

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

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

Coram:

Shri Gireesh B. Pradhan, Chairperson

Shri A. K. Singhal, Member

Shri A. S. Bakshi, Member

Dr. M. K. Iyer, Member

Date of Order: 31.05.2017

IN THE MATTER OF

Determination of levellised 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 has determined the generic tariff for projects based on RE technologies mentioned in para 1 above for the first year of control period (i.e. FY 2017-18) through this order.
4. The Commission issued Order proposing “Determination of levellised 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”, (Petition No. 05/SM/2017) dated 18th April 2017 and invited comments/suggestions/objections from the stakeholders. A Public Notice was issued on 18th April 2017 stating the last date of submission of comments/suggestions/objections as 28th April 2017.

5. In response, written comments/suggestions/objections were received from the following stakeholders:

- a) Hindustan Power Producers Association (HPPA)
- b) Shree Bhavani Power Projects Private Ltd.
- c) The South Indian Sugar Mills Association (SISMA)

6. Subsequently, a public hearing was held on 5th May 2017 and following stakeholder made submission during the hearing:

- a) Shree Bhavani Power Projects Private Ltd.

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

1. DISCOUNT FACTOR

1.1. Commission's Proposal:

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) notified 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)).

1.2. Comments Received

1.2.1.HPPA has proposed to keep tax rate as 20.26% for first 13 years and 34.61% for balance 22 years for SHP. Further, based on these numbers they have proposed below given Discount Factors for Tariff calculation.

a. $((10.66 \times 0.70 \times (1-0.2026) \times 13) + (10.66 \times 0.70 \times (1-0.3461) \times 22))/35 + 16 \times 0.3 = 10.08$

b. $((10.66 \times 0.70 \times (1-0.2026) \times 13) + (10.66 \times 0.70 \times (1-0.3461) \times 22))/35 + 14 \times 0.3 = 9.48$

1.3. Analysis & Decision

The Commission would like to elaborate that for Discount Factor calculation, only Corporate Tax rate is considered to keep it consistent with the AD Benefit calculation. Further, the Commission has been consistently following this formula from the beginning of previous Control Period.

2. CAPITAL COST FOR SMALL HYDRO POWER (SHP) PROJECTS**2.1. Commission's Proposal:**

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

2.2. Comments Received

2.2.1. Shri Bhavani Power Projects Pvt. Ltd. has commented to include an escalation formula for capital cost for small hydro projects as all previous orders for RE did. Further, they said that Small hydro is a civil heavy project (evidence given to CERC to back up the fact that 65% of capital cost is civil) and with increases in cement/steel and other raw materials the capital cost invariably rises (unlike wind and solar where technology cost is coming down) and have requested to mention an escalation formula for small hydro that captures cost of cement/steel and labour as well as electrical machinery with appropriate weightages.

2.3. Analysis & Decision

Inclusion of escalation formula for capital cost has already been discussed at the time of finalization of RE Tariff Regulations, 2017 and is beyond the scope of this Order. However, as per RE Tariff Regulations 2017, the Commission may review the Capital Cost as indicated in Regulation 28 (2) mentioned below:

“Capital Cost Indexation Mechanism

The Capital Cost for SHP as specified for first year of control period will remain valid for the entire duration of the control period unless reviewed earlier by the Commission.”

3. DEBT-EQUITY RATIO

3.1. Commission’s Proposal:

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

3.2. Comments Received

3.2.1. Shri Bhavani Power Projects Pvt. Ltd. has commented that there appears to be a typographical error in the above table.

3.3. Analysis & Decision

The Commission did not find any typographical error in the table and has decided to retain the same table in the final Order.

4. RETURN ON EQUITY

4.1. Commission's Proposal:

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

4.2. Comments Received

4.2.1. HPPA has proposed 16% RoE as presented during hearing of Draft Regulations. They have cited that even with 16% RoE there was not much investment in the Small Hydro Projects and by further reducing it to 14%, it will have a total investment blackout particularly in hilly areas. Further, they commented that the return on equity post tax paid should be evaluated on the basis of minimum 16% which works out to be 20.06% for first 13 years and 24.47% for balance 22 years. Even otherwise the ROE calculated on 14% return with 20.26% average MAT is also not correct. This figure of 17.56% may be true for first 13 years and later on it should be 21.41% based on 34.61 % income tax.

4.3. Analysis & Decision

As explained in the Statement of Reasons (SOR) for RE Tariff Regulations 2017, market expectations of RoE for Renewable Energy projects have come down. However, the Commission has already acknowledged the hardship of the SHP projects and accordingly provided for a higher capital cost. It must also be noted that suggestions of revising RoE have already been addressed in the SOR for RE Tariff Regulations, 2017.

