

# **Bihar Electricity Regulatory Commission**

Vidyut Bhawan-II, J.L. Nehru Marg, Patna- 800 021

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**Notice No.- 19**

**Dated- 12/07/2023**

## **PUBLIC NOTICE**

**Inviting comments/suggestions/objections from general public and stakeholders on determination of Tariff for FY 2023-24 from Renewable Energy Sources.**

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Bihar Electricity Regulatory Commission, empowered to determine Tariff under section 61(h), 62(1)(a), 86(1)(e) and 181 of the Electricity Act, 2003, has initiated a Suo-Motu proceedings No. **14/2023** for determination of generic levelled tariff for power generated from Renewable energy sources for FY 2023-24 under Sub-Regulation 8 of Bihar Electricity Regulatory Commission (Terms & Conditions for Tariff Determination from Renewable Energy Source) Regulations, 2022.

Copies of draft of proposed Tariff order and consultative paper is available on Commission's website [www.berc.co.in](http://www.berc.co.in). Interested persons/organisations may obtain a copy of the draft of proposed Tariff order from the office of the Commission on any working day.

Commission invites written comments/suggestions/objections on the proposed Tariff order from general public and stakeholders on or before **17.07.2023**, addressed to Secretary, Bihar Electricity Regulatory Commission, Vidyut Bhawan-II, J.L. Nehru Marg, Bailey Road, Patna-800021.

Interested persons/organizations/companies may also appear in the Public Hearing Scheduled to be held on **18.07.2023** at 11:30 A.M in the Court Room of the Commission.

**Sd/-  
Secretary**



**BIHAR ELECTRICITY REGULATORY COMMISSION**  
**Vidyut Bhawan-II, Bailey Road, Patna – 800 021**

**Consultative Paper for determination of generic levelled Tariff for FY**  
**2023-24 for Power Generated from Renewable Energy Sources**

In exercise of the power conferred under section 61(h), 62(1)(a), 86(1)(e) and 181 of the Electricity Act, 2003 as well as provisions of the National Electricity Policy, 2005 and the Tariff Policy, 2016, the Commission has notified BERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2022 (hereinafter referred to as "the RE Tariff Regulations"), on the 11<sup>th</sup> October, 2022, wherein control period of three years starting from FY 2022-23 was fixed.

Regulation 8 of the RE Tariff Regulations, 2022 empowers the Commission to determine generic (levelised) tariff on annual basis for the following types of Renewable Energy Projects, for which norms have been specified under the Regulations:

- a. Biomass Power Projects based on Rankine Cycle technology;
- b. Non-fossil fuel-based co-generation Projects.
- c.. Biomass Gasifier power projects; and
- d. MSW/RDF project based on Rankine cycle

Now, the commission in due discharge of the mandate under regulation 8 of the RE Tariff Regulations, proposes to determine the generic (levelised) tariff of the RE projects mentioned above for the second year of the control period i.e for FY 2023-24 as per the enclosed draft proposal .

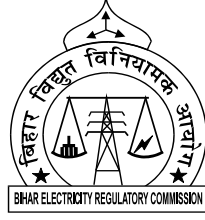
It is to be noted that Norms and mechanism for tariff determination from Renewable Energy Sources have been provided in the RE tariff Regulations for the entire control period FY 2022-23 to 2024-25, with a provision that the benchmark capital cost for these projects may be reviewed annually by the Commission.

The Generic (levellised) tariff for the second year of control period i.e for FY 2023-24 from Renewable Energy Sources shall be applicable for RE Projects commissioned up to 31.03.2024. This tariff shall also be applicable for RE projects commissioned after 31<sup>st</sup> March 2024 until the subsequent generic levelised tariff order for RE projects is approved by the commission. Such tariff shall be valid for 25 years from the commercial operation date (COD).

The draft generic levelized tariff order is uploaded on the Commission's website [www.berc.co.in](http://www.berc.co.in). Comments/ Suggestions/ Objections from general public and all stakeholders are invited on or before **17.07.2023** addressed to The Secretary, Bihar Electricity Regulatory Commission, Vidyut Bhawan-II, Jawahar Lal Nehru Marg, Patna-800021. The Commission is scheduled to hear the matter on **18.07.2023** at 11.30 am in the Court room of BERC.

