47	26.59	27.77	29.01	30.31	31.69	33.14	34.67	36.00	37.73	39.59	41.55	43.60	45.76	48.03	50.42
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		173.88	176.59	176.21	176.03	176.05	176.28	176.74	177.43	178.37	179.57	181.06	182.83	170.10	174.42	180.99	187.94	195.26	202.99	211.15	219.76
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	6.82	4.79	4.97	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	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital		Rs/kWh	0.48	0.37	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.58	0.61	0.64	0.67	0.71	0.74	0.78	0.82
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	9.80	8.29	7.83	8.07	8.33	8.60	8.89	9.20	9.53	9.88	10.25	10.64	11.05	11.25	11.75	12.30	12.88	13.49	14.13	14.81	15.52
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.79	Rs/kWh																				
Levillised Tariff (Fixed)		2.98	Rs/kWh																				
Applicable Tariff (FY2017-18)		7.77	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)		34.61%																				
Capital Cost		652.205																				
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%	
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%	0.00%
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	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.22	0.20
Levillised benefit	0.16	(Rs/kWh)																				

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Annexure 2.5A

		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	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	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh	4125				
Biomass	Base Price	Rs/T			2873.22	
	GCV - Biomass	Kcal/kg			3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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																								
Biomass Cost		Rs Lakh	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		217.84	281.52	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	
Fixed Cost																								
O&M Expenses		Rs Lakh	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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		16.82	20.65	21.54	22.47	23.46	24.50	25.60	26.76	27.98	29.26	30.61	32.04	33.54	34.90	36.63	38.44	40.35	42.36	44.46	46.68	
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		155.89	158.80	158.90	159.19	159.67	160.36	161.27	162.41	163.80	165.44	167.36	169.57	172.08	163.84	170.28	177.08	184.26	191.84	199.83	208.27	
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	6.12	4.30	4.46	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	
O&M expn		Rs/kWh	0.98	0.79	0.67	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	0.47	
Int. on term loan		Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.42	0.44	0.46	0.49	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	8.80	7.37	6.98	7.20	7.44	7.69	7.96	8.25	8.55	8.87	9.21	9.57	9.95	10.36	10.61	11.11	11.64	12.19	12.78	13.39	14.03	
Levillised Tariff																								
Discount Factor		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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)		4.30	Rs/Kwh																					
Levillised Tariff (Fixed)		2.68	Rs/Kwh																					
Applicable Tariff (FY2017-18)		6.97	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)		34.61%																					
Capital Cost		559.033																					
Years																							
Book Depreciation		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	0.01	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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00
Discounting Factor			1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit		0.13	(Rs/KWh)																				

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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 stablisation	%	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(incld Moratorium)	years	13
				Interest Rate	%	10.66%
		Equity Component		Equity amount	Rs Lacs	167.710
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			Depreciation		Depreciation Rate(power plant)	%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges		Months	1	
		O&M Charges				
		Maintenance Spare	(% of O&M exepenses)		15%	
		Receivables for Debtors		Months	2	
		For Variable Charges		Months	4	
		Biomass Stock				
		Interest On Working Capital	%	11.66%		
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3270.39	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	40.00	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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																							
Biomass Cost		Rs Lakh		247.96	320.44	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
Fixed Cost																							
O&M Expenses		Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working capital		Rs Lakh		18.61	22.96	23.97	25.03	26.14	27.32	28.55	29.86	31.23	32.68	34.20	35.81	37.49	39.06	40.99	43.02	45.16	47.41	49.77	52.25
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		157.68	161.12	161.33	161.74	162.35	163.17	164.22	165.51	167.05	168.86	170.95	173.34	176.03	179.99	174.64	181.66	189.07	196.89	205.14	213.84
Levelling tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levelling	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG		Rs/kWh	6.97	4.89	5.08	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	10.55	11.08	11.64	12.22
O&M expn		Rs/kWh	0.98	0.79	0.67	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	0.47
Int. on term loan		Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.36	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	9.70	8.00	7.63	7.89	8.16	8.45	8.76	9.08	9.43	9.79	10.18	10.58	11.02	11.47	11.78	12.34	12.93	13.55	14.20	14.89	15.61
Levelling Tariff																							
Discount Factor		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		Rs/kWh	4.89																				
Levelling Tariff (Fixed)		Rs/kWh	2.73																				
Applicable Tariff (FY2017-18)		Rs/kWh	7.62																				

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)	34.61%																						
Capital Cost	559.033																						
Years ----->																							
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	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	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%	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%	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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.18	
Levelling benefit	0.13 (Rs/kWh)																						

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					Annexure 2.5C	
				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	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 (incl. Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3344.85	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		253.60	327.73	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.94	23.40	24.42	25.50	26.64	27.84	29.11	30.44	31.84	33.32	34.87	36.51	38.24	39.84	41.81	43.88	46.06	48.35	50.76	53.29
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		158.02	161.55	161.78	162.21	162.85	163.70	164.77	166.09	167.66	169.50	171.62	174.04	176.78	168.77	175.46	182.52	189.97	197.83	206.13	214.89

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	7.13	5.00	5.19	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
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.47
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.40	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	0.80	0.84
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	9.87	8.12	7.75	8.02	8.29	8.59	8.91	9.24	9.59	9.96	10.36	10.77	11.22	11.68	12.00	12.57	13.17	13.80	14.47	15.17	15.90

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	5.00 Rs/Kwh
Levillised Tariff (Fixed)	2.74 Rs/Kwh
Applicable Tariff (FY2017-18)	7.74 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)	34.61%
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	29.52	16.10	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%
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.13 (Rs/kWh)
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					Annexure 2.5D
				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/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 (inclcd Moratorium)	years	13
		Equity Component	Interest Rate	%	10.66%
			Equity amount	Rs Lacs	167.710
			Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.08%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%			
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3420.56
			GCV - Biomass	Kcal/kg	3100
Biomass Price Escalation Factor		5.00%			
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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																						
Biomass Cost	Rs Lakh		259.34	335.15	351.91	369.50	387.98	407.38	427.75	449.13	471.59	495.17	519.93	545.93	573.22	601.88	631.98	663.58	696.75	731.59	768.17	806.58
Fixed Cost																						
O&M Expenses	Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.29	23.84	24.89	25.99	27.15	28.38	29.67	31.03	32.46	33.97	35.56	37.23	38.99	40.83	42.74	44.76	46.98	49.32	51.77	54.35
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		158.36	161.99	162.25	162.70	163.36	164.23	165.34	166.68	168.28	170.15	172.31	174.76	177.53	180.57	183.99	187.89	192.29	197.29	202.89	209.59
Levelling tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levelling	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	R\$/kWh	7.29	5.11	5.31	5.58	5.85	6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78
O&M expn	R\$/kWh	0.98	0.79	0.67	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	R\$/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	R\$/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	R\$/kWh	0.51	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	0.64	0.68	0.71	0.74	0.78	0.82	0.86
RoE	R\$/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	R\$/kWh	10.04	8.24	7.88	8.15	8.43	8.74	9.06	9.40	9.76	10.14	10.54	10.97	11.42	11.89	12.22	12.81	13.42	14.06	14.74	15.45	16.20
Levelling Tariff																						
Discount Factor			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.11	Rs/kWh																			
Levelling Tariff (Fixed)		2.75	Rs/kWh																			
Applicable Tariff (FY2017-18)		7.86	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)		34.61%																				
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	0.01	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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levelling benefit	0.13	(Rs/kWh)																				

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Annexure 2.5E						
			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	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 (incl'd Moratorium)	years	13
				Interest Rate	%	10.66%
		Equity Component		Equity amount	Rs Lacs	167.710
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions				
		Income Tax		%	34.610%	
		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	%	11.66%		
6	Fuel Related Assumptions	Heat Rate				
		After Stabilisation period		Kcal/kwh	4125	
		During Stablization Period		Kcal/kwh	4125	
		Biomass				
		Base Price	Rs/T	2854.60		
		GCV - Biomass	Kcal/kg	3100		
		Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	40.00	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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			216.43	279.70	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
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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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			40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			16.73	20.54	21.42	22.35	23.34	24.37	25.46	26.61	27.82	29.10	30.44	31.86	33.35	34.71	36.42	38.23	40.13	42.12	44.21	46.42
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			155.81	158.69	158.79	159.07	159.54	160.23	161.13	162.26	163.64	165.28	167.19	169.39	171.89	174.64	177.67	181.00	184.63	188.58	192.85	197.45
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		6.08	4.27	4.43	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
O&M exrn	Rs/kWh		0.98	0.79	0.67	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	0.47
Int. on term loan	Rs/kWh		0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.61	0.64	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		8.76	7.34	6.95	7.17	7.41	7.66	7.93	8.21	8.51	8.83	9.17	9.52	9.90	10.30	10.55	11.05	11.58	12.13	12.71	13.32	13.96
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.27	Rs/kWh																				
Levillised Tariff (Fixed)		2.67	Rs/kWh																				
Applicable Tariff (FY2017-18)		6.94	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)		34.61%																				
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%
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.26	-0.09	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.22	0.20
Levillised benefit		0.13	(Rs/kWh)																			

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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	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 (incl'd Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
			Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
4	Financial Assumptions	Fiscal Assumptions	Discount Rate (equiv. to WACC)	%	9.08%	
			Depreciation	Income Tax	%	34.610%
				Depreciation Rate (power plant)	%	5.280%
5	Working Capital	For Fixed Charges	Depreciation Rate 14th year onwards	%	3.051%	
			O&M Charges	Interest On Working Capital	%	11.66%
				Maintenance Spare (% of O&M exepenses)		
			Receivables for Debtors	Months	2	
			For Variable Charges	Months	4	
6	Fuel Related Assumptions	Heat Rate	Biomass Stock	Months	4	
			Interest On Working Capital	%	11.66%	
		Biomass	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
			Base Price	Rs/T	2826.05	
GCV - Biomass	Kcal/kg	3100				
Biomass Price Escalation Factor	%	5.00%				
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		0.63	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	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	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		214.27	276.90	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.61	20.37	21.25	22.17	23.14	24.17	25.25	26.39	27.59	28.85	30.19	31.59	33.07	34.61	36.11	37.90	39.78	41.76	43.83	46.02
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		155.68	158.53	158.61	158.88	159.35	160.02	160.92	162.04	163.41	165.04	166.93	169.12	171.61	163.35	169.76	176.54	183.69	191.24	199.20	207.61

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	6.02	4.23	4.39	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	0.98	0.79	0.67	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	0.47
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.69	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	8.69	7.30	6.90	7.12	7.35	7.60	7.87	8.15	8.45	8.76	9.10	9.45	9.83	10.22	10.47	10.96	11.48	12.03	12.61	13.21	13.85

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.23	Rs/kWh																				
Levillised Tariff (Fixed)	2.67	Rs/kWh																				
Applicable Tariff (FY2017-18)	6.90	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)	34.61%
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

	%	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%
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	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 2017-18

Annexure 2.5G

			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	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 (incl'd Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	167.710	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4125	
Biomass	Base Price			Rs/T	2922.86	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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																						
Biomass Cost	Rs Lakh	Year-->	221.61	286.39	300.70	315.74	331.53	348.10	365.51	383.78	402.97	423.12	444.28	466.49	489.82	514.31	540.02	567.02	595.37	625.14	656.40	689.22
Fixed Cost																						
O&M Expenses	Rs Lakh	Year-->	40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.04	20.94	21.84	22.79	23.80	24.85	25.97	27.14	28.38	29.69	31.06	32.51	34.03	35.42	37.17	39.02	40.95	42.99	45.13	47.37
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		156.12	159.09	159.20	159.50	160.00	160.71	161.64	162.80	164.20	165.87	167.81	170.04	172.57	164.36	170.83	177.65	184.86	192.47	200.50	208.97
Levallised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.23	4.37	4.54	4.76	5.00	5.25	5.52	5.79	6.08	6.38	6.70	7.04	7.39	7.76	8.15	8.56	8.98	9.43	9.90	10.40	10.92
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Int. on term loan	Rs/kWh	0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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	0.39	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	0.48	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	8.91	7.45	7.06	7.29	7.53	7.79	8.06	8.35	8.66	8.99	9.33	9.70	10.09	10.49	10.75	11.26	11.80	12.36	12.95	13.58	14.23
Levallised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.37	Rs/kWh																				
Levallised Tariff (Fixed)	2.68	Rs/kWh																				
Applicable Tariff (FY2017-18)	7.05	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)	34.61%																				
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levallised benefit	0.13	(Rs/kWh)																			

CERC RE Tariff Order 2017-18

				Select State	Others
Annexure 2.5H					
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	559.033
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'd Moratorium)	years	13
			Interest Rate	%	10.66%
		<u>Equity Component</u>	Equity amount	Rs Lacs	167.710
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%
		<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	%	11.66%
6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		<u>Biomass</u>	Base Price	Rs/T	3073.05
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766