5. INTEREST ON LOAN

5.1. Commission's Proposal:

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

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.”*

5.2. Comments Received

5.2.1. HPPA has suggested restoring the previous regulation of MCLR + 300 bps from the current proposed MCLR + 200 bps. They have cited that no hydro power developer would get a rate below 350 bps plus MCLR particularly because of increasing NPAs in the power sector.

5.3. Analysis & Decision

The Commission has noted the comment and is of the view that spread of 200 basis points is expected to be an average, with projects above and below this rate, and will be true representation of market realities. The same has been stated in the SOR to RE Tariff Regulations 2017.

6. CALCULATION OF CAPACITY UTILIZATION FACTOR (CUF)/PLANT LOAD FACTOR (PLF)

6.1. Commission's Proposal:

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.”

6.2. Comments Received

6.2.1. HPPA has suggested 8760 as no. of hours for tariff calculation. Further, they have requested to take a practical view of running a power plant and at least one day in a month should be considered for maintenance of the equipment and therefore the number of working hours should be considered as 8472.

6.3. Analysis & Decision

The Commission would like to clarify that the reason for considering no. of hours as 8766 for calculation of CUF/PLF, as provided in the Explanatory Memorandum for RE Tariff Regulations 2017, is to factor in the 24 hours of additional generation during leap year across the four years. Further revision of hours cannot be accommodated at this point.

7. FUEL PRICES

7.1. Commission's Proposal:

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

7.2. Comments Received

7.2.1. SISMA has proposed to revise the Bagasse fuel value for Tamil Nadu to Rs. 2300/MT from Rs. 1747.52/MT. They have strongly objected Commission's decision of retaining the Bagasse prices for Tamil Nadu as Rs. 1747.52/MT. They have highlighted that they furnished detailed justification as well as documentary support and strongly pleaded that the Draft Regulations should determine bagasse price for Tamil Nadu not below Rs.2300/ MT for FY 2017-18 with applicable annual escalation thereon, but no due consideration was given to it. Further, they have cited that because of low Bagasse prices, Tamil Nadu again has lowest level of tariff compared to other states barring Andhra Pradesh. It has been stated that there is no rationale whatsoever to determine bagasse price for Tamil Nadu at a level far below the price determined for other major sugarcane and sugar producing States like UP, Maharashtra and Karnataka. They have urged that bagasse price for Tamil Nadu should be in tandem with the price determined for other States to assure level playing field for all.

7.3. Analysis & Decision

As explained in the SOR for RE Tariff Regulations 2017, there were suggestions

that there should not be any provision for fuel cost for bagasse based co-generation plants as Bagasse is a by-product of sugarcane crushing while manufacturing sugar and this cost is already included by the State Governments in sugar pricing. However, the Commission considered the fuel prices for Bagasse based cogeneration plants for the purpose of tariff determination and would like to retain the proposed values. Any suggestion of revision of fuel price is beyond the scope of the present order.

8. SUBSIDY OR INCENTIVE BY THE CENTRAL / STATE GOVERNMENT

8.1. Commission's Proposal:

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".*

8.2. Comments Received

8.2.1. HPPA has commented that subsidy given by Central Government should not be treated as part of capital reimbursement while evaluating the tariff order because subsidy is an incentive for the entrepreneur to develop renewable projects which are otherwise prone to huge hydrological risks. The SHPs are located in extremely remote areas with a very limited working season and extreme uncertainties. In order to encourage the SHP

developers, they need to be incentivized and as such the subsidy being provided by the Govt, thereof should not be considered for working out the tariff.

8.3. Analysis & Decision

Under the cost plus regime for tariff determination, the tariff is determined upon ascertaining normative costs and performance parameters. In view of the fact that all reasonable costs and returns are being allowed to be recovered through such tariff, it is fair that subsidy, if any, be factored in while determining tariff.

9. MISCELLANEOUS

9.1. Comments Received

Shri Bhavani Power Projects Pvt. Ltd. has commented that No AD Benefit for Small Hydro is available for Small Hydro Projects; only one price should be mentioned else it causes confusion. They have stated that Small Hydro is eligible for only normal depreciation as most of the cost is civil in nature and the electrical machinery is not specialized in nature such as solar modules and wind mills.

9.2. Analysis & Decision

The Commission has taken a note of the comment and would like to clarify that in the SOR for the RE Tariff Regulation 2017, it was clearly specified that the No AD Benefit for SHP projects is available. The relevant excerpt of the explanation is as below:

“The Commission has analyzed the comments and observations submitted by the stakeholders. It has been pointed by various stakeholders to provide only one tariff schedule for small hydro projects without incorporating the accelerating depreciation (AD) benefit as such projects are not availing AD benefit. The Commission has noted the suggestion and would like to clarify that the generic

tariff schedule for small hydro projects shall not include the AD benefit and tariff without AD benefit will be applicable for such projects during the control period 2017-2020”.