**Sd/-**

**Secretary**



**BIHAR ELECTRICITY REGULATORY COMMISSION**  
**PATNA**

**DRAFT**

**Proposed generic levellised Tariff for FY  
2023-24 for Power Generated from  
Renewable Energy Sources.**

1. Bihar Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2022, dated 11.10.2022 (hereinafter referred to as "the RE Tariff Regulations"), provides for terms and conditions and the procedures for determination of generic levelised tariff or project specific tariff of Renewable Energy Projects.
2. Whereas norms and mechanism for tariff determination of Renewable Energy Projects were fixed in the RE Tariff Regulations, 2022 for the control period 2022-23 to 2024-25. However, the RE tariff Regulation empowers the Commission to review the benchmark capital cost on annual basis.
3. Regulation 7 of the RE Tariff Regulations, 2022 provides for determination of project specific tariff on case to case basis for the following types of Renewable Energy Projects:
  - a. Biogas based projects;
  - b. Solar Thermal Power Projects;
  - c. Small Hydro Projects
  - d. Other hybrid projects include renewable–renewable or renewable–conventional sources, for which renewable technology is approved by MNRE;
  - e. Any other new renewable energy technologies approved by MNRE.
4. Regulation "8" of RE tariff regulations, 2022 provides for determination of generic levelised tariff of the following types of Renewable Energy projects:-
  - a. Biomass Power Projects based on Rankine Cycle technology;
  - b. Non-fossil fuel-based co-generation Projects
  - c. Biomass Gasifier based projects;
  - d. MSW/RDF project based on Rankine cycle
5. The Commission, in due discharge of the mandate of the RE Tariff Regulations proposes to determine the generic tariff of the RE projects mentioned in the point 4 above for the FY 2023-24 as per the details mentioned in **Annexure I to XIII**.
6. The proposed levelled generic tariffs for Biomass power projects with Rankine Cycle, Non-fossil fuel based co-generation projects, Biomass Gasifier based projects and MSW/RDF project based on Rankine cycle for FY 2023-24 are discussed below.

### **USEFUL LIFE**

7. Clause (cc) 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:
- |   |          |
|---|----------|
| (a) Wind energy power project                                     | 25 years |
| (b) Bio mass power project with Rankine cycle technology          | 25 years |
| (c) Non-fossil fuel cogeneration project                          | 25 years |
| (d) Small Hydro Project   | 40 years |
| (e) Municipal Solid Waste / and Refuse Derived Fuel based Project | 25 years |
| (f) Solar PV/Solar thermal power project                          | 25 years |
| (g) Biomass Gasifier based power project                          | 25 years |
| (h) Biogas based power project                                    | 25 years |

### **CONTROL PERIOD**

8. 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 second year of control period is FY 2023-24.

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**

9. 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:
- Return on equity;
  - Interest on loan;
  - Depreciation;
  - Interest on working capital; and
  - Operation and maintenance expenses;

Provided that for renewable energy projects having fuel cost component, like biomass power project with Rankine cycle technology, biomass gasifier based power projects, biogas based power projects, non-fossil fuel based co-generation projects and

refuse based power projects. single part tariff with two components, fixed cost component and fuel cost component, shall be determined.

### **TARIFF DESIGN**

10. Regulation 10 of the RE Tariff Regulations outlines the principles for tariff design for RE generating projects as under:

(1) The generic tariff shall be determined on levelled basis considering the year of commissioning of the project, for the tariff period of the project provided that for renewable energy projects having single part tariff with two components, fixed cost component shall be determined on levelized basis considering the year of Commissioning of the project, while fuel cost component shall be determined on year of operation basis in the Tariff order to be issued by the Commission.

(2) For the purpose of levelled tariff computation, the discount factor equivalent to Post Tax weighted average cost of capital shall be considered.

### **LEVELLISED TARIFF**

11. Levelled 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**

12. In accordance with Regulation 10(2) read with Regulation 14, 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 10.48%. For equity component (i.e. 30 %), rate of Return on Equity (ROE) is considered at post tax rate of 14%.

As per Regulation 10 (2) read with Regulation 13 & 15(2), of the RE Tariff Regulations the discount factor considering weighted average post tax cost of capital derived for all technologies taking the normative Debt – Equity ratio of 70:30 will be **9.70%, as per** the calculation shown below:-

$((10.48 \% \times 0.70 \times (1 - 25.097 \%)) + (14.0\% \times 0.30)), (\text{Income tax rate @ } 25.097\%.)$

## **CAPITAL COST**

13. Regulation 13 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 proposed the normative capital cost, applicable for the second year of control period i.e. for FY 2023-24, for various RE technologies in subsequent paras.