CERC RE Tariff Order 2017-18

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		233.00	301.10	316.16	331.96	348.56	365.99	384.29	403.50	423.68	444.86	467.11	490.46	514.99	540.73	567.77	596.16	625.97	657.27	690.13	724.64	
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
O&M Expenses	Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		40.11	36.90	33.69	30.48	27.28	24.07	20.86	17.65	14.44	11.23	8.02	4.81	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		17.72	21.81	22.76	23.76	24.81	25.92	27.09	28.32	29.61	30.98	32.42	33.93	35.53	36.99	38.82	40.75	42.77	44.90	47.13	49.48	
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		156.79	159.97	160.12	160.47	161.02	161.77	162.75	163.97	165.44	167.16	169.17	171.46	174.07	165.93	172.48	179.39	186.68	194.38	202.50	211.08	
Levilled tariff corresponding to Useful life																							
Per Unit Cost of Generation	Unit	Levilled	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh		6.55	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	8.57	9.00	9.45	9.92	10.41	10.93	11.48
O&M expn	Rs/kWh		0.98	0.79	0.67	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		0.34	0.79	0.58	0.53	0.48	0.43	0.38	0.33	0.28	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		0.46	0.35	0.35	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.65	0.68	0.71	0.75	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	0.47
Total COG	Rs/kWh		9.25	7.69	7.31	7.55	7.80	8.07	8.36	8.67	8.99	9.33	9.70	10.08	10.49	10.92	11.20	11.73	12.29	12.88	13.49	14.14	14.83
Levilled 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)		4.59																					
Levilled Tariff (Fixed)		2.70																					
Applicable Tariff (FY2017-18)		7.30																					

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)		34.61%																			
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	52.94	57.50	16.87	6.04	-0.46	-4.36	-6.71	-8.11	-8.95	-9.46	-9.76	-9.94	-10.05	-10.12	-10.16	-10.18	-10.19	-5.56	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	2.09	0.91	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.15	-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	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levilled benefit		0.13																			

CERC RE Tariff Order 2017-18

				Annexure 2.6A		
				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	420.310	
			Total Equity Amount	Rs Lacs	180.133	
		Debt Component	Loan Amount	Rs Lacs	420.310	
			Moratorium Period	years	0	
			Repayment Period(incl'd Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4125	
Biomass	Base Price			Rs/T	2873.22	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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
Vaiable 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		217.84	281.52	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.32	18.32	18.32	18.32	18.32	18.32	18.32	18.32
Interest on term loan	Rs Lakh		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.96	20.79	21.67	22.61	23.59	24.63	25.72	26.87	28.08	29.36	30.71	32.13	33.36	34.97	36.70	38.51	40.42	42.42	44.53	46.75
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		163.38	166.04	165.90	165.94	166.18	166.63	167.30	168.20	169.34	170.75	172.42	174.38	163.01	167.35	173.79	180.59	187.77	195.35	203.35	211.79
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	6.26	4.39	4.56	4.79	5.03	5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.69	0.72	0.76
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	9.09	7.69	7.25	7.48	7.72	7.97	8.25	8.53	8.84	9.16	9.51	9.87	10.26	10.44	10.90	11.42	11.96	12.53	13.12	13.75	14.41
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.39	Rs/Kwh																				
Levillised Tariff (Fixed)	2.83	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.22	Rs/Kwh																				

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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)		34.61%																			
Capital Cost		600.443																			
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%
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levelling benefit	0.15 (Rs/kWh)																				

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				Annexure 2.6B		
				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	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.310	
			Total Equity Amount	Rs Lacs	180.133	
		Debt Component	Loan Amount	Rs Lacs	420.310	
			Moratorium Period	years	0	
			Repayment Period(incl. Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3270.39	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor	%	5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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																							
Biomass Cost		Rs Lakh		247.96	320.44	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
Fixed Cost																							
O&M Expenses		Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		18.75	23.10	24.10	25.16	26.27	27.44	28.67	29.97	31.34	32.78	34.30	35.90	37.32	39.12	41.06	43.09	45.23	47.48	49.83	52.31
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		165.17	168.36	168.33	168.49	168.86	169.44	170.25	171.30	172.60	174.16	176.01	178.15	166.96	171.51	178.16	185.18	192.58	200.40	208.65	217.36
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	7.13	5.00	5.19	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
O&M expn		Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.43	0.44	0.46	0.49	0.51	0.53	0.56	0.58	0.60	0.63	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	10.01	8.33	7.92	8.18	8.45	8.75	9.06	9.39	9.73	10.10	10.49	10.91	11.34	11.59	12.10	12.68	13.28	13.92	14.58	15.28	16.02
Levillised Tariff																							
Discount Factor				1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.00	Rs/Kwh																				
Levillised Tariff (Fixed)		2.88	Rs/Kwh																				
Applicable Tariff (FY2017-18)		7.88	Rs/Kwh																				

CERC RE Tariff Order 2017-18

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)		34.61%																			
Capital Cost		600.443																			
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%
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.15 (Rs/kWh)																				

CERC RE Tariff Order 2017-18

				Annexure 2.6C	
			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	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period(inclcd Moratorium)	years	13
			Interest Rate	%	10.66%
Equity Component	Equity amount	Rs Lacs	180.133		
	Return on Equity for Project Life	% p.a	17.56%		
	Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
		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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3344.85
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		253.60	327.73	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.09	23.54	24.56	25.63	26.77	27.96	29.22	30.55	31.95	33.42	34.97	36.61	38.06	39.90	41.88	43.95	46.13	48.42	50.83	53.36
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		165.50	168.79	168.78	168.97	169.36	169.97	170.80	171.88	173.21	174.80	176.68	178.86	167.71	172.29	178.98	186.03	193.48	201.35	209.64	218.40
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	7.29	5.12	5.31	5.58	5.85	6.15	6.46	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51	0.39	0.38	0.40	0.42	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86
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	10.18	8.45	8.05	8.31	8.59	8.89	9.21	9.55	9.90	10.28	10.68	11.10	11.55	11.80	12.33	12.91	13.53	14.18	14.86	15.57	16.32
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	5.12	Rs/kWh																				
Levillised Tariff (Fixed)	2.89	Rs/kWh																				
Applicable Tariff (FY2017-18)	8.00	Rs/kWh																				

CERC RE Tariff Order 2017-18

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)	34.61%
Capital Cost	600.443

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%	
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levellised benefit	0.15	(Rs/kWh)																				

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				Annexure 2.6D	
			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	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	3420.56
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		259.34	335.15	351.91	369.50	387.98	407.38	427.75	449.13	471.59	495.17	519.93	545.93	573.22	601.88	631.98	663.58	696.75	731.59	768.17	806.58
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.32	18.32	18.32	18.32	18.32	18.32	18.32	18.32
Interest on term loan		Rs Lakh		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		19.43	23.98	25.02	26.12	27.28	28.50	29.79	31.14	32.57	34.07	35.66	37.32	38.81	40.70	42.71	44.83	47.05	49.38	51.84	54.42
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		165.84	169.23	169.25	169.46	169.87	170.51	171.37	172.47	173.83	175.46	177.37	179.58	168.46	173.08	179.81	186.91	194.40	202.31	210.65	219.46
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	7.46	5.23	5.43	5.70	5.99	6.29	6.60	6.93	7.28	7.64	8.02	8.42	8.85	9.29	9.75	10.24	10.75	11.29	11.85	12.45	13.07
O&M expn		Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.41	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88
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	10.35	8.58	8.17	8.44	8.73	9.04	9.36	9.71	10.07	10.46	10.87	11.30	11.76	12.02	12.56	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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.23	Rs/Kwh																				
Levillised Tariff (Fixed)		2.90	Rs/Kwh																				
Applicable Tariff (FY2017-18)		8.13	Rs/Kwh																				

CERC RE Tariff Order 2017-18

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)		34.61%																			
Capital Cost		600.443																			
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%
Accelerated Depm.	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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levelised benefit	0.15	(Rs/kWh)																			

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				Annexure 2.6E	
				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	Power Plant Cost	Rs Lacs/MW	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period (incl. Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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 expenses)		15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stabilization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	2854.60
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766

CERC RE Tariff Order 2017-18

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		216.43	279.70	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.88	20.68	21.56	22.49	23.46	24.49	25.58	26.72	27.93	29.20	30.54	31.95	33.47	34.78	36.49	38.30	40.19	42.19	44.28	46.49
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		163.29	165.93	165.79	165.82	166.06	166.50	167.16	168.05	169.19	170.58	172.25	174.21	162.82	167.16	173.59	180.38	187.55	195.11	203.10	211.53
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	6.22	4.37	4.53	4.76	5.00	5.25	5.51	5.78	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.36	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	9.05	7.66	7.22	7.45	7.68	7.94	8.21	8.49	8.80	9.12	9.46	9.82	10.21	10.39	10.85	11.36	11.90	12.46	13.05	13.68	14.34
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.498	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)																						
Levillised Tariff (Fixed)																						
Applicable Tariff (FY2017-18)																						

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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)		34.61%																			
Capital Cost		600.443																			
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%
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levellised benefit	0.15 (Rs/kWh)																				

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				Select State	Annexure 2.6F 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	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period(incl Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	2826.05
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		214.27	276.90	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.75	20.52	21.39	22.30	23.27	24.29	25.37	26.50	27.70	28.96	30.28	31.68	32.89	34.48	36.18	37.97	39.85	41.82	43.90	46.08
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		163.16	165.77	165.61	165.64	165.86	166.30	166.95	167.83	168.96	170.34	171.99	173.94	162.54	166.86	173.28	180.05	187.20	194.75	202.72	211.13
Levallised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levllised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.16	4.32	4.49	4.71	4.95	5.19	5.45	5.73	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
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.39	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	8.98	7.61	7.17	7.39	7.63	7.88	8.15	8.43	8.73	9.05	9.39	9.75	10.13	10.31	10.76	11.27	11.80	12.36	12.95	13.57	14.22
Levllised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.32	Rs/Kwh																				
Levllised Tariff (Fixed)	2.82	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.14	Rs/Kwh																				

CERC RE Tariff Order 2017-18

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)		34.61%																			
Capital Cost		600.443																			
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 Depm.	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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levellised benefit	0.15	(Rs/kWh)																			

CERC RE Tariff Order 2017-18

				Select State	Annexure 2.6G 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	600.44
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	2922.86
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		221.61	286.39	300.70	315.74	331.53	348.10	365.51	383.78	402.97	423.12	444.28	466.49	489.82	514.31	540.02	567.02	595.37	625.14	656.40	689.22
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.32	18.32	18.32	18.32	18.32	18.32	18.32	18.32
Interest on term loan	Rs Lakh		43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.19	21.08	21.98	22.92	23.92	24.98	26.09	27.26	28.49	29.79	31.16	32.60	33.86	35.49	37.24	39.08	41.02	43.06	45.19	47.44
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		163.60	166.33	166.20	166.26	166.52	166.98	167.67	168.59	169.75	171.17	172.87	174.86	163.50	167.87	174.34	181.17	188.37	195.98	204.01	212.48
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	6.37	4.47	4.64	4.87	5.12	5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	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	0.35	0.34	0.36	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.60	0.63	0.66	0.70	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	9.21	7.77	7.34	7.57	7.81	8.07	8.35	8.64	8.95	9.28	9.63	10.00	10.39	10.59	11.05	11.58	12.12	12.70	13.31	13.94	14.61
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.47	Rs/Kwh																				
Levillised Tariff (Fixed)	2.83	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.30	Rs/Kwh																				

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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)	34.61%																					
Capital Cost	600.443																					
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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%	
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levelling benefit	0.15	(Rs/kWh)																				

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				Annexure 2.6H	
			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
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	420.310
			Total Equity Amount	Rs Lacs	180.133
		Debt Component	Loan Amount	Rs Lacs	420.310
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	180.133
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	3073.05
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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			233.00	301.10	316.16	331.96	348.56	365.99	384.29	403.50	423.68	444.86	467.11	490.46	514.99	540.73	567.77	596.16	625.97	657.27	690.13	724.64
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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			43.08	39.64	36.19	32.74	29.30	25.85	22.40	18.96	15.51	12.06	8.62	5.17	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			17.86	21.95	22.90	23.89	24.94	26.04	27.20	28.43	29.72	31.08	32.52	34.03	35.35	37.06	38.89	40.82	42.84	44.97	47.20	49.55
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
Total Fixed Cost	Rs Lakh			164.28	167.21	167.12	167.23	167.53	168.05	168.78	169.76	170.98	172.46	174.23	176.28	165.00	169.44	175.99	182.90	190.19	197.89	206.01	214.59
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		6.70	4.70	4.88	5.12	5.38	5.65	5.93	6.23	6.54	6.87	7.21	7.57	7.95	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74
O&M expn	Rs/kWh		1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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		0.37	0.87	0.64	0.59	0.53	0.47	0.42	0.36	0.31	0.25	0.20	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.47	0.36	0.36	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	0.69	0.73	0.76	0.80
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		9.55	8.01	7.59	7.83	8.09	8.36	8.65	8.96	9.29	9.64	10.00	10.39	10.80	11.02	11.51	12.05	12.62	13.23	13.86	14.52	15.22
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.70	Rs/Kwh																				
Levillised Tariff (Fixed)		2.85	Rs/Kwh																				
Applicable Tariff (FY2017-18)		7.55	Rs/Kwh																				

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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)		34.61%																				
Capital Cost		600.443																				
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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
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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	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	
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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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
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Levillised benefit	0.15	(Rs/kWh)																				