Annexure for calculation of tariff with AD benefit for SHP was inadvertently included in the proposed Order, and has been taken out.

8. The Commission therefore determines the levellised generic tariff for RE based generating stations for FY 2017-18 enclosed as Annexure – I.

Sd/-
[M. K. Iyer]
MEMBER

Sd/-
[A. S. Bakshi]
MEMBER

Sd/-
[A. K. Singhal]
MEMBER

Sd/-
[Gireesh B. Pradhan]
CHAIRPERSON

New Delhi
31 May 2017

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

1. The levlised 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 specified 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) *Levellisation 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) specified in the Regulations. Considering the normative debt equity ratio and weighted average of the post-tax rates for debt and equity component, the discount factor is calculated. Interest Rate considered for the loan component (i.e.70 %) of capital cost is 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 specified in the technology specific chapter shall be inclusive of all capital works like plant and machinery, civil works, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point. The Commission has specified 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 specified 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 specified 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 specified 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 specified 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 specified 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 specified 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%² (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:

(d) "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.

(e) 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.

(f) 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.

² 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, specifies number of hours for calculation of CUF/PLF as 8766.

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

OPERATION AND MAINTENANCE EXPENSES

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

"Operation and Maintenance Expenses

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

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

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

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

(a) Small Hydro: Regulation 31 of RE Regulations provided for the normative O&M expenses for small hydro projects for the first year of the Control Period (FY 2017-18) which shall be escalated at the rate of 5.72% per annum over the tariff period for determination of the levellised tariff.

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

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

PLANT LOAD FACTOR (PLF)

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

Renewable Energy Projects	PLF
(A) Biomass	
(a) During stabilization (6 months)	60 %
(b) During remaining period of the first year (after 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 specified in Regulation 45(2) are as under:

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

AUXILIARY POWER CONSUMPTION

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

Renewable Energy Projects	Auxiliary Consumption Factor
Small Hydro	1 %
Biomass Projects a) using water cooled condenser	i. During first year of operation: 11%; ii. From 2 nd year onwards: 10%.
b) using air cooled condenser	i. During first year of operation: 13%; ii. From 2 nd year onwards: 12%.
Non-fossil fuel co-generation	8.5 %
Biomass Gasifier	10 %
Biogas	12 %

STATION HEAT RATE

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

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

FUEL

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 specified 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 specified 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 specified in Clause 41 of this Order.

44. The Commission, as per Regulation 75 of the RE Tariff Regulations, has specified the feed stock price for Biogas based power projects 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 specified.

Subsidy or incentive by the Central / State Government

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

"The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations.

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

- 3) 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*
- 4) 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 specified 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	Levellised 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

State	Levellised 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					
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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Determination of Tariff Component:																																						
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Net Generation	MU		3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	
Fixed Cost																																						
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		36.00	38.06	40.24	42.54	44.97	47.54	50.26	53.14	56.18	59.39	62.79	66.38	70.18	74.19	78.43	82.92	87.66	92.68	97.98	103.58	109.51	115.77	122.39	129.39	136.80	144.62	152.89	161.64	170.88	180.66	190.99	201.92	213.47	225.68	238.59	
Depreciation	Rs Lakh		52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80
Interest on term loan	Rs Lakh		71.75	66.01	60.27	54.53	48.79	43.05	37.31	31.57	25.83	20.09	14.35	8.61	2.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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		5.22	5.21	5.20	5.19	5.20	5.20	5.22	5.24	5.27	5.31	5.36	5.42	5.49	4.77	4.97	5.18	5.41	5.64	5.90	6.16	6.44	6.74	7.06	7.39	7.74	8.12	8.51	8.92	9.36	9.83	10.32	10.84	11.39	11.97	12.58	
Return on Equity	Rs Lakh		52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67	52.67
Total Fixed Cost	Rs Lakh		218.45	214.75	211.18	207.73	204.43	201.27	198.27	195.42	192.75	190.27	187.97	185.88	184.00	141.34	145.78	150.48	155.45	160.70	166.26	172.13	178.33	184.90	191.83	199.17	206.92	215.12	223.78	232.94	242.63	252.87	263.70	275.14	287.24	300.03	313.55	
Levillised tariff corresponding to Useful life																																						
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M expn	Rs/kWh	1.74	0.92	0.97	1.03	1.09	1.15	1.22	1.29	1.36	1.44	1.52	1.61	1.70	1.80	1.90	2.01	2.12	2.24	2.37	2.51	2.65	2.80	2.96	3.13	3.31	3.50	3.70	3.92	4.14	4.38	4.63	4.89	5.17	5.47	5.78	6.11	
Depreciation	Rs/kWh	1.03	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Int. on term loan	Rs/kWh	0.80	1.84	1.69	1.54	1.40	1.25	1.10	0.96	0.81	0.66	0.51	0.37	0.22	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.12	0.13	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.28	0.29	0.31	0.32	
RoE	Rs/kWh	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Total COG	Rs/kWh	5.07	5.59	5.50	5.41	5.32	5.23	5.15	5.08	5.00	4.94	4.87	4.81	4.76	4.71	3.62	3.73	3.85	3.98	4.12	4.26	4.41	4.57	4.73	4.91	5.10	5.30	5.51	5.73	5.96	6.21	6.48	6.75	7.05	7.36	7.68	8.03	
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	
Levillised Tariff	5.07	Rs/Unit																																				