### **Technology specific capital cost of RE projects is indicated hereinbelow:**

#### **(A) Capital Cost of Biomass based Power Projects**

14. The Commission, under Regulation 25 of the RE Tariff Regulations has proposed to normative capital cost for Biomass Power Projects based on Rankine cycle technology for FY 2023-24, as under:

| <b>Biomass Rankine Cycle Projects</b>  | <b>Capital Cost<br/>(FY 2023-24)<br/>(Rs. lakhs/MW)</b> |
|--|---|
| Project [other than rice straw and juliflora (plantation) based project] with water cooled condenser | 559   |
| Project [other than rice straw and Juliflora (plantation) based project] with air cooled condenser   | 600   |
| For rice straw and juliflora (plantation) based project with water cooled condenser                  | 611   |
| For rice straw and juliflora (plantation) based project with air cooled condenser                    | 652   |

#### **(B) Capital Cost of Non-fossil fuel based Cogeneration Projects**

15. **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, The project shall qualify to be termed as a non-fossil fuel based co-generation project, if it is using new plant and machinery and is in accordance with the definition and also meets the qualifying requirement outlined below:  
**Topping cycle mode of co-generation**—Any facility that uses non-fossil fuel input for the power generation and also utilizes the thermal energy generated for useful heat applications in other industrial activities simultaneously.



Provided that for the co-generation facility to qualify under topping cycle mode, the sum of useful power output and one half the useful thermal output be greater than 45% of the facility's energy consumption, during season.

16. The Commission under Regulation 33 has proposed to retain the normative capital cost for the Non-Fossil Fuel Based Cogeneration Projects as Rs. 492 lakhs/MW for high boiler pressure projects for second year of Control Period (i.e. FY 2023-24), and will remain valid for the entire duration of the control period unless reviewed earlier by the Commission.

**(C) Capital Cost of Biomass Gasifier Power Projects**

17. The Commission under Regulation 40 has proposed to retain the normative capital cost for the Biomass Gasifier power projects based on Rankine cycle to be Rs. 593 lakhs/MW for FY 2023-24.

**(D) Capital Cost of power projects using Municipal solid waste/refuse derived fuel and based on Rankine cycle technology:**

18. The capital cost for FY 2023-24 shall the normative capital cost for the power projects which use MSW based on Rankine Cycle Technology shall be Rs. 1500 Lakhs/MW and for refuse derived fuel based Power Plant shall be Rs. 900 Lakhs/MW. The capital cost shall remain valid during the control period unless reviewed earlier by the Commission.

**The capital cost for the first year (i.e. for FY 2023-24) of the control period in respect of the renewable energy power generating stations is summarized as under:-**

| <b>Renewable Energy Projects</b>   | <b>Capital Cost<br/>(FY 2023-24)<br/>(Rs. lakhs/MW)</b> |
|--|---|
| <b>(1) Biomass Based Power Projects</b>  |   |
| a. Project [other than rice straw and juliflora(plantation) based project] with water cooled condenser | 559   |
| b. Project [other than rice straw and Juliflora(plantation) based project] with air cooled condenser   | 600   |
| c. For rice straw and juliflora (plantation) based project with water cooled condenser                 | 611   |
| d. For rice straw and juliflora(plantation) based project with air cooled condenser                    | 652   |
| <b>(2) Non-fossil fuel based Cogeneration Projects</b>   | 492   |
| <b>(3) Biomass Gasifier Power Projects</b>   | 593   |

|   |      |
|---|------|
| <b>(4) power projects using Municipal solid waste/refuse derived fuel and based on Rankine cycle technology</b> |      |
| a. MSW based on Rankine Cycle Technology  | 1500 |
| b. Refuse derived fuel based MSW Power Plant  | 900  |

19. The Capital Cost, for above mentioned RE technologies, as proposed for Second Year of the control period will remain valid for the entire duration of the control period unless reviewed earlier by the Commission.