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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	427.557	
			Total Equity Amount	Rs Lacs	183.239	
			Debt Component		Loan Amount	Rs Lacs
				Moratorium Period	years	0
				Repayment Period (inclcd Moratorium)	years	13
				Interest Rate	%	10.66%
		Equity Component		Equity amount	Rs Lacs	183.239
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			Depreciation		Depreciation Rate (power plant)	%
				Depreciation Rate 14th year onwards	%	3.051%
5	Working Capital	For Fixed Charges		Months	1	
		O&M Charges				
		Maintenance Spare	(% of O&M exepenses)		15%	
		Receivables for Debtors		Months	2	
		For Variable Charges		Months	4	
Biomass Stock						
		Interest On Working Capital	%	11.66%		
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass		Base Price	Rs/T	2873.22
				GCV - Biomass	Kcal/kg	3100
		Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2017 -18)		Rs Lacs	40.00	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		217.84	281.52	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	
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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	18.64	18.64	18.64	18.64	18.64	18.64	18.64	
Interest on term loan	Rs Lakh		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		17.00	20.83	21.71	22.64	23.62	24.66	25.75	26.90	28.11	29.39	30.73	32.15	33.38	34.99	36.71	38.53	40.44	42.44	44.55	46.76	
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		165.25	167.85	167.65	167.63	167.81	168.20	168.81	169.64	170.73	172.07	173.69	175.59	163.91	168.23	174.67	181.47	188.65	196.23	204.22	212.67	
Levallised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.12	4.30	4.46	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	
O&M exon	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.55	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	8.91	7.55	7.12	7.34	7.57	7.82	8.09	8.37	8.67	8.98	9.32	9.67	10.05	10.23	10.68	11.18	11.71	12.26	12.85	13.46	14.10	
Levallised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)	4.30	Rs/Kwh																					
Levallised Tariff (Fixed)	2.79	Rs/Kwh																					
Applicable Tariff (FY2017-18)	7.08	Rs/Kwh																					

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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)	34.61%
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	16.12	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%	
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%	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	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levelling benefit	0.14 (Rs/kWh)																					

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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 (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	427.557
			Total Equity Amount	Rs Lacs	183.239
		Debt Component	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0
			Repayment Period (incl. Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
		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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stabilization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3270.39
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance		O&M Expenses (2017 -18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		247.96	320.44	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		18.79	23.14	24.14	25.19	26.30	27.47	28.70	30.00	31.37	32.81	34.32	35.92	37.34	39.14	41.08	43.11	45.25	47.49	49.85	52.33
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		167.04	170.17	170.08	170.18	170.49	171.01	171.76	172.75	173.98	175.49	177.28	179.36	167.87	172.39	179.04	186.05	193.46	201.28	209.53	218.23
Levallised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.97	4.89	5.08	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	10.55	11.08	11.64	12.22
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.45	0.48	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.72	0.75	0.79	0.83
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	9.81	8.18	7.77	8.03	8.29	8.58	8.88	9.20	9.54	9.90	10.28	10.68	11.11	11.34	11.85	12.41	13.00	13.62	14.27	14.96	15.68
Levallised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.89	Rs/Kwh																				
Levallised Tariff (Fixed)	2.84	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.73	Rs/Kwh																				

CERC RE Tariff Order 2017-18

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)	34.61%																					
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	16.12	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%	
Accelerated Depn.	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levelised benefit	0.14 (Rs/kWh)																					

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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	427.557
			Total Equity Amout	Rs Lacs	183.239
		Debt Component	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stablization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3344.85
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance		O&M Expenses (2017 -18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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			253.60	327.73	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
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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh			43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			19.13	23.57	24.59	25.67	26.80	28.00	29.25	30.58	31.98	33.45	35.00	36.63	38.08	39.92	41.89	43.97	46.15	48.44	50.85	53.38
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			167.37	170.60	170.53	170.66	170.99	171.54	172.31	173.33	174.59	176.13	177.95	180.06	168.61	173.16	179.85	186.91	194.36	202.22	210.52	219.28
Levallised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		7.13	5.00	5.19	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
O&M expn	Rs/kWh		0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh		0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.48	0.51	0.53	0.55	0.58	0.60	0.63	0.66	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		9.98	8.30	7.90	8.15	8.43	8.72	9.03	9.36	9.70	10.07	10.46	10.87	11.31	11.55	12.07	12.64	13.24	13.87	14.54	15.24	15.97
Levallised Tariff																							
Levallised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.00	Rs/Kwh																				
Levallised Tariff (Fixed)		2.85	Rs/Kwh																				
Applicable Tariff (FY2017-18)		7.85	Rs/Kwh																				

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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)		34.61%																				
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	16.12	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 Depn.	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	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levelling benefit	0.14 (Rs/kWh)																					

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Annexure 2.7D					
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 (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	427.557
			Total Equity Amount	Rs Lacs	183.239
		Debt Component	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0
			Repayment Period (incl'd Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
		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	%	11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125
			During Stabilization Period	Kcal/kwh	4125
		Biomass	Base Price	Rs/T	3420.56
			GCV - Biomass	Kcal/kg	3100
			Biomass Price Escalation Factor	%	5.00%
7	Operation & Maintenance	O&M Expenses (2017 -18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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			259.34	335.15	351.91	369.50	387.98	407.38	427.75	449.13	471.59	495.17	519.93	545.93	573.22	601.88	631.98	663.58	696.75	731.59	768.17	806.58
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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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			43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			19.47	24.01	25.06	26.15	27.31	28.53	29.82	31.17	32.60	34.10	35.68	37.35	38.83	40.71	42.73	44.84	47.07	49.40	51.86	54.44
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			167.71	171.04	171.00	171.15	171.50	172.07	172.87	173.92	175.21	176.78	178.63	180.78	183.37	186.69	190.84	195.88	201.81	208.64	216.38	225.04
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	7.29		5.11	5.31	5.58	5.85	6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78
O&M expn	Rs/kWh	0.98		0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37		0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.51		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	0.86
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	10.15		8.42	8.02	8.28	8.57	8.86	9.18	9.52	9.87	10.25	10.65	11.07	11.51	11.77	12.29	12.88	13.49	14.13	14.81	15.52	16.27
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.11	Rs/Kwh																				
Levillised Tariff (Fixed)		2.86	Rs/Kwh																				
Applicable Tariff (FY2017-18)		7.97	Rs/Kwh																				

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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)		34.61%																				
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	16.12	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%	
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	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.14 (Rs/kWh)																					

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				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	427.557	
			Total Equity Amout	Rs Lacs	183.239	
			Debt Component	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0	
			Repayment Period (incld Moratorium)	years	13	
			Interest Rate	%	10.66%	
			Equity Component	Equity amount	Rs Lacs	183.239
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2854.60	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor	%	5.00%	
7	Operation & Maintenance		O&M Expenses (2017 -18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

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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
Vaiable 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			216.43	279.70	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
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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh			43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			16.92	20.72	21.59	22.52	23.49	24.52	25.61	26.75	27.96	29.23	30.57	31.98	33.19	34.79	36.51	38.31	40.21	42.21	44.30	46.50
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			165.16	167.75	167.54	167.51	167.69	168.07	168.67	169.50	170.58	171.91	173.52	175.41	163.73	168.04	174.47	181.26	188.43	195.99	203.98	212.40
Levllised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levllised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.08		4.27	4.43	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
O&M expn	Rs/kWh	0.98		0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37		0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.42	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	8.87		7.52	7.09	7.31	7.54	7.79	8.05	8.33	8.62	8.94	9.27	9.62	10.00	10.17	10.62	11.12	11.65	12.20	12.78	13.39	14.03
Levllised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.27	Rs/Kwh																				
Levllised Tariff (Fixed)		2.79	Rs/Kwh																				
Applicable Tariff (FY2017-18)		7.05	Rs/Kwh																				

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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)	34.61%																				
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	16.12	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%
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	0.01
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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levelised benefit	0.14 (Rs/kWh)																				

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				Annexure 2.7F		
				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	427.557	
			Total Equity Amount	Rs Lacs	183.239	
		Debt Component	Loan Amount	Rs Lacs	427.557	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4125	
Biomass	Base Price			Rs/T	2826.05	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017 -18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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		214.27	276.90	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.79	20.55	21.42	22.34	23.30	24.32	25.40	26.53	27.72	28.98	30.31	31.71	32.91	34.49	36.20	37.99	39.87	41.84	43.92	46.10
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		165.03	167.58	167.36	167.33	167.49	167.86	168.45	169.28	170.34	171.66	173.26	175.14	163.44	167.74	174.15	180.93	188.08	195.63	203.59	212.00
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	6.02	4.23	4.39	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	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.35	0.37	0.39	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	8.81	7.48	7.04	7.26	7.49	7.73	7.99	8.27	8.56	8.87	9.20	9.55	9.92	10.09	10.54	11.03	11.55	12.10	12.68	13.28	13.92
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.23	Rs/Kwh																				
Levillised Tariff (Fixed)	2.78	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.01	Rs/Kwh																				

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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)	34.61%																					
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	16.12	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%	0.01%	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%	0.01%	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.20
Levelling benefit	0.14	(Rs/kWh)																				

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				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 Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 11% 10% 60% 70% 80% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80
3	Financial Assumptions	Debt: Equity	Debt Equity Total Debt Amount Total Equity Amout	% % Rs Lacs Rs Lacs	70% 30% 427.557 183.239
		Debt Component	Loan Amount Moratorium Period Repayment Period(incld Moratorium) Interest Rate	Rs Lacs years years %	427.557 0 13 10.66%
		Equity Component	Equity amount Return on Equity for Project Life Discount Rate (equiv. to WACC)	Rs Lacs % p.a %	183.239 17.56% 9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
		Depreciation	Depreciation Rate(power plant) Depreciation Rate 14th year onwards	% %	5.280% 3.051%
5	Working Capital	For Fixed Charges	O&M Charges Maintenance Spare (% of O&M exepenses) Receivables for Debtors	Months Months	1 15% 2
		For Variable Charges	Biomass Stock Interest On Working Capital	Months %	4 11.66%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period During Stablization Period	Kcal/kwh Kcal/kwh	4125 4125
		Biomass	Base Price GCV - Biomass Biomass Price Escalation Factor	Rs/T Kcal/kg	2922.86 3100 5.00%
7	Operation & Maintenance	O&M Expenses (2017 -18) O & M Expenses Escalation		Rs Lacs %	40.00 5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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		221.61	286.39	300.70	315.74	331.53	348.10	365.51	383.78	402.97	423.12	444.28	466.49	489.82	514.31	540.02	567.02	595.37	625.14	656.40	689.22
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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	18.64	18.64	18.64	18.64	18.64	18.64	18.64
Interest on term loan	Rs Lakh		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.22	21.11	22.01	22.96	23.96	25.01	26.12	27.29	28.52	29.82	31.18	32.62	33.87	35.51	37.26	39.10	41.04	43.07	45.21	47.46
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	168.14	167.95	167.95	168.15	168.55	169.17	170.03	171.14	172.50	174.13	176.06	164.41	168.75	175.22	182.05	189.25	196.86	204.89	213.36
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	6.23	4.37	4.54	4.76	5.00	5.25	5.52	5.79	6.08	6.38	6.70	7.04	7.39	7.76	8.15	8.56	8.98	9.43	9.90	10.40	10.92
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	9.02	7.63	7.20	7.43	7.66	7.92	8.19	8.47	8.77	9.10	9.44	9.80	10.18	10.37	10.82	11.33	11.87	12.43	13.02	13.65	14.30
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.37	Rs/Kwh																				
Levillised Tariff (Fixed)	2.79	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.16	Rs/Kwh																				

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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)		34.61%																				
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	16.12	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%	
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 Depm.	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	57.84	62.83	18.43	6.60	-0.51	-4.77	-7.33	-8.86	-9.78	-10.33	-10.66	-10.86	-10.98	-11.05	-11.10	-11.12	-11.14	-6.07	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	
Per unit benefit	Rs/Unit	2.28	1.00	0.29	0.10	-0.01	-0.08	-0.12	-0.14	-0.15	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.14 (Rs/kWh)																					

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Annexure 2.7H					
Select State				Others	
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	610.80
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	427.557
			Total Equity Amout	Rs Lacs	183.239
		<u>Debt Component</u>	Loan Amount	Rs Lacs	427.557
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		<u>Equity Component</u>	Equity amount	Rs Lacs	183.239
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%
		<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%
		<u>For Variable Charges</u>	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
			Interest On Working Capital	%	11.66%
		6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
<u>Biomass</u>	Base Price			Rs/T	3073.05
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance		O&M Expenses (2017 -18)	Rs Lacs	40.00
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766