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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		Income Tax	%	34.610%
5	Working Capital		<u>Depreciation</u>		
			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
			Total O & M Expenses Escalation	%	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		
Net Generation		MU		3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91		
Fixed Cost		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M Expenses		Rs Lakh		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	33.59	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	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44
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	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	
Levatised tariff corresponding to Useful life		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Per Unit Cost of Generation		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	
Levatised Tariff		4.29	Rs/Unit																																				

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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 Capacity Utilization Factor Auxiliary Consumption Useful Life	MW % % Years	1 30% 1% 35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	779.00
3	Sources of Fund	<u>Debt: Equity</u>	Tariff Period Debt Equity Total Debt Amount Total Equity Amout	Years % % Rs Lacs Rs Lacs	35 70% 30% 545.300 233.700
		<u>Debt Component</u>	Loan Amount Moratorium Period Repayment Period(incld Moratorium) Intrest Rate	Rs Lacs years years %	545.30 0 13 10.66%
		<u>Equity Component</u>	Equity amount Return on Equity for first Project Life Discount Rate	Rs Lacs % p.a	233.70 17.56% 9.08%
4	Financial Assumptions	<u>Depreciation</u>	Income Tax Depreciation Rate for first 13 years Depreciation Rate 14th year onwards	% % %	34.610% 5.28% 0.97%
5	Working Capital	<u>For Fixed Charges</u> O&M Charges Maintenance Spare Receivables for Debtors Intrest On Working Capital	(% of O&M exepenses)	Months Months %	1 15% 2 11.66%
6	Operation & Maintenance	O&M Expenses (2017-18) Total O & M Expenses Escalation		Rs Lacs %	29.00 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	
Net Generation	MU		2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	
Fixed Cost	Unit	Year-->	1	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	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	
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	
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	3.81	3.97	4.14	4.32	4.51	4.72	4.93	5.16	5.40	5.65	5.92	6.20	6.50	6.82	7.16	7.51	7.89	8.28	8.70	9.14	9.61	10.10	
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
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	112.17	115.75	119.53	123.53	127.77	132.24	136.97	141.97	147.25	152.84	158.75	165.00	171.60	178.58	185.96	193.76	202.01	210.73	219.95	229.70	240.00	250.89	
Levilled tariff corresponding to Useful life																																						
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	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	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	
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	
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	0.17	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	
Total COG	Rs/kWh	6.00	6.57	6.47	6.36	6.26	6.16	6.07	5.99	5.90	5.83	5.76	5.69	5.63	5.58	4.31	4.45	4.59	4.74	4.91	5.08	5.26	5.45	5.66	5.87	6.10	6.34	6.59	6.86	7.14	7.44	7.76	8.09	8.45	8.82	9.22	9.64	
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	6.00	Rs/Unit																																				

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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	Debt: Equity	Tariff Period	Years	35	
			Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	494.900	
			Total Equity Amount	Rs Lacs	212.100	
			Debt Component	Loan Amount	Rs Lacs	494.90
				Moratorium Period	years	0
				Repayment Period(incl'd Moratorium)	years	13
				Intrest Rate	%	10.66%
			Equity Component	Equity amount	Rs Lacs	212.10
Return on Equity for first Project Life	% p.a	17.56%				
Discount Rate		9.08%				
4	Financial Assumptions	Depreciation	Income Tax	%	34.610%	
			Depreciation Rate for first 13 years	%	5.28%	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			Intrest On Working Capital	%	11.66%	
6	Operation & Maintenance	O&M Expenses (2017-18)		Rs Lacs	21.00	
			Total O & M Expenses Escalation	%	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	
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	
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		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
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
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
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	Year-->	1	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	1.52	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	Rs/kWh	1.10	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Int. on term loan	Rs/kWh	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
Int. on working capital	Rs/kWh	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.11	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	Rs/kWh	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
Total COG	Rs/kWh	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			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																																			

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Annexure 2.1A

		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(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	
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		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		29.52	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		17.05	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	0.27	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	0.72	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		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)	2.68	Rs/Kwh
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 ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	0.00	0.00