### **DEBT-EQUITY RATIO**

20. Sub-Regulation (1) of Regulation 14 of the RE Tariff Regulations, stipulates as under:  
*"For generic tariff to be determined based on suo-motu petition, the debt equity ratio shall be 70:30"*
21. 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:

| <b>Renewable Energy Projects</b>  | <b>Debt<br/>(Rs. Lakh)</b> | <b>Equity<br/>(Rs. Lakh)</b> |
|---|----------------------------|------------------------------|
| <b>(1) Biomass Based Power Projects</b>   |                            |                              |
| e. Project [other than rice straw and juliflora (plantation) based project] with water cooled Condenser         | 391.3                      | 167.7                        |
| f. Project [other than rice straw and Juliflora(plantation) based project] with air cooled condenser            | 420                        | 180                          |
| g. For rice straw and juliflora (plantation) based project with water cooled condenser                          | 427.7                      | 183.3                        |
| h. For rice straw and juliflora(plantation) based project with air cooled condenser                             | 456.4                      | 195.6                        |
| <b>(2) Non-fossil fuel based Cogeneration Projects</b>  | 344.4                      | 147.6                        |
| <b>(3) Biomass Gasifier Power Projects</b>  | 415.1                      | 177.9                        |
| <b>(6) power projects using Municipal solid waste/refuse derived fuel and based on Rankine cycle technology</b> |                            |                              |
| c. MSW based on Rankine Cycle Technology  | 1050                       | 450                          |
| d. Refuse derived fuel based MSW Power Plant  | 630                        | 270                          |

### **RETURN ON EQUITY**

22. Regulation 17(b) of the RE Tariff Regulations, stipulates that "The normative Return on Equity shall be 14 %, to be grossed up by the latest available notified MAT rate for first 20 years of the tariff period and by the latest available notified corporate tax rate for the remaining period". Accordingly, the normative Return on Equity (ROE), after grossing up by latest available notified MAT rate of 16.588% (Average rate) derived for first 20 years of the tariff period and latest available notified corporate tax rate of 25.097% (Average rate) for remaining years of the tariff period, will be **16.784% and 18.691% respectively**. As per Calculation of "(14 %/(1-16.588%))" and "(14 %/(1-25.097%))"

**INTEREST ON LOAN**

23. Regulation 15 of the said Regulation provides for computation of interest on loan as under:
- (a) *"The loan arrived at in the manner indicated in Regulation 14 shall be considered as gross normative loan for calculation of interest on loan. For project specific tariff, the normative loan outstanding as on 1st of April of every year shall be worked out by deducting the cumulative repayment up to 31st March 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."*
24. The monthly data of MCLR for the last available six months from State Bank of India and the average MCLR is shown below.

| <b>Month</b>  | <b>Tenor-wise MCLR Rates<br/>(Source: SBI Monthly PressReleases)</b> |
|---------------|--|
| January 2023  | 8.40   |
| February 2023 | 8.50   |
| March 2023    | 8.50   |
| April 2023    | 8.50   |

| <b>Month</b>                            | <b>Tenor-wise MCLR Rates<br/>(Source: SBI Monthly PressReleases)</b> |
|---|--|
| May2023                                 | 8.50   |
| June2023                                | 8.50   |
| <b>Avg. for last Available 6 months</b> | 8.48   |

25. In terms of the above, interest rate for loan component has been determined as **10.48%**.

**DEPRECIATION**

26. Regulation 16 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 project admitted by the Commission. The Salvage value of the project shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the project.*

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

(2) *Depreciation rate of 7% per annum for first 10 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 for determination of project specific tariff, in case of commercial operation of the project for part of the year, depreciation shall be charged on pro rata basis”.*

27. In accordance with the above provisions, the rate of depreciation for the first 10 years has been considered as 7 % and from the 11th year onwards has been spread over the balance useful life of the RE project as under:

| <b>Details</b> | <b>Biomass</b> | <b>Non-fossil fuel cogeneration</b> | <b>Biomass Gasifier</b> | <b>power projects using MSW/RDF on Rankine cycle technology</b> |
|----------------|----------------|-------------------------------------|-------------------------|---|
|                |                |                                     |                         |   |

|   |      |      |      |      |
|---|------|------|------|------|
| Useful Life (inyears)                         | 25   | 25   | 25   | 25   |
| Rate of depreciation for 10 years (%)         | 7    | 7    | 7    | 7    |
| Rate of depreciation after first 10 years (%) | 1.33 | 1.33 | 1.33 | 1.33 |

### **INTEREST ON WORKING CAPITAL**

28. The Working Capital requirement in respect of biomass power projects with Rankine Cycle technology, Biomass Gasifier based power projects, non-fossil fuel based co-generation, Municipal Solid Waste and Refuse Derived Fuel projects shall be computed in accordance with the following clause :

- a) Fuel costs for four months equivalent to normative PLF; however, in case of non-fossil fuel co-generation, fuel cost for one month will be considered.
- b) Operation & Maintenance expense for one month;
- c) Receivables equivalent to 45 days of tariff for