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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																							
Biomass Cost	Rs Lakh		233.00	301.10	316.16	331.96	348.56	365.99	384.29	403.50	423.68	444.86	467.11	490.46	514.99	540.73	567.77	596.16	625.97	657.27	690.13	724.64	
Fixed Cost																							
O&M Expenses	Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09	
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		43.82	40.32	36.81	33.31	29.80	26.29	22.79	19.28	15.78	12.27	8.76	5.26	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		17.90	21.99	22.93	23.92	24.97	26.07	27.23	28.46	29.75	31.11	32.54	34.05	35.37	37.08	38.91	40.83	42.86	44.98	47.22	49.56	
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		166.15	169.02	168.87	168.91	169.16	169.61	170.29	171.20	172.37	173.79	175.49	177.49	165.91	170.32	176.87	183.78	191.07	198.77	206.89	215.47	
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	6.55	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	8.57	9.00	9.45	9.92	10.41	10.93	11.48	
O&M expn	Rs/kWh	0.98	0.79	0.67	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	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	
Int. on term loan	Rs/kWh	0.37	0.86	0.64	0.58	0.53	0.47	0.42	0.36	0.31	0.25	0.19	0.14	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	0.40	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.65	0.68	0.71	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	9.36	7.87	7.45	7.68	7.94	8.20	8.49	8.79	9.11	9.44	9.80	10.18	10.58	10.79	11.27	11.80	12.36	12.95	13.56	14.21	14.90	
Levillised Tariff																							
Discount Factor	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192	
Variable Cost (FY2017-18)		4.59	Rs/kWh																				
Levillised Tariff (Fixed)		2.81	Rs/kWh																				
Applicable Tariff (FY2017-18)		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)	34.61%																					
Capital Cost	600.443																					
Years																						
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%
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	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	0.01
Tax Benefit	Rs Lakh	56.86	61.76	18.12	6.48	-0.50	-4.69	-7.20	-8.71	-9.62	-10.16	-10.48	-10.68	-10.80	-10.87	-10.91	-10.93	-10.95	-5.97	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	2.29	1.00	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.16	-0.17	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit	0.15	(Rs/kWh)																				

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			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/M	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'd Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2873.22	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor	%	5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

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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			217.84	281.52	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
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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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			46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			17.15	20.97	21.84	22.77	23.75	24.78	25.86	27.01	28.22	29.49	30.83	32.25	33.45	35.06	36.78	38.60	40.51	42.51	44.62	46.83
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			172.73	175.10	174.65	174.39	174.33	174.47	174.84	175.43	176.27	177.37	178.75	180.41	167.55	171.74	178.19	184.99	192.16	199.74	207.74	216.18
Levillised tariff corresponding to Useful life		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	6.26		4.39	4.56	4.79	5.03	5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98
O&M expn	Rs/kWh	1.00		0.81	0.89	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40		0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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		0.35	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	9.21		7.88	7.40	7.62	7.86	8.11	8.37	8.66	8.96	9.28	9.61	9.97	10.35	10.52	10.98	11.49	12.03	12.60	13.19	13.82	14.48
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		4.39	Rs/kWh																				
Levillised Tariff (Fixed)		2.95	Rs/kWh																				
Applicable Tariff (FY2017-18)		7.34	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)	34.61%																						
Capital Cost	652.205																						
Years ----->																							
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%
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	34.44	34.44	34.44
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%
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%
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	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.03	0.01	
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	0.01	
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit	0.16	(Rs/kWh)																					

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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	%	10.66%	
			Equity Component	Equity amount	Rs Lacs	195.66
				Return on Equity for Project Life	% p.a	17.56%
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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 (% of O&M exepenses) Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital		Months	1	
					15%	
				Months	2	
				Months	4	
				%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3270.39	
			GCV - Biomass	Kcal/kg	3100	
		Biomass Price Escalation Factor		5.00%		
7	Operation & Maintenance	O&M Expenses (2017-18) O & M Expenses Escalation		Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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			247.96	320.44	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
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			40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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			46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			18.94	23.28	24.27	25.32	26.43	27.59	28.82	30.11	31.47	32.91	34.42	36.02	37.41	38.21	41.15	43.18	45.32	47.56	49.92	52.40
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			174.52	177.41	177.08	176.94	177.00	177.28	177.79	178.53	179.53	180.79	182.34	184.18	171.51	175.90	182.55	189.57	196.97	204.79	213.04	221.75
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	RskWh	7.13	5.00	5.19	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	
O&M expn	RskWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86	
Depreciation	RskWh	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	RskWh	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	RskWh	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	0.73	0.77	0.81	0.85	
RoE	RskWh	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	RskWh	10.13	8.52	8.02	8.32	8.59	8.88	9.18	9.51	9.85	10.22	10.60	11.01	11.44	11.66	12.18	12.75	13.35	13.99	14.65	15.35	16.09	
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.00	Rs/Kwh																				
Levillised Tariff (Fixed)		3.00	Rs/Kwh																				
Applicable Tariff (FY2017-18)		8.00	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)		34.61%																				
Capital Cost		652.205																				
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																						
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	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02	
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit	0.16	(Rs/kWh)																				

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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 Amount	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	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	3344.85	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

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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		253.60	327.73	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
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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.27	23.71	24.73	25.80	26.93	28.12	29.37	30.69	32.08	33.55	35.10	36.72	38.15	39.99	41.96	44.04	46.22	48.51	50.91	53.44
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		174.86	177.84	177.53	177.42	177.51	177.81	178.34	179.11	180.14	181.43	183.01	184.88	172.25	176.68	183.37	190.43	197.88	205.74	214.03	222.79
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	7.29	5.12	5.31	5.58	5.85	6.15	6.46	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.46	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	10.30	8.64	8.19	8.45	8.73	9.02	9.34	9.67	10.02	10.39	10.79	11.20	11.65	11.87	12.40	12.99	13.60	14.25	14.93	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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		5.12																				
Levillised Tariff (Fixed)		3.01																				
Applicable Tariff (FY2017-18)		8.13																				

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)		34.61%																				
Capital Cost		652.205																				
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 Deprn.	Rs Lakh	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.22	0.20
Levillised benefit	0.16	(Rs/kWh)																				

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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
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'd Moratorium)	years	13		
		Interest Rate	%	10.66%		
		Equity Component	Equity amount	Rs Lacs	195.66	
		Return on Equity for Project Life	% p.a	17.56%		
		Discount Rate (equiv. to WACC)	%	9.08%		
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%	
			6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh	4125				
Biomass	Base Price	Rs/T			3420.56	
	GCV - Biomass	Kcal/kg			3100	
	Biomass Price Escalation Factor	%			5.00%	
7	Operation & Maintenance		O&M Expenses (2017-18)	Rs Lacs	40.00	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766	

CERC RE Tariff Order 2017-18

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 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	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	195.66	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2854.60	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		216.43	279.70	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		17.06	20.86	21.73	22.65	23.62	24.65	25.73	26.86	28.07	29.33	30.66	32.07	33.26	34.86	36.58	38.38	40.28	42.27	44.37	46.57
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		172.65	174.99	174.53	174.27	174.20	174.34	174.70	175.29	176.12	177.21	178.58	180.23	167.36	171.55	177.98	184.77	191.94	199.50	207.49	215.92

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	6.22	4.37	4.53	4.76	5.00	5.25	5.51	5.78	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91
O&M expn	Rs/kWh	1.00	0.81	0.89	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.45	0.48	0.50	0.52	0.54	0.56	0.59	0.62	0.65	0.69	0.72	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	9.17	7.85	7.37	7.59	7.82	8.07	8.33	8.62	8.91	9.23	9.57	9.92	10.30	10.46	10.92	11.43	11.97	12.53	13.13	13.75	14.41

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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.37 Rs/kWh
Levillised Tariff (Fixed)	2.95 Rs/kWh
Applicable Tariff (FY2017-18)	7.31 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)	34.61%
Capital Cost	652.205

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		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	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.16	(Rs/kWh)
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CERC RE Tariff Order 2017-18

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
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	%	10.66%
		Equity Component	Equity amount	Rs Lacs	195.66
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			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	%	11.66%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				4125
Biomass	Base Price			Rs/T	2826.05
	GCV - Biomass			Kcal/kg	3100
	Biomass Price Escalation Factor				5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs Lacs	40.00	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		214.27	276.90	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

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.93	20.69	21.56	22.47	23.43	24.44	25.51	26.64	27.83	29.09	30.41	31.80	32.98	34.56	36.26	38.05	39.93	41.91	43.99	46.17
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		172.52	174.82	174.36	174.09	174.01	174.14	174.48	175.06	175.89	176.97	178.32	179.96	167.08	171.25	177.67	184.44	191.59	199.14	207.11	215.52

Levallised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.16	4.32	4.49	4.71	4.95	5.19	5.45	5.73	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
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.34	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.52	0.53	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	9.10	7.80	7.32	7.54	7.77	8.01	8.28	8.55	8.85	9.16	9.50	9.85	10.22	10.38	10.83	11.34	11.87	12.43	13.02	13.64	14.29

Levallised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.32 Rs/Kwh
Levallised Tariff (Fixed)	2.94 Rs/Kwh
Applicable Tariff (FY2017-18)	7.26 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)	34.61%
Capital Cost	652.205

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%	0.01%	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%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02	
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	

Levallised benefit	0.16 (Rs/kWh)
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CERC RE Tariff Order 2017-18

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	Rs Lacs/M	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(inclد Moratorium)	years	13	
		Equity Component	Interest Rate	%	10.66%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4125	
			During Stablization Period	Kcal/kwh	4125	
		Biomass	Base Price	Rs/T	2922.86	
			GCV - Biomass	Kcal/kg	3100	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		221.61	286.39	300.70	315.74	331.53	348.10	365.51	383.78	402.97	423.12	444.28	466.49	489.82	514.31	540.02	567.02	595.37	625.14	656.40	689.22

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		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Return on working Capital	Rs Lakh		17.37	21.26	22.15	23.09	24.08	25.13	26.23	27.40	28.63	29.92	31.28	32.72	33.94	35.57	37.33	39.17	41.11	43.14	45.28	47.53
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		172.95	175.38	174.95	174.71	174.66	174.82	175.20	175.82	176.68	177.80	179.19	180.88	168.04	172.26	178.73	185.56	192.76	200.37	208.40	216.87

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	6.37	4.47	4.64	4.87	5.12	5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17
O&M expn	Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	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	0.43	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
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	9.33	7.96	7.48	7.71	7.95	8.20	8.47	8.76	9.07	9.39	9.74	10.10	10.49	10.86	11.13	11.65	12.19	12.77	13.38	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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192

Variable Cost (FY2017-18)	4.47	Rs/Kwh
Levillised Tariff (Fixed)	2.95	Rs/Kwh
Applicable Tariff (FY2017-18)	7.43	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)	34.61%
Capital Cost	652.205

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

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 Depn.	Rs Lakh	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20

Levillised benefit	0.16	(Rs/kWh)
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CERC RE Tariff Order 2017-18

		Select State	Others			
Annexure 2.8H						
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(incld Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	195.66	
			Return on Equity for Project Life	% p.a	17.56%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	%	11.66%		
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				4125	
Biomass	Base Price			Rs/T	3073.05	
	GCV - Biomass			Kcal/kg	3100	
	Biomass Price Escalation Factor			%	5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	O & M Expenses Escalation	Rs Lacs	40.00	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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																							
Biomass Cost		Rs Lakh		233.00	301.10	316.16	331.96	348.56	365.99	384.29	403.50	423.68	444.86	467.11	490.46	514.99	540.73	567.77	596.16	625.97	657.27	690.13	724.64
Fixed Cost																							
O&M Expenses		Rs Lakh		40.00	42.29	44.71	47.26	49.97	52.83	55.85	59.04	62.42	65.99	69.76	73.75	77.97	82.43	87.15	92.13	97.40	102.97	108.87	115.09
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		46.80	43.05	39.31	35.56	31.82	28.08	24.33	20.59	16.85	13.10	9.36	5.62	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital		Rs Lakh		18.05	22.13	23.07	24.05	25.09	26.19	27.35	28.57	29.86	31.21	32.64	34.14	35.44	37.15	38.98	40.90	42.93	45.05	47.29	49.63
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		173.63	176.26	175.87	175.67	175.67	175.89	176.32	176.99	177.91	179.09	180.55	182.30	169.54	173.83	180.38	187.29	194.58	202.28	210.41	218.98
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	6.70	4.70	4.88	5.12	5.38	5.65	5.93	6.23	6.54	6.87	7.21	7.57	7.95	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74
O&M expn		Rs/kWh	1.00	0.81	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.20	1.26	1.34	1.41	1.49	1.58	1.67	1.76	1.86
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	0.40	0.94	0.70	0.64	0.58	0.52	0.45	0.39	0.33	0.27	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital		Rs/kWh	0.48	0.36	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.57	0.60	0.63	0.66	0.70	0.73	0.77	0.80
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	8.20	7.74	7.97	8.23	8.49	8.78	9.08	9.41	9.75	10.11	10.49	10.90	11.09	11.58	12.12	12.70	13.30	13.93	14.59	15.29
Levillised Tariff																							
Discount Factor		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)				4.70																			
Levillised Tariff (Fixed)				2.97																			
Applicable Tariff (FY2017-18)				7.67																			

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)		34.61%																					
Capital Cost		652.205																					
Years ----->																							
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	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																							
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%
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%	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 Depm.	Rs Lakh	195.66	228.27	91.31	54.79	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	193.84	56.87	20.35	-1.57	-14.71	-22.60	-27.34	-30.18	-31.88	-32.90	-33.52	-33.88	-34.11	-34.24	-34.32	-34.36	-18.74	0.03	0.02	0.02	
Tax Benefit	Rs Lakh	61.76	67.09	19.68	7.04	-0.54	-5.09	-7.82	-9.46	-10.44	-11.03	-11.39	-11.60	-11.73	-11.80	-11.85	-11.88	-11.89	-6.49	0.01	0.01	0.01	
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	2.49	1.09	0.32	0.11	-0.01	-0.08	-0.13	-0.15	-0.17	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.11	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19	
Levillised benefit		0.16	(Rs/kWh)																				