Accelerated Depreciation			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening		%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year		%	30%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%
Closing		%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
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	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 2.1B
			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
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	391.323
			Total Equity Amount	Rs Lacs	167.710
			Debt Component	Loan Amount	Rs Lacs
		Moratorium Period		years	0
		Repayment Period(incld Moratorium)		years	13
		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	Income Tax
Depreciation	Depreciation Rate(power plant)				%
	Depreciation Rate 14th year onwards			%	3.051%
5	Working Capital			For Fixed Charges	O&M Charges
		Maintenance Spare (% of O&M exepenses)			15%
		Receivables for Debtors	Months		2
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	11.66%
			6	Fuel Related Assumptions	Heat Rate
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		
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		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																							
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	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	0.44	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	0.37	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	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	9.83	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	-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 2.1C	
			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(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	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	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		29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	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		19.22	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
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		158.29	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	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 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	0.50	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	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)	2.74	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.84	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%	
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 2.1D

		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
			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%
		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	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		29.52	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 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	0.27	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	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)	2.75	Rs/kwh
Applicable Tariff (FY2017-18)	7.96	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	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%
Allowed during the year	%	30%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%
Accelrated Deprn.	Rs Lakh	167.71	195.66	78.26	46.96	28.18	16.91	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01

Net Depreciation Benefit	Rs Lakh	152.95	166.14	48.75	17.44	-1.34	-12.61	-19.37	-23.43	-25.87	-27.33	-28.20	-28.73	-29.04	-29.23	-29.35	-29.41	-29.46	-16.06	0.02	0.01	
Tax Benefit	Rs Lakh	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(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	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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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)	%	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	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	
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		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
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%	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%	0.00%	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	-0.09	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	0.22	0.20
Levillised benefit	0.13	(Rs/kWh)																				

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			Select State	UP			
Annexure 2.1G							
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	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		0.63	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		29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	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		17.28	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%	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 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'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	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		0.63	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%	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 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 2.2A						
			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%	
		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 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	

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Annexure 2.2B

Assumption for Biomass Power Project Parameters			Select State	Harayana		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	600.44	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	420.310	
			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
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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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

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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		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		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		19.36	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	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 exn		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																								
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)				5.21																				
Levillised Tariff (Fixed)				2.90																				
Applicable Tariff (FY2017-18)				8.11																				

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%	
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	-0.17	-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	
Levillised benefit			0.15	(Rs/kWh)																			

CERC RE Tariff Order 2017-18

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

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		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		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	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		19.71	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
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	180.88	182.49	184.49	186.72	189.18	191.87	194.79	197.95

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	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	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
Levilled Tariff (Fixed)	2.91	Rs/Kwh
Applicable Tariff (FY2017-18)	8.23	Rs/Kwh

Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount	90%																				
Book Depreciation rate	5.28%																				
Tax Depreciation rate	40%																				
Additional depreciation	20.00%																				
Income Tax (Normal Rates)	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%	0.01%
Allowed during the year	%	30%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%
Accelerated Deprn.	Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.02	0.01

Net Depreciation Benefit	Rs Lakh	164.28	178.45	52.36	18.73	-1.44	-13.55	-20.81	-25.17	-27.78	-29.35	-30.29	-30.86	-31.20	-31.40	-31.52	-31.59	-31.64	-17.25	0.02	0.01	0.00
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	-0.17	-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

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(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
During Stabilization 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			0.74	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		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																							
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
Return 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	33.69	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
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	176.34	177.70	179.16	180.98	183.18	185.77	188.79	192.25
Levillised tariff corresponding to Useful life																							
Par 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	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		RskWh	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		RskWh	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		RskWh	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		RskWh	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		RskWh	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		RskWh	9.17	7.74	7.31	7.54	7.78	8.04	8.31	8.60	8.91	9.24	9.59	9.96	10.35	10.54	11.00	11.52	12.07	12.64	13.25	13.88	14.55
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)			4.45																				
Levillised Tariff (Fixed)			2.83																				
Applicable Tariff (FY2017-18)			7.28																				

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%	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
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%	0.00%	0.00%
Accelerated Deprn.		Rs Lakh	180.13	210.15	84.06	50.44	30.26	18.16	10.89	6.54	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	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	0.00	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	-0.17	-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		0.15	(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 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 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%	
		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	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			31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	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																							
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		6.27	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	10.99
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		0.45	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	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		9.10	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	14.43
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)		2.83	Rs/Kwh																				
Applicable Tariff (FY2017-18)		7.23	Rs/Kwh																				

Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount		90%																					
Book Depreciation rate		5.28%																					
Tax Depreciation rate		40%																					
Additional depreciation		20.00%																					
Income Tax (Normal Rates)		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%	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		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	

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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																						
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																						
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		17.43	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
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																						
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)	2.84	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	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																						
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	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 2.2H

			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
				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%	
		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	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		0.74	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		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	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		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	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																							
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	Rs/kWh																			
Levillised Tariff (Fixed)			2.86	Rs/kWh																			
Applicable Tariff (FY2017-18)			7.65	Rs/kWh																			