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Non Fossil Fuel based co-generation Projects					Annexure 3A	
				Select State	AP	
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)	%	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	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	344.750	
			Total Equity Amout	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	%	10.66%	
			<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)	%	9.08%		
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%	
			<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	%	11.66%	
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	1622.16	
			GCV - Bagasse	Kcal/kg	2250	
			Bagasse Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs. Lacs	21.13	
			<u>O & M Expenses Escalation</u>		%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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Determination of Tariff for non-fossil fuel based co-generation 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		3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94
Auxiliary Consumption	MU		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Net Generation	MU		3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
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		21.13	22.34	23.62	24.97	26.40	27.91	29.50	31.19	32.97	34.86	36.85	38.96	41.19	43.55	46.04	48.67	51.45	54.40	57.51	60.80
Depreciation	Rs Lakh		26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	18.74	18.74	18.74	18.74	18.74	18.74	18.74
Interest on term loan	Rs Lakh		35.34	32.51	29.68	26.86	24.03	21.20	18.38	15.55	12.72	9.89	7.07	4.24	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		8.82	9.13	9.45	9.80	10.16	10.55	10.95	11.39	11.84	12.33	12.84	13.38	13.95	14.44	15.13	15.86	16.62	17.42	18.27	19.16
Return on Equity	Rs Lakh		25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94
Total Fixed Cost	Rs Lakh		117.23	115.92	114.70	113.56	112.53	111.60	110.78	110.07	109.48	109.03	108.70	108.52	108.50	102.66	105.85	109.21	112.76	116.51	120.46	124.64
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	4.09	2.84	2.98	3.13	3.28	3.45	3.62	3.80	3.99	4.19	4.40	4.62	4.85	5.09	5.35	5.62	5.90	6.19	6.50	6.83	7.17
O&M expn	Rs/kWh	0.89	0.59	0.62	0.65	0.69	0.73	0.77	0.82	0.86	0.91	0.97	1.02	1.08	1.14	1.21	1.28	1.35	1.43	1.51	1.59	1.68
Depreciation	Rs/kWh	0.68	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Int. on term loan	Rs/kWh	0.49	0.98	0.90	0.82	0.74	0.67	0.59	0.51	0.43	0.35	0.27	0.20	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.32	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.32	0.33	0.34	0.36	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53
RoE	Rs/kWh	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Total COG	Rs/kWh	7.20	6.08	6.19	6.31	6.43	6.57	6.71	6.87	7.04	7.22	7.42	7.63	7.86	8.10	8.19	8.55	8.92	9.32	9.73	10.16	10.62
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	2.84	Rs/Kwh																				
Levillised Tariff (Fixed)	3.11	Rs/Kwh																				
Applicable Tariff (FY2017-18)	5.95	Rs/Kwh																				

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Determination of Accelerated Depreciation for non-fossil fuel based co-generation project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional Depreciation	20.00%																					
Income Tax (Normal Rates)	34.610%																					
Capital Cost Rs. Lakh	492.500																					
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	13.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	14.18	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	147.75	172.38	68.95	41.37	24.82	14.89	8.94	5.36	3.22	1.93	1.16	0.69	0.42	0.25	0.15	0.09	0.05	0.03	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	134.75	146.37	42.95	15.37	-1.18	-11.11	-17.07	-20.64	-22.79	-24.07	-24.85	-25.31	-25.59	-25.75	-25.85	-25.91	-25.95	-14.15	0.02	0.01	
Tax Benefit	Rs Lakh	46.64	50.66	14.86	5.32	-0.41	-3.85	-5.91	-7.14	-7.89	-8.33	-8.60	-8.76	-8.86	-8.91	-8.95	-8.97	-8.98	-4.90	0.01	0.00	
Net Energy generation	MU	1.80	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	
Per unit benefit	Rs/Unit	2.58	1.40	0.41	0.15	-0.01	-0.11	-0.16	-0.20	-0.22	-0.23	-0.24	-0.24	-0.25	-0.25	-0.25	-0.25	-0.25	-0.14	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levellised benefit	0.20	(Rs/kWh)																				

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					Annexure 3B	
					Select State	
					Harayana	
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)	%	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	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	344.750	
			Total Equity Amout	Rs Lacs	147.750	
		<u>Debt Component</u>	Loan Amount	Rs Lacs	344.75	
			Moratorium Period	years	0	
			Repayment Period(inclcd Moratorium)	years	13	
			Interest Rate	%	10.66%	
		<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)	%	9.08%	
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%	
			<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	%	11.66%	
		6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				3600	
<u>Biomass</u>	Bagasse Price			Rs/T	2307.26	
	GCV - Bagasse			Kcal/kg	2250	
	Bagasse Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs. Lacs	21.13	
			O & M Expenses Escalation		%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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Determination of Tariff for non-fossil fuel based co-generation 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		4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65
Auxiliary Consumption	MU		0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Net Generation	MU		4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
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		21.13	22.34	23.62	24.97	26.40	27.91	29.50	31.19	32.97	34.86	36.85	38.96	41.19	43.55	46.04	48.67	51.45	54.40	57.51	60.80
Depreciation	Rs Lakh		26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	18.74	18.74	18.74	18.74	18.74	18.74	18.74
Interest on term loan	Rs Lakh		35.34	32.51	29.68	26.86	24.03	21.20	18.38	15.55	12.72	9.89	7.07	4.24	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		12.93	13.44	13.98	14.55	15.16	15.79	16.46	17.17	17.92	18.70	19.53	20.41	21.33	22.19	23.27	24.40	25.59	26.85	28.16	29.55
Return on Equity	Rs Lakh		25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94
Total Fixed Cost	Rs Lakh		121.34	120.24	119.23	118.32	117.53	116.84	116.28	115.85	115.56	115.40	115.40	115.55	115.88	110.42	113.99	117.75	121.73	125.93	130.35	135.03
Levallised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	5.81	4.03	4.24	4.45	4.67	4.90	5.15	5.41	5.68	5.96	6.26	6.57	6.90	7.25	7.61	7.99	8.39	8.81	9.25	9.71	10.20
O&M expn	Rs/kWh	0.76	0.50	0.53	0.56	0.59	0.62	0.66	0.69	0.73	0.78	0.82	0.87	0.92	0.97	1.02	1.08	1.14	1.21	1.28	1.35	1.43
Depreciation	Rs/kWh	0.58	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Int. on term loan	Rs/kWh	0.42	0.83	0.76	0.70	0.63	0.57	0.50	0.43	0.37	0.30	0.23	0.17	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.41	0.30	0.32	0.33	0.34	0.36	0.37	0.39	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
RoE	Rs/kWh	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Total COG	Rs/kWh	8.59	6.89	7.06	7.25	7.45	7.67	7.90	8.14	8.40	8.68	8.97	9.29	9.62	9.97	10.21	10.67	11.16	11.67	12.21	12.78	13.37
Levallised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	4.03	Rs/Kwh																				
Levallised Tariff (Fixed)	2.78	Rs/Kwh																				
Applicable Tariff (FY2017-18)	6.82	Rs/Kwh																				

CERC RE Tariff Order 2017-18

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional Depreciation	20.00%																				
Income Tax (Normal Rates)	34.610%																				
Capital Cost Rs. Lakh	492.500																				
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	13.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	14.18	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	147.75	172.38	68.95	41.37	24.82	14.89	8.94	5.36	3.22	1.93	1.16	0.69	0.42	0.25	0.15	0.09	0.05	0.03	0.02	0.01
Net Depreciation Benefit	Rs Lakh	134.75	146.37	42.95	15.37	-1.18	-11.11	-17.07	-20.64	-22.79	-24.07	-24.85	-25.31	-25.59	-25.75	-25.85	-25.91	-25.95	-14.15	0.02	0.01
Tax Benefit	Rs Lakh	46.64	50.66	14.86	5.32	-0.41	-3.85	-5.91	-7.14	-7.89	-8.33	-8.60	-8.76	-8.86	-8.91	-8.95	-8.97	-8.98	-4.90	0.01	0.00
Net Energy generation	MU	2.13	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.19	1.19	0.35	0.13	-0.01	-0.09	-0.14	-0.17	-0.19	-0.20	-0.20	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.12	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.17	(Rs/kWh)																			

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					Annexure 3C		
					Maharashtra		
					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)	%	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	%	10.66%			
		Equity Component					
Equity amount	Rs Lacs	147.75					
Return on Equity for Project Life	% p.a	17.56%					
Discount Rate (equiv. to WACC)	%	9.08%					
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%		
			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	%	11.66%		
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600		
			During Stablization Period	Kcal/kwh	3600		
		Biomass					
		Bagasse Price	Rs/T	2273.75			
		GCV - Bagasse	Kcal/kg	2250			
Bagasse Price Escalation Factor		5.00%					
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs. Lacs	21.13		
			O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766		

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Determination of Tariff for non-fossil fuel based co-generation 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		5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	
Auxiliary Consumption	MU		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	
Net Generation	MU		4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	
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		21.13	22.34	23.62	24.97	26.40	27.91	29.50	31.19	32.97	34.86	36.85	38.96	41.19	43.55	46.04	48.67	51.45	54.40	57.51	60.80
Depreciation	Rs Lakh		26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	18.74	18.74	18.74	18.74	18.74	18.74	18.74
Interest on term loan	Rs Lakh		35.34	32.51	29.68	26.86	24.03	21.20	18.38	15.55	12.72	9.89	7.07	4.24	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		14.11	14.68	15.28	15.92	16.59	17.30	18.04	18.83	19.66	20.53	21.45	22.42	23.45	24.41	25.60	26.85	28.17	29.55	31.00	32.53
Return on Equity	Rs Lakh		25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94
Total Fixed Cost	Rs Lakh		122.52	121.48	120.53	119.69	118.96	118.35	117.86	117.51	117.30	117.23	117.32	117.57	118.00	112.64	116.32	120.21	124.30	128.63	133.19	138.01
Levallised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	5.73	3.98	4.17	4.38	4.60	4.83	5.07	5.33	5.59	5.87	6.17	6.48	6.80	7.14	7.50	7.87	8.27	8.68	9.11	9.57	10.05
O&M expn	Rs/kWh	0.67	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.19	1.26
Depreciation	Rs/kWh	0.51	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Int. on term loan	Rs/kWh	0.37	0.73	0.68	0.62	0.56	0.50	0.44	0.38	0.32	0.26	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.40	0.29	0.31	0.32	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.59	0.61	0.64	0.68
RoE	Rs/kWh	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Total COG	Rs/kWh	8.22	6.52	6.70	6.89	7.09	7.30	7.53	7.78	8.04	8.31	8.60	8.91	9.24	9.59	9.84	10.29	10.76	11.26	11.79	12.34	12.91
Levallised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	3.98	Rs/Kwh																				
Levallised Tariff (Fixed)	2.49	Rs/Kwh																				
Applicable Tariff (FY2017-18)	6.47	Rs/Kwh																				

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Determination of Accelerated Depreciation for non-fossil fuel based co-generation project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional Depreciation	20.00%																					
Income Tax (Normal Rates)	34.610%																					
Capital Cost Rs. Lakh	492.500																					
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	13.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	14.18	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	147.75	172.38	68.95	41.37	24.82	14.89	8.94	5.36	3.22	1.93	1.16	0.69	0.42	0.25	0.15	0.09	0.05	0.03	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	134.75	146.37	42.95	15.37	-1.18	-11.11	-17.07	-20.64	-22.79	-24.07	-24.85	-25.31	-25.59	-25.75	-25.85	-25.91	-25.95	-14.15	0.02	0.01	
Tax Benefit	Rs Lakh	46.64	50.66	14.86	5.32	-0.41	-3.85	-5.91	-7.14	-7.89	-8.33	-8.60	-8.76	-8.86	-8.91	-8.95	-8.97	-8.98	-4.90	0.01	0.00	
Net Energy generation	MU	2.41	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	
Per unit benefit	Rs/Unit	1.94	1.05	0.31	0.11	-0.01	-0.08	-0.12	-0.15	-0.16	-0.17	-0.18	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.10	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levellised benefit	0.15 (Rs/kWh)																					

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Annexure 3D						
Non Fossil Fuel based co-generation Projects						
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	%	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(inclcd Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	147.75	
Return on Equity for Project Life	% p.a		17.56%			
Discount Rate (equiv. to WACC)	%		9.08%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600	
			During Stablization Period	Kcal/kwh	3600	
		Biomass	Bagasse Price	Rs/T	2030.49	
			GCV - Bagasse	Kcal/kg	2250	
			Bagasse Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs. Lacs	21.13	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy					
		Total No. of Hours		Hrs	8766	