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%																						
Book Depreciation rate	5.28%																						
Tax Depreciation rate	40%																						
Additional depreciation	20.00%																						
Income Tax (Normal Rates)	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%	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%	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%	0.01%	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	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	-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	-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	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	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	0.18
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	
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	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	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	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	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																						
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)			4.37 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
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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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	<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	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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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
				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 exepenses)	15%	
			Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4	
			Interest On Working Capital	%	11.66%	
			Heat Rate		After Stabilisation period	Kcal/kwh
		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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Annexure 2.3E						
			Select State	Rajasthan		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	<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	

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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			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			17.15	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
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 expan	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	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	7.40	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%	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	32.25	17.59	0.00	0.00
Accelerated Depreciation			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	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%	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	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	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	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	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	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	0.18
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)	%	5.280%	
			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	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
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
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
Depreciation	Rs/kWh	0.48	0.64	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Int. on term loan	Rs/kWh	0.37	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
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
RoE	Rs/kWh	0.52	0.63	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Total COG	Rs/kWh	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
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)	2.79	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%	2.88%	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
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 2.3G

		Select State	UP			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.557	
			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%	
			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		0.63	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		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																						
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																						
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	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
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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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

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					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%
		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

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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	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
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	0.32	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
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
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	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
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																				
Levillised Tariff (Fixed)	3.01																				
Applicable Tariff (FY2017-18)	8.10																				

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																					
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																				

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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 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%	
		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	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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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
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
			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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		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 (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	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		0.74	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		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
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		17.30	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
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	0.32	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	0.36	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%	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%	
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	0.20	0.18	
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
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																						
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																						
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																						
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	6.27	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	10.99
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	0.56	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	0.35	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	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	9.22	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	14.50
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)			4.40																			
Levillised Tariff (Fixed)			2.95																			
Applicable Tariff (FY2017-18)			7.35																			

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	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	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%	0.00%	
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	0.02	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	-11.89	-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 2.4G	
			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)	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	
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		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																						
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	0.52	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																						
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	-0.19	-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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			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	%	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	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amount	Rs Lacs	195.66	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	456.54
			Moratorium Period	years	0	
			Repayment Period (incl. 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	<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 expenses)		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
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		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																						
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																						
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%	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
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 2.5A

		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	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)		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			29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	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			16.82	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	0.27	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	0.70	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		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	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		%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	
Allowed during the year	%	30%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	
Accelerated Deprn.	Rs Lakh	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	-0.16	-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 2.5B						
			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	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				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		0.63	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		29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	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	167.99	174.64	181.66	189.07	196.89	205.14	213.84

Levillised tariff corresponding to Useful life

Par 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	4.89	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

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)	4.89 Rs/kWh
Levillised Tariff (Fixed)	2.73 Rs/kWh
Applicable Tariff (FY2017-18)	7.62 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

Levillised 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
				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	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		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	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	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
			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)	
		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	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		29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	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	40.63	42.64	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	169.57	176.29	183.39	190.89	198.80	207.14	215.95
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	0.44	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	0.51	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	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	10.04	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
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)		2.75 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%	
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 2.5E						
			Select State	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	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(incld 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	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	
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		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	163.64	170.08	176.87	184.03	191.60	199.58	208.01
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	6.08	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	0.44	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%	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	
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 Amout	Rs Lacs	167.710
		Debt Component	Loan Amount	Rs Lacs	391.323
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	13
		Equity Component	Interest Rate	%	10.66%
			Equity amount	Rs Lacs	167.710
			Return on Equity for Project Life	% p.a	17.56%
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	O&M Charges
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

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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	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																						
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	34.41	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																						
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)		4.23	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%	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	-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 2.5G

		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%	
			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			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	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																							
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																							
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	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		17.04	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	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	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	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	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																							
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)		4.37	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 ----->																								
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	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	29.52	29.52	29.52	29.52
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%			
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	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			
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	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			
Levallised benefit		0.13	(Rs/kWh)																					

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				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

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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			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	
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			0.44	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
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)		4.59	Rs/kWh																					
Levillised Tariff (Fixed)		2.70	Rs/kWh																					
Applicable Tariff (FY2017-18)		7.30	Rs/kWh																					

Determination of Accelerated Depreciation for Biomass Power Project																							
Depreciation amount		90%																					
Book Depreciation rate		5.28%																					
Tax Depreciation rate		40%																					
Additional depreciation		20.00%																					
Income Tax (Normal Rates)		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		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	
Allowed during the year	%	30%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	
Closing	%	70%	35%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	
Accelrated Deprn.	Rs Lakh	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	0.19	
Levillised benefit		0.13	(Rs/kWh)																				