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Determination of Tariff for non-fossil fuel based co-generation 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		4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65
Auxiliary Consumption	MU		0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Net Generation	MU		4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
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		21.13	22.34	23.62	24.97	26.40	27.91	29.50	31.19	32.97	34.86	36.85	38.96	41.19	43.55	46.04	48.67	51.45	54.40	57.51	60.80	
Depreciation	Rs Lakh		26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	18.74	18.74	18.74	18.74	18.74	18.74	18.74
Interest on term loan	Rs Lakh		35.34	32.51	29.68	26.86	24.03	21.20	18.38	15.55	12.72	9.89	7.07	4.24	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		11.71	12.16	12.63	13.14	13.67	14.23	14.82	15.45	16.11	16.81	17.54	18.32	19.13	19.88	20.84	21.86	22.92	24.04	25.22	26.45	
Return on Equity	Rs Lakh		25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94
Total Fixed Cost	Rs Lakh		120.12	118.95	117.88	116.91	116.04	115.28	114.64	114.13	113.75	113.50	113.41	113.46	113.68	108.11	111.56	115.21	119.06	123.12	127.41	131.94	
Levallised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levllised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		5.11	3.55	3.73	3.91	4.11	4.32	4.53	4.76	5.00	5.25	5.51	5.78	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.54	8.97
O&M expn	Rs/kWh		0.76	0.50	0.53	0.56	0.59	0.62	0.66	0.69	0.73	0.78	0.82	0.87	0.92	0.97	1.02	1.08	1.14	1.21	1.28	1.35	1.43
Depreciation	Rs/kWh		0.58	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Int. on term loan	Rs/kWh		0.42	0.83	0.76	0.70	0.63	0.57	0.50	0.43	0.37	0.30	0.23	0.17	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.37	0.28	0.29	0.30	0.31	0.32	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.57	0.59	0.62
RoE	Rs/kWh		0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Total COG	Rs/kWh		7.86	6.38	6.53	6.69	6.86	7.05	7.24	7.45	7.68	7.92	8.18	8.45	8.74	9.05	9.24	9.65	10.09	10.55	11.03	11.54	12.08
Levllised 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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	3.55	Rs/Kwh																					
Levllised Tariff (Fixed)	2.74	Rs/Kwh																					
Applicable Tariff (FY2017-18)	6.29	Rs/Kwh																					

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Determination of Accelerated Depreciation for non-fossil fuel based co-generation project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional Depreciation	20.00%																					
Income Tax (Normal Rates)	34.610%																					
Capital Cost Rs. Lakh	492.500																					
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	13.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	14.18	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	147.75	172.38	68.95	41.37	24.82	14.89	8.94	5.36	3.22	1.93	1.16	0.69	0.42	0.25	0.15	0.09	0.05	0.03	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	134.75	146.37	42.95	15.37	-1.18	-11.11	-17.07	-20.64	-22.79	-24.07	-24.85	-25.31	-25.59	-25.75	-25.85	-25.91	-25.95	-14.15	0.02	0.01	
Tax Benefit	Rs Lakh	46.64	50.66	14.86	5.32	-0.41	-3.85	-5.91	-7.14	-7.89	-8.33	-8.60	-8.76	-8.86	-8.91	-8.95	-8.97	-8.98	-4.90	0.01	0.00	
Net Energy generation	MU	2.13	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	
Per unit benefit	Rs/Unit	2.19	1.19	0.35	0.13	-0.01	-0.09	-0.14	-0.17	-0.19	-0.20	-0.20	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.12	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.17	(Rs/kWh)																				

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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(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	147.75
			Return on Equity for Project Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)	%	9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				3600
Biomass	Bagasse Price			Rs/T	1747.51
	GCV - Bagasse			Kcal/kg	2250
	Bagasse Price Escalation Factor			%	5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs. Lacs	21.13	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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Determination of Tariff for non-fossil fuel based co-generation 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		5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26
Auxiliary Consumption	MU		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Net Generation	MU		4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81
Fixed Cost																						
O&M Expenses	Rs Lakh		21.13	22.34	23.62	24.97	26.40	27.91	29.50	31.19	32.97	34.86	36.85	38.96	41.19	43.55	46.04	48.67	51.45	54.40	57.51	60.80
Depreciation	Rs Lakh		26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	18.74	18.74	18.74	18.74	18.74	18.74
Interest on term loan	Rs Lakh		35.34	32.51	29.68	26.86	24.03	21.20	18.38	15.55	12.72	9.89	7.07	4.24	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		11.48	11.92	12.38	12.87	13.39	13.94	14.51	15.12	15.77	16.45	17.16	17.92	18.72	19.44	20.39	21.38	22.42	23.51	24.66	25.87
Return on Equity	Rs Lakh		25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94
Total Fixed Cost	Rs Lakh		119.89	118.71	117.63	116.64	115.76	114.99	114.34	113.81	113.41	113.15	113.03	113.07	113.27	107.67	111.11	114.73	118.56	122.59	126.86	131.35
Levallised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	4.40	3.06	3.21	3.37	3.54	3.71	3.90	4.10	4.30	4.51	4.74	4.98	5.23	5.49	5.76	6.05	6.35	6.67	7.00	7.35	7.72
O&M expn	Rs/kWh	0.67	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.69	0.72	0.77	0.81	0.86	0.90	0.96	1.01	1.07	1.13	1.19	1.26
Depreciation	Rs/kWh	0.51	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Int. on term loan	Rs/kWh	0.37	0.73	0.68	0.62	0.56	0.50	0.44	0.38	0.32	0.26	0.21	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.32	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.40	0.42	0.44	0.47	0.49	0.51	0.54
RoE	Rs/kWh	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Total COG	Rs/kWh	6.82	5.55	5.68	5.81	5.96	6.12	6.29	6.47	6.66	6.87	7.09	7.33	7.58	7.84	8.00	8.36	8.74	9.13	9.55	9.99	10.45
Levallised Tariff																						
Discount Factor	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			1	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	3.06	Rs/Kwh																				
Levallised Tariff (Fixed)	2.41	Rs/Kwh																				
Applicable Tariff (FY2017-18)	5.47	Rs/Kwh																				

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Determination of Accelerated Depreciation for non-fossil fuel based co-generation project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional Depreciation	20.00%																				
Income Tax (Normal Rates)	34.610%																				
Capital Cost Rs. Lakh	492.500																				
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	13.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	14.18	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	147.75	172.38	68.95	41.37	24.82	14.89	8.94	5.36	3.22	1.93	1.16	0.69	0.42	0.25	0.15	0.09	0.05	0.03	0.02	0.01
Net Depreciation Benefit	Rs Lakh	134.75	146.37	42.95	15.37	-1.18	-11.11	-17.07	-20.64	-22.79	-24.07	-24.85	-25.31	-25.59	-25.75	-25.85	-25.91	-25.95	-14.15	0.02	0.01
Tax Benefit	Rs Lakh	46.64	50.66	14.86	5.32	-0.41	-3.85	-5.91	-7.14	-7.89	-8.33	-8.60	-8.76	-8.86	-8.91	-8.95	-8.97	-8.98	-4.90	0.01	0.00
Net Energy generation	MU	2.41	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81
Per unit benefit	Rs/Unit	1.94	1.05	0.31	0.11	-0.01	-0.08	-0.12	-0.15	-0.16	-0.17	-0.18	-0.18	-0.18	-0.19	-0.19	-0.19	-0.19	-0.10	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levellised benefit	0.15	(Rs/kWh)																			

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Non Fossil Fuel based co-generation Projects					Annexure 3F	
				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	%	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	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	147.75	
			Return on Equity for Project Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)	%	9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%	
			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	%	11.66%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh
During Stablization Period	Kcal/kwh				3600	
Biomass	Bagasse Price			Rs/T	1809.57	
	GCV - Bagasse			Kcal/kg	2250	
	Bagasse Price Escalation Factor				5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)		Rs. Lacs	21.13	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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Determination of Tariff for non-fossil fuel based co-generation 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		3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	
Auxiliary Consumption	MU		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	
Net Generation	MU		3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	
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		21.13	22.34	23.62	24.97	26.40	27.91	29.50	31.19	32.97	34.86	36.85	38.96	41.19	43.55	46.04	48.67	51.45	54.40	57.51	60.80
Depreciation	Rs Lakh		26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	18.74	18.74	18.74	18.74	18.74	18.74
Interest on term loan	Rs Lakh		35.34	32.51	29.68	26.86	24.03	21.20	18.38	15.55	12.72	9.89	7.07	4.24	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		9.53	9.87	10.23	10.61	11.02	11.44	11.90	12.38	12.88	13.42	13.98	14.58	15.21	15.76	16.52	17.32	18.16	19.04	19.96	20.94
Return on Equity	Rs Lakh		25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94
Total Fixed Cost	Rs Lakh		117.94	116.66	115.47	114.38	113.38	112.50	111.72	111.06	110.52	110.12	109.85	109.73	109.76	103.99	107.24	110.67	114.29	118.12	122.16	126.42
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	4.56	3.16	3.32	3.49	3.66	3.85	4.04	4.24	4.45	4.68	4.91	5.15	5.41	5.68	5.97	6.27	6.58	6.91	7.25	7.62	8.00
O&M expn	Rs/kWh	0.89	0.59	0.62	0.65	0.69	0.73	0.77	0.82	0.86	0.91	0.97	1.02	1.08	1.14	1.21	1.28	1.35	1.43	1.51	1.59	1.68
Depreciation	Rs/kWh	0.68	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Int. on term loan	Rs/kWh	0.49	0.98	0.90	0.82	0.74	0.67	0.59	0.51	0.43	0.35	0.27	0.20	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.35	0.26	0.27	0.28	0.29	0.31	0.32	0.33	0.34	0.36	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58
RoE	Rs/kWh	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Total COG	Rs/kWh	7.70	6.43	6.55	6.69	6.83	6.99	7.16	7.34	7.53	7.74	7.96	8.20	8.45	8.72	8.85	9.24	9.64	10.07	10.53	11.00	11.50
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)		3.16	Rs/Kwh																			
Levillised Tariff (Fixed)		3.14	Rs/Kwh																			
Applicable Tariff (FY2017-18)		6.31	Rs/Kwh																			

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Determination of Accelerated Depreciation for non-fossil fuel based co-generation project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional Depreciation	20.00%																				
Income Tax (Normal Rates)	34.610%																				
Capital Cost Rs. Lakh	492.500																				
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	13.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	14.18	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	147.75	172.38	68.95	41.37	24.82	14.89	8.94	5.36	3.22	1.93	1.16	0.69	0.42	0.25	0.15	0.09	0.05	0.03	0.02	0.01
Net Depreciation Benefit	Rs Lakh	134.75	146.37	42.95	15.37	-1.18	-11.11	-17.07	-20.64	-22.79	-24.07	-24.85	-25.31	-25.59	-25.75	-25.85	-25.91	-25.95	-14.15	0.02	0.01
Tax Benefit	Rs Lakh	46.64	50.66	14.86	5.32	-0.41	-3.85	-5.91	-7.14	-7.89	-8.33	-8.60	-8.76	-8.86	-8.91	-8.95	-8.97	-8.98	-4.90	0.01	0.00
Net Energy generation	MU	1.80	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
Per unit benefit	Rs/Unit	2.58	1.40	0.41	0.15	-0.01	-0.11	-0.16	-0.20	-0.22	-0.23	-0.24	-0.24	-0.25	-0.25	-0.25	-0.25	-0.25	-0.14	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levelling benefit	0.20	(Rs/kWh)																			