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				Annexure 2.6A		
				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	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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				Select State	Annexure 2.6B 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(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	
		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 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	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)	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																							
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																							
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			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																							
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)	2.88	Rs/Kwh																					
Applicable Tariff (FY2017-18)	7.88	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
Levillised benefit	0.15 (Rs/kWh)																				

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				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 (Stabilisation 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)	%	5.28%		
			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%		
		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	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		31.70	31.70	31.70	31.70	31.70	31.70	31.70	31.70	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	177.71	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																				

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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	-0.18	-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
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. 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	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M expenses)	
		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

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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		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																				

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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 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	-0.18	-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(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	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		0.74	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)																						

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
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(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 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	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		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	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	0.48	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
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)	4.32	Rs/Kwh																				
Levallised Tariff (Fixed)	2.82	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.14	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																						
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%	0.01%	0.00%
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	
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
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 2.6G	
				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	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%
			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	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		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	
Levillised 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%
			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	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	
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			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																				
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 2.7A						
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%	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	-0.10	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 2.7B					
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 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	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

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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		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
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	6.97	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
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)	4.89	Rs/Kwh																				
Levillised Tariff (Fixed)	2.84	Rs/Kwh																				
Applicable Tariff (FY2017-18)	7.73	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 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%	
			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	

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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		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																						
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		19.13	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
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	0.48	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
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)	2.85	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%	0.01%	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 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	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%
			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	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	169.37	173.96	180.69	187.79	195.28	203.19	211.53	220.34
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		
				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	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
Levillised benefit	0.14 (Rs/kWh)																				

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				Annexure 2.7F		
			Select State	TN		
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	11%	
			Auxillary Consumption after stabilisation	%	10%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	610.80	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	427.557	
			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
Vaible 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%	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
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	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
		Equity Component	Interest Rate	%	10.66%
			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 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

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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			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 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	
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	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(inclld 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 %	3073.05 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			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			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			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		17.90	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			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	Unit	Levillised																				
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			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor	Unit	Year ->																				
Variable Cost (FY2017-18)	Rs/kWh	4.59	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
Levillised Tariff (Fixed)	Rs/kWh	2.81																				
Applicable Tariff (FY2017-18)	Rs/kWh	7.41																				

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		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	-0.18	-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	
Levillised benefit	Rs/kWh	0.14																				

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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/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
				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	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-->																				
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	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-->																				
Biomass Cost		Rs Lakh	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
			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-->																				
O&M Expenses		Rs Lakh	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
			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	
Levilled tariff corresponding to Useful life		Unit	Year-->																				
Per Unit Cost of Generation		Rs/kWh	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
Levilled Tariff		Unit	Year-->																				
Discount Factor			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)		4.39																					
Levilled Tariff (Fixed)		2.95																					
Applicable Tariff (FY2017-18)		7.34																					

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		Unit	Year-->																			
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%	0.01%	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%	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	
Levilled 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		
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-->																				
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-->																				
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																							
Par 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	8.07	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-->																				
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 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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Annexure 2.8C

		Select State	Maharashtra			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF(Stablization for 6 months)	%	60%	
			PLF(during first year after Stablization)	%	70%	
			PLF(second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity Amout	Rs Lacs	195.66	
		Debt Component	Loan Amount	Rs Lacs	456.54	
			Moratorium Period	years	0	
			Repayment Period(incld Moratorium)	years	13	
		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
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																						
Variable COG	Rsk/Wh	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	7.29	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	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	0.51	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	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	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	Rs/Kwh																				
Levillised Tariff (Fixed)	3.01	Rs/Kwh																				
Applicable Tariff (FY2017-18)	8.13	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%	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
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 2.8D

		Select State	Punjab			
Assumption for Biomass Power Project Parameters						
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Auxillary Consumption during stabilisation	%	13%	
			Auxillary Consumption after stabilisation	%	12%	
			PLF (Stablization for 6 months)	%	60%	
			PLF (during first year after Stablization)	%	70%	
			PLF (second year onwards)	%	80%	
			Useful Life	Years	20	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	652.20	
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	456.54	
			Total Equity 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
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	

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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		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		34.44	34.44	34.44	34.44	34.44	34.44	34.44	34.44	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		19.61	24.15	25.19	26.29	27.44	28.65	29.93	31.28	32.70	34.20	35.78	37.44	38.90	40.78	42.79	44.91	47.13	49.47	51.93	54.51
Return on Equity	Rs Lakh		34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35	34.35
Total Fixed Cost	Rs Lakh		175.20	178.28	178.00	177.90	178.02	178.35	178.90	179.70	180.76	182.08	183.69	185.60	173.00	177.47	184.20	191.30	198.79	206.70	215.05	223.85

Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	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	0.89	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	0.56	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	0.52	0.40	0.39	0.41	0.43	0.44	0.46	0.49	0.51	0.53	0.55	0.58	0.61	0.63	0.66	0.69	0.73	0.76	0.80	0.84	0.88
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	10.48	8.77	8.32	8.59	8.87	9.17	9.49	9.83	10.19	10.57	10.97	11.40	11.85	12.09	12.63	13.23	13.85	14.51	15.20	15.93	16.70

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)	3.02 Rs/Kwh																					
Applicable Tariff (FY2017-18)	8.25 Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project																					
Depreciation amount		90%																			
Book Depreciation rate		5.28%																			
Tax Depreciation rate		40%																			
Additional depreciation		20.00%																			
Income Tax (Normal Rates)		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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		Select State		Annexure 2.8E	
				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	%	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	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	456.54
			Total Equity Amount	Rs Lacs	195.66
		<u>Debt Component</u>	Loan Amount	Rs Lacs	456.54
			Moratorium Period	years	0
			Repayment Period (incl. 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	<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 expenses)			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	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			0.74	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		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 ----->																							
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	-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	0.18	
Levillised benefit	0.16	(Rs/kWh)																					

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)	%
				Depreciation Rate 14th year onwards	%
		5	Working Capital	For Fixed Charges	O&M Charges
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

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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	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	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		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	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)	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		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	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		17.37	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	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	

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	6.37	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

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)	4.47	Rs/Kwh
Levallised 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

Levallised 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/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%	
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)		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																							
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	%	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 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	0.20	
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
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	
			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		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																						
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
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	4.09	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
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)	2.84	Rs/Kwh																				
Levallised 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	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
During Stablization Period	Kcal/kwh				3600	
Biomass	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(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)	%	5.28%		
			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	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) O & M Expenses Escalation		Rs. Lacs	21.13	
				%	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	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	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					
Select State					
Punjab					
Non Fossil Fuel based co-generation Projects					
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	8.50%
			Auxillary Consumption after stabilisation	%	8.50%
			PLF(Stablization for 6 months)	%	53%
			PLF(during first year after Stablization)	%	53%
			PLF(second year onwards)	%	53%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.50
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	344.750
			Total Equity 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
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		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
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)	%
					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 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	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		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	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)	3.06	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	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		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	16.32	16.92	17.52	18.16	18.84	19.56
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	109.99	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	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	MJ	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
Levillised 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	<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 Amount	Rs Lacs	147.750
		<u>Debt Component</u>	Loan Amount	Rs Lacs	344.75
			Moratorium Period	years	0
			Repayment Period(incl'd 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	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	Kcal/kwh	3600
			During Stablization Period	Kcal/kwh	3600
		<u>Biomass</u>	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	
		<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		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		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	0.44	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	0.36	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	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	
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	
		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	
6	Fuel Related Assumptions	Interest On Working Capital		%	11.66%	
			Biomass	Specific Fuel Consumption	kg/kWh	1.25
				Base Price	Rs/T	2873.22
				Biomass Price Escalation Factor		5.00%
			7	Operation & Maintenance	O & M Expenses (2017-18)	Rs Lacs
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	
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		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-->	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	143.79	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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	5.75	3.99	4.19	4.40	4.62	4.85	5.09	5.35	5.62	5.90	6.19	6.50	6.83	7.17	7.52	7.90	8.30	8.71	9.15	9.60	10.08
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	0.42	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	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																						
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)	3.99 Rs/kWh																					
Levillised Tariff (Fixed)	2.54 Rs/kWh																					
Applicable Tariff (FY2017-18)	6.53 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%	
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	-0.12	-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	
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	<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(incld 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)	%
		Depreciation Rate 14th year onwards		%	3.05%
		5	Working Capital	<u>For Fixed Charges</u>	O&M Charges
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
		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	0.35	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	0.46	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%	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 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	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	0.20
Levillised benefit		0.10 (Rs/kWh)																					

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				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(incl 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	%	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	

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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		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																						
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%	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 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	-0.12	-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

					Annexure 4D
					Punjab
					Select State
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
			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
		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
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		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
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	6.84	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	12.00
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	0.48	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	0.83
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	9.45	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	15.70
Levelling 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																					
Levelling 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
Levelling benefit	0.10 (Rs/kWh)																				

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				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	%	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
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

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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		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%	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%	
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	-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 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		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 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	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	-0.07	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
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(inclld 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 Expensms (2017-18)	Rs Lacs	52.83		
		O & M Expensms 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	0.35	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	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%	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	-0.12	-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
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
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	Depreciation Rate(power plant)	%	5.28%
			Depreciation Rate 14th year onwards	%	3.05%
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months	1
				Months	15%
				Months	2
				Months	4
				%	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	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		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	210.09	216.74	223.78	231.21
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	6.15	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	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)	4.27 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	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	23.38	23.38	
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	-23.34	-12.73	0.02	
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	
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	-0.12	-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	
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%	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	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%
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	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
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	-0.13	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)																			