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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 Amount	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	%	10.66%
		Equity Component	Equity amount	Rs Lacs	147.75
			Return on Equity for Project Life	% p.a	17.56%
Discount Rate (equiv. to WACC)	%	9.08%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.610%
			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	%	11.66%			
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3600
			During Stablization Period	Kcal/kwh	3600
		Biomass	Bagasse Price	Rs/T	1964.71
			GCV - Bagasse	Kcal/kg	2250
			Bagasse Price Escalation Factor		5.00%
7	Operation & Maintenance	O&M Expenses (2017-18)	Rs. Lacs	21.13	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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Determination of Tariff for non-fossil fuel based co-generation 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		4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65
Auxiliary Consumption	MU		0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Net Generation	MU		4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
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		21.13	22.34	23.62	24.97	26.40	27.91	29.50	31.19	32.97	34.86	36.85	38.96	41.19	43.55	46.04	48.67	51.45	54.40	57.51	60.80
Depreciation	Rs Lakh		26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00
Interest on term loan	Rs Lakh		35.34	32.51	29.68	26.86	24.03	21.20	18.38	15.55	12.72	9.89	7.07	4.24	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		11.42	11.85	12.31	12.80	13.32	13.86	14.43	15.04	15.68	16.35	17.07	17.82	18.61	19.33	20.27	21.25	22.29	23.38	24.52	25.72
Return on Equity	Rs Lakh		25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94	25.94
Total Fixed Cost	Rs Lakh		119.83	118.65	117.56	116.57	115.69	114.91	114.26	113.72	113.32	113.05	112.93	112.96	113.16	107.56	110.99	114.61	118.43	122.46	126.71	131.20
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	4.95	3.44	3.61	3.79	3.98	4.18	4.38	4.60	4.83	5.08	5.33	5.60	5.88	6.17	6.48	6.80	7.14	7.50	7.87	8.27	8.68
O&M expn	Rs/kWh	0.76	0.50	0.53	0.56	0.59	0.62	0.66	0.69	0.73	0.78	0.82	0.87	0.92	0.97	1.02	1.08	1.14	1.21	1.28	1.35	1.43
Depreciation	Rs/kWh	0.58	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Int. on term loan	Rs/kWh	0.42	0.83	0.76	0.70	0.63	0.57	0.50	0.43	0.37	0.30	0.23	0.17	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.36	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.45	0.48	0.50	0.52	0.55	0.58	0.61
RoE	Rs/kWh	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Total COG	Rs/kWh	7.68	6.25	6.40	6.55	6.72	6.90	7.09	7.29	7.51	7.74	7.99	8.25	8.53	8.83	9.01	9.41	9.84	10.29	10.75	11.25	11.77
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)	3.44	Rs/Kwh																				
Levillised Tariff (Fixed)	2.73	Rs/Kwh																				
Applicable Tariff (FY2017-18)	6.17	Rs/Kwh																				
Determination of Accelerated Depreciation for non-fossil fuel based co-generation project																						
Depreciation amount	90%																					
Book Depreciation rate	5.28%																					
Tax Depreciation rate	40%																					
Additional Depreciation	20.00%																					
Income Tax (Normal Rates)	34.610%																					
Capital Cost Rs. Lakh	492.500																					
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	13.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	14.18	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	147.75	172.38	68.95	41.37	24.82	14.89	8.94	5.36	3.22	1.93	1.16	0.69	0.42	0.25	0.15	0.09	0.05	0.03	0.02	0.01	
Net Depreciation Benefit	Rs Lakh	134.75	146.37	42.95	15.37	-1.18	-11.11	-17.07	-20.64	-22.79	-24.07	-24.85	-25.31	-25.59	-25.75	-25.85	-25.91	-25.95	-14.15	0.02	0.01	
Tax Benefit	Rs Lakh	46.64	50.66	14.86	5.32	-0.41	-3.85	-5.91	-7.14	-7.89	-8.33	-8.60	-8.76	-8.86	-8.91	-8.95	-8.97	-8.98	-4.90	0.01	0.00	
Net Energy generation	MU	2.13	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	
Per unit benefit	Rs/Unit	2.19	1.19	0.35	0.13	-0.01	-0.09	-0.14	-0.17	-0.19	-0.20	-0.20	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.12	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.17	(Rs/kWh)																				

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				Annexure 4A		
				Select State		
				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	
			Auxillary Consumption during stabilisation	%	10%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	85%	
			PLF(during first year after Stablization)	%	85%	
			PLF(second year onwards)	%	85%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.882	
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	310.018	
			Total Equity Amount	Rs Lacs	132.865	
		Debt Component	Loan Amount	Rs Lacs	310.02	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	132.86	
			Return on Equity for Project Useful Life	% p.a	17.56%	
			Discount Rate (equiv. to WACC)		9.08%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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		Months	1	
			(% of O&M exepenses)		15%	
				Months	2	
				Months	4	
				%	11.66%	
			6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption
Base Price	Rs/T	2873.22				
Biomass Price Escalation Factor		5.00%				
7	Operation & Maintenance	O & M Expenses (2017-18) O & M Expenses Escalation				Rs Lacs
			%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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Determination of Tariff Component: Biomass Gasifier Power Projects																							
Units Generation		Unit	Year-->																				
Installed Capacity		MW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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-->																				
Biomass Cost		Rs Lakh	267.61	280.99	295.04	309.79	325.28	341.54	358.62	376.55	395.38	415.15	435.91	457.70	480.59	504.62	529.85	556.34	584.15	613.36	644.03	676.23	
Fixed Cost		Unit	Year-->																				
O&M Expenses		Rs Lakh	52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.79	152.01	
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38	
Interest on term loan		Rs Lakh	31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital		Rs Lakh	19.98	20.87	21.80	22.79	23.83	24.93	26.08	27.30	28.58	29.93	31.35	32.85	34.42	35.98	37.77	39.66	41.65	43.73	45.93	48.23	
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	151.30	152.67	154.26	156.08	158.15	160.48	163.08	165.97	169.17	172.70	176.56	180.78	185.39	185.03	193.06	201.53	210.47	219.92	229.89	240.42	
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Levillised																				
Variable COG		Rs/kWh	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	
O&M expn		Rs/kWh	1.20	0.79	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
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	0.35	0.35	0.35	0.35	0.35	0.35	
Int. on term loan		Rs/kWh	0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital		Rs/kWh	0.42	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.62	0.65	0.68	0.72
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	
Total COG		Rs/kWh	8.29	6.25	6.47	6.70	6.95	7.21	7.49	7.78	8.09	8.42	8.77	9.13	9.52	9.93	10.28	10.78	11.30	11.85	12.43	13.03	13.67
Levillised Tariff																							
Discount Factor		Unit	Year -->																				
Variable Cost (FY 2017-18)		Rs/kWh	3.99	0.92	0.84	0.77	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19	
Levillised Tariff (Fixed)		Rs/kWh	2.54																				
Applicable Tariff (FY2017-18)		Rs/kWh	6.53																				

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)	34.610%																					
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%	5.28%	5.28%	
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	12.76	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	%	70.00%	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%	
Accelerated Depm.	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	0.02	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	-12.73	0.02	0.01	
Tax Benefit	Rs Lakh	41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-4.40	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	
Per unit benefit	Rs/Unit	1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.10 (Rs/kWh)																					

CERC RE Tariff Order 2017-18

				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
			Auxillary Consumption during stabilisation	%	10%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	85%
			PLF(during first year after Stablization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.882
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.018
			Total Equity Amout	Rs Lacs	132.865
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	132.86
			Return on Equity for Project Useful Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)		9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61 %
			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
6	Fuel Related Assumptions	Interest On Working Capital		%	11.66%
			Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3270.39
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O & M Expenses (2017-18)	Rs Lacs	52.83	
		O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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		304.60	319.83	335.82	352.61	370.24	388.76	408.19	428.60	450.03	472.53	496.16	520.97	547.02	574.37	603.09	633.24	664.90	698.15	733.06	769.71
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		52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Interest on term loan	Rs Lakh		31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.18	23.18	24.23	25.34	26.51	27.74	29.03	30.39	31.83	33.34	34.93	36.61	38.37	40.12	42.13	44.23	46.45	48.77	51.22	53.79
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		153.50	154.98	156.68	158.62	160.82	163.28	166.03	169.07	172.42	176.11	180.14	184.55	189.34	189.18	197.41	206.10	215.28	224.96	235.19	245.98
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	4.54	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.57	8.99	9.44	9.92	10.41	10.93	11.48
O&M expn	Rs/kWh	1.20	0.79	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
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	0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.46	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.73	0.76	0.80
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	9.13	6.83	7.08	7.34	7.62	7.92	8.23	8.56	8.91	9.28	9.67	10.09	10.52	10.98	11.39	11.94	12.52	13.13	13.77	14.44	15.15
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	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)	4.54 Rs/Kwh																					
Levillised Tariff (Fixed)	2.58 Rs/Kwh																					
Applicable Tariff (FY2017-18)	7.13 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)	34.610%																					
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%	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	12.76	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	%	70.00%	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%	
Accelerated Depn.	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	0.02	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	41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-8.08	-4.40	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	1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.10 (Rs/kWh)																					

CERC RE Tariff Order 2017-18

				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
			Auxillary Consumption during stabilisation	%	10%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	85%
			PLF(during first year after Stablization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost		Power Plant Cost (before subsidy)		592.882
		Capital Cost/MW	Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.018
			Total Equity Amount	Rs Lacs	132.865
		<u>Debt Component</u>	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
		<u>Equity Component</u>	Interest Rate	%	10.66%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.61%
		<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	%	11.66%
6	Fuel Related Assumptions	<u>Biomass</u>	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3344.85
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance		O & M Expenses (2017-18)	Rs Lacs	52.83
			O & M Expenses Escalation	%	5.72%
8	Generation and Sale Of Energy		Total No. of Hours	Hrs	8766

CERC RE Tariff Order 2017-18

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		311.54	327.11	343.47	360.64	378.67	397.61	417.49	438.36	460.28	483.29	507.46	532.83	559.47	587.45	616.82	647.66	680.04	714.04	749.75	787.23
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Interest on term loan	Rs Lakh		31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.59	23.61	24.68	25.82	27.01	28.26	29.58	30.97	32.44	33.98	35.61	37.31	39.11	40.90	42.94	45.09	47.35	49.72	52.21	54.83
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		153.91	155.41	157.14	159.10	161.32	163.81	166.58	169.65	173.03	176.75	180.81	185.25	190.08	199.96	206.96	216.18	225.91	236.18	247.02	
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	4.65	4.88	5.12	5.38	5.65	5.93	6.23	6.54	6.86	7.21	7.57	7.95	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74
O&M expn	Rs/KWh	1.20	0.79	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
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	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Int. on term loan	Rs/KWh	0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/KWh	0.47	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.71	0.74	0.78	0.82
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	9.29	6.94	7.20	7.47	7.75	8.05	8.37	8.71	9.07	9.44	9.84	10.26	10.71	11.18	11.59	12.15	12.74	13.36	14.02	14.70	15.42
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	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)	4.65	Rs/Kwh																				
Levillised Tariff (Fixed)	2.59	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.24	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)	34.610%																					
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	12.76	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	%	70.00%	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%
Accelerated Depm.	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	0.02	0.01	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	41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-8.08	-4.40	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	1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levillised benefit	0.10	(Rs/kWh)																				

CERC RE Tariff Order 2017-18

				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
			Auxillary Consumption during stabilisation	%	10%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	85%
			PLF(during first year after Stablization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost		Power Plant Cost (before subsidy)		592.882
		Capital Cost/MW	Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.018
			Total Equity Amout	Rs Lacs	132.865
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
		Equity Component	Interest Rate	%	10.66%
			Equity amount	Rs Lacs	132.86
			Return on Equity for Project Useful Life	% p.a	17.56%
			Discount Rate (equiv. to WACC)		9.08%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
		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			
6	Fuel Related Assumptions	Biomass Stock		Months	4
		Interest On Working Capital		%	11.66%
			Specific Fuel Consumption	kg/kWh	1.25
		Biomass	Base Price	Rs/T	3420.56
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O & M Expenses (2017-18)		Rs Lacs	52.83
		O & M Expenses Escalation		%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

CERC RE Tariff Order 2017-18

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
Viable 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			318.59	334.52	351.24	368.80	387.24	406.61	426.94	448.28	470.70	494.23	518.94	544.89	572.14	600.74	630.78	662.32	695.43	730.21	766.72	805.05
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			52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Interest on term loan	Rs Lakh			31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			23.01	24.05	25.15	26.30	27.52	28.80	30.15	31.56	33.06	34.63	36.29	38.03	39.87	41.69	43.77	45.96	48.26	50.68	53.22	55.89
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			154.33	155.85	157.60	159.59	161.83	164.34	167.14	170.24	173.65	177.40	181.50	185.97	190.83	190.75	199.06	207.83	217.09	226.87	237.19	248.08
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			6.84	4.75	4.99	5.24	5.50	5.77	6.06	6.37	6.68	7.02	7.37	7.74	8.13	8.53	8.96	9.41	9.88	10.37	10.89	11.43
O&M expn	Rs/kWh			1.20	0.79	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
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
Int. on term loan	Rs/kWh			0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh			0.48	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.57	0.59	0.62	0.65	0.69	0.72	0.76	0.79
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
Total COG	Rs/kWh			9.45	7.05	7.31	7.59	7.88	8.19	8.51	8.86	9.22	9.61	10.02	10.44	10.90	11.38	11.80	12.37	12.98	13.61	14.27	14.97
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	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)	4.75 Rs/Kwh																						
Levillised Tariff (Fixed)	2.60 Rs/Kwh																						
Applicable Tariff (FY2017-18)	7.35 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)	34.610%																					
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%	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	12.76	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	%	70.00%	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%	
Accelerated Depn.	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	0.02	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	-12.73	0.02	0.01	
Tax Benefit	Rs Lakh	41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-4.40	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	
Per unit benefit	Rs/Unit	1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.10 (Rs/kWh)																					

CERC RE Tariff Order 2017-18

				Select State	Annexure 4E 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	
			Auxillary Consumption during stabilisation	%	10%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	85%	
			PLF(during first year after Stablization)	%	85%	
			PLF(second year onwards)	%	85%	
			Useful Life	Years	20	
2	Project Cost	Power Plant Cost (before subsidy)			592.882	
		Capital Cost/MW	Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	310.018	
			Total Equity Amout	Rs Lacs	132.865	
		<u>Debt Component</u>	Loan Amount	Rs Lacs	310.02	
			Moratorium Period	years	0	
			Repayment Period(inclnd Moratorium)	years	13	
			Interest Rate	%	10.66%	
		<u>Equity Component</u>	Equity amount	Rs Lacs	132.86	
			Return on Equity for Project Useful Life	% p.a	17.56%	
		Discount Rate (equiv. to WACC)			9.08%	
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.61%	
			<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.28%
					Depreciation Rate 14th year onwards	%
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>				
6	Fuel Related Assumptions	Biomass Stock		Months	4	
		Interest On Working Capital		%	11.66%	
		<u>Biomass</u>	Specific Fuel Consumption	kg/kWh		1.25
			Base Price	Rs/T		2854.60
			Biomass Price Escalation Factor			5.00%
7	Operation & Maintenance	O& M Expenses (2017-18)		Rs Lacs	52.83	
		O & M Expenses Escalation		%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		265.87	279.17	293.13	307.78	323.17	339.33	356.30	374.11	392.82	412.46	433.08	454.73	477.47	501.34	526.41	552.73	580.37	609.39	639.86	671.85
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Interest on term loan	Rs Lakh		31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.88	20.76	21.69	22.67	23.71	24.80	25.95	27.15	28.43	29.77	31.18	32.67	34.24	35.78	37.57	39.45	41.42	43.50	45.68	47.97
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		151.19	152.56	154.14	155.96	158.02	160.34	162.94	165.83	169.02	172.54	176.39	180.61	185.20	184.84	192.85	201.31	210.25	219.68	229.64	240.16
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	5.71	3.96	4.16	4.37	4.59	4.82	5.06	5.31	5.58	5.86	6.15	6.46	6.78	7.12	7.48	7.85	8.24	8.65	9.09	9.54	10.02
O&M expn	Rs/kWh	1.20	0.79	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
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	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Int. on term loan	Rs/kWh	0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.41	0.30	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.47	0.49	0.51	0.53	0.56	0.59	0.62	0.65	0.68	0.72
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	8.25	6.22	6.44	6.67	6.92	7.18	7.45	7.74	8.05	8.38	8.72	9.09	9.47	9.88	10.23	10.73	11.24	11.79	12.36	12.97	13.60
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	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)	3.96 Rs/Kwh																					
Levillised Tariff (Fixed)	2.54 Rs/Kwh																					
Applicable Tariff (FY2017-18)	6.50 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)	34.610%																					
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%	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	12.76	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	%	70.00%	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%	
Accelrated Depm.	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	0.02	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	-12.73	0.02	0.01	
Tax Benefit	Rs Lakh	41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-4.40	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	
Per unit benefit	Rs/Unit	1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	
Levillised benefit	0.10 (Rs/kWh)																					

CERC RE Tariff Order 2017-18

				Select State	Annexure 4F	
					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	
			Auxillary Consumption during stabilisation	%	10%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization 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)		592.882	
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	310.018	
			Total Equity Amout	Rs Lacs	132.865	
		Debt Component	Loan Amount	Rs Lacs	310.02	
			Moratorium Period	years	0	
			Repayment Period(inclcd Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	132.86	
			Return on Equity for Project Useful Life	% p.a	17.56%	
Discount Rate (equiv. to WACC)			9.08%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61 %	
			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	%	11.66%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25	
			Base Price	Rs/T	2826.05	
			Biomass Price Escalation Factor		5.00%	
7	Operation & Maintenance	O & M Expensses (2017-18)		Rs Lacs	52.83	
			O & M Expenses Escalation	%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

CERC RE Tariff Order 2017-18

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		263.21	276.38	290.19	304.70	319.94	335.94	352.73	370.37	388.89	408.33	428.75	450.19	472.70	496.33	521.15	547.20	574.56	603.29	633.46	665.13
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Interest on term loan	Rs Lakh		31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.72	20.59	21.52	22.49	23.52	24.60	25.73	26.93	28.20	29.53	30.93	32.40	33.95	35.48	37.26	39.12	41.08	43.13	45.30	47.57
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		151.04	152.39	153.97	155.78	157.83	160.14	162.73	165.61	168.79	172.29	176.13	180.34	184.92	184.54	192.54	200.99	209.90	219.32	229.26	239.76
Levallised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levallised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	5.65	3.93	4.12	4.33	4.54	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.57	9.00	9.45	9.92
O&M expn	Rs/kWh	1.20	0.79	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
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	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Int. on term loan	Rs/kWh	0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.41	0.29	0.31	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.64	0.68	0.71
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	8.19	6.18	6.39	6.62	6.87	7.12	7.40	7.69	7.99	8.32	8.66	9.02	9.40	9.81	10.15	10.64	11.16	11.70	12.27	12.86	13.49
Levallised 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	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)	3.93 Rs/Kwh																					
Levallised Tariff (Fixed)	2.53 Rs/Kwh																					
Applicable Tariff (FY2017-18)	6.46 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)	34.610%																					
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	12.76	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	%	70.00%	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	0.02	0.01	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	41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-8.08	-4.40	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	1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20	0.19
Levallised benefit	0.10 (Rs/kWh)																					

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					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	
			Auxillary Consumption during stabilisation	%	10%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	85%	
			PLF(during first year after Stablization)	%	85%	
			PLF(second year onwards)	%	85%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.882	
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	310.018	
			Total Equity Amout	Rs Lacs	132.865	
		Debt Component	Loan Amount	Rs Lacs	310.02	
			Moratorium Period	years	0	
			Repayment Period(inclcd Moratorium)	years	13	
			Interest Rate	%	10.66%	
		Equity Component	Equity amount	Rs Lacs	132.86	
			Return on Equity for Project Useful Life	% p.a	17.56%	
Discount Rate (equiv. to WACC)			9.08%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%	
			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	
6	Fuel Related Assumptions	Interest On Working Capital		%	11.66%	
			Biomass	Specific Fuel Consumption	kg/kWh	1.25
				Base Price	Rs/T	2922.86
				Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O & M Expemses (2017-18)	Rs Lacs	52.83		
		O & M Expenses Escalation	%	5.72%		
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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			272.23	285.84	300.14	315.14	330.90	347.44	364.82	383.06	402.21	422.32	443.44	465.61	488.89	513.33	539.00	565.95	594.25	623.96	655.16	687.92
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh			52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Interest on term loan	Rs Lakh			31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			20.25	21.16	22.11	23.11	24.17	25.28	26.45	27.69	28.99	30.36	31.80	33.32	34.92	36.50	38.32	40.23	42.25	44.36	46.59	48.93
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			151.57	152.96	154.56	156.40	158.48	160.83	163.45	166.36	169.58	173.12	177.01	181.25	185.88	185.55	193.60	202.10	211.07	220.55	230.55	241.12
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		5.85	4.06	4.26	4.48	4.70	4.93	5.18	5.44	5.71	6.00	6.30	6.61	6.94	7.29	7.65	8.04	8.44	8.86	9.30	9.77	10.26
O&M expn	Rs/kWh		1.20	0.79	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
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		0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.42	0.30	0.32	0.33	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.60	0.63	0.66	0.69	0.73
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		8.39	6.32	6.54	6.78	7.03	7.30	7.58	7.88	8.19	8.53	8.88	9.25	9.65	10.06	10.42	10.92	11.45	12.01	12.59	13.21	13.85
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	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)	4.06	Rs/Kwh																					
Levillised Tariff (Fixed)	2.54	Rs/Kwh																					
Applicable Tariff (FY2017-18)	6.60	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)	34.610%																					
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	12.76	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	%		70.00%	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%
Accelerated Depn.	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	0.02	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	-12.73	0.02	0.01
Tax Benefit	Rs Lakh		41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-4.40	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
Per unit benefit	Rs/Unit		1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00
Discounting Factor			1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20
Levillised benefit	0.10	(Rs/kWh)																				

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					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
			Auxillary Consumption during stabilisation	%	10%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	85%
			PLF(during first year after Stablization)	%	85%
			PLF(second year onwards)	%	85%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost (before subsidy)		592.882
			Power Plant Cost (after subsidy)	Rs Lacs/MW	442.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	310.018
			Total Equity Amout	Rs Lacs	132.865
		Debt Component	Loan Amount	Rs Lacs	310.02
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
			Interest Rate	%	10.66%
		Equity Component	Equity amount	Rs Lacs	132.86
			Return on Equity for Project Useful Life	% p.a	17.56%
9.08%	Discount Rate (equiv. to WACC)				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
		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		Months	1
			(% of O&M exepenses)		15%
				Months	2
				Months	4
				%	11.66%
6	Fuel Related Assumptions	Biomass	Specific Fuel Consumption	kg/kWh	1.25
			Base Price	Rs/T	3073.05
			Biomass Price Escalation Factor		5.00%
7	Operation & Maintenance	O & M Expemses (2017-18)		Rs Lacs	52.83
		O & M Expenses Escalation		%	5.72%
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766

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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	
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	
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	
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			286.22	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
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			52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Interest on term loan	Rs Lakh			31.78	29.23	26.69	24.15	21.61	19.07	16.52	13.98	11.44	8.90	6.36	3.81	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			21.09	22.03	23.02	24.07	25.18	26.34	27.57	28.86	30.22	31.65	33.15	34.74	36.41	38.06	39.96	41.96	44.06	46.27	48.59	51.03
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			152.40	153.83	155.48	157.36	159.49	161.89	164.56	167.53	170.81	174.41	178.36	182.68	187.38	192.46	197.95	203.83	209.99	216.44	223.19	230.24
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		6.15	4.27	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
O&M expn	Rs/kWh		1.20	0.79	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
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		0.24	0.47	0.44	0.40	0.36	0.32	0.28	0.25	0.21	0.17	0.13	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.44	0.31	0.33	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.57	0.60	0.63	0.66	0.69	0.72	0.76
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		8.71	6.54	6.78	7.02	7.29	7.57	7.86	8.17	8.50	8.85	9.22	9.61	10.02	10.46	10.94	11.36	11.91	12.49	13.10	13.74	14.41
Levillised Tariff																							
Discount Factor				1	0.92	0.84	0.77	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.30	0.27	0.25	0.23	0.21	0.19
Variable Cost (FY 2017-18)		4.27	Rs/kwh																				
Levillised Tariff (Fixed)		2.56	Rs/kwh																				
Applicable Tariff (FY2017-18)		6.83	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)		34.610%																					
Capital Cost		442.88																					
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	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	12.76	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	%	70.00%	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%		
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	0.02	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	-12.73	0.02	0.01		
Tax Benefit	Rs Lakh	41.94	45.56	13.37	4.78	-0.37	-3.46	-5.31	-6.42	-7.09	-7.49	-7.73	-7.88	-7.96	-8.02	-8.05	-8.07	-8.08	-4.40	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		
Per unit benefit	Rs/Unit	1.25	0.68	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00		
Discounting Factor		1.00	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.28	0.26	0.24	0.22	0.20		
Levillised benefit	0.10	(Rs/kWh)																					

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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	620.035	
			Total Equity Amount	Rs Lacs	265.729	
		<u>Debt Component</u>	Loan Amount	Rs Lacs	620.04	
			Moratorium Period	years	0	
			Repayment Period(incl Moratorium)	years	13	
			Interest Rate	%	10.66%	
		<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)	%	9.08%	
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.610%	
			<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	%	11.66%
6	Fuel Related Assumptions	<u>Biomass</u>	Fuel Price	Rs/T	1228.72	
			Specific Fuel Consumption	kg/kWh	3	
			Substrates Price Escalation Factor		5.00%	
7	Operation & Maintenance	O&M Expenses (2017-18)	Total O & M Expenses Escalation	Rs Lacs	52.83	
				%	5.72%	
8	Generation and Sale Of Energy	Total No. of Hours		Hrs	8766	

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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
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
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
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
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		290.82	305.36	320.62	336.66	353.49	371.16	389.72	409.21	429.67	451.15	473.71	497.39	522.26	548.38	575.80	604.59	634.81	666.56	699.88	734.88
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		52.83	55.85	59.05	62.42	65.99	69.77	73.76	77.98	82.44	87.16	92.14	97.41	102.98	108.87	115.10	121.69	128.65	136.00	143.78	152.01
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	46.77	46.77	46.77	46.77	46.77	46.77	46.77
Interest on term loan	Rs Lakh		63.55	58.47	53.39	48.30	43.22	38.13	33.05	27.96	22.88	17.80	12.71	7.63	2.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.91	23.82	24.78	25.79	26.86	27.99	29.19	30.44	31.77	33.17	34.65	36.21	37.85	39.24	41.17	43.19	45.32	47.56	49.91	52.38
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		232.72	231.57	230.64	229.94	229.50	229.32	229.42	229.81	230.52	231.55	232.93	234.67	236.80	221.80	229.95	238.56	247.65	257.25	267.38	278.07
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	0.917	0.840	0.770	0.706	0.648	0.594	0.544	0.499	0.457	0.419	0.384	0.352	0.323	0.296	0.272	0.249	0.228	0.209	0.192
Variable Cost (FY2017-18)			4.19/Rs/Kwh																			
Levillised Tariff (Fixed)			3.37/Rs/Kwh																			
Applicable Tariff (FY2017-18)			7.56/Rs/Kwh																			

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)		34.610%																				
Capital Cost		885.764																				
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	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	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%
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 Depm.	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	
Net Depreciation Benefit	Rs Lakh	242.35	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	
Tax Benefit	Rs Lakh	83.88	91.11	26.73	9.56	-0.74	-6.92	-10.62	-12.85	-14.18	-14.99	-15.47	-15.75	-15.93	-16.03	-16.09	-16.13	-16.15	-8.81	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
Per unit benefit	Rs/Unit	2.42	1.31	0.39	0.14	-0.01	-0.10	-0.15	-0.19	-0.20	-0.22	-0.22	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.13	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	
Tax Benefit Levillised		14.86																				
Electricity Generation (Levillised)		6.57																				
Levillised benefit		0.23	(Rs/kWh)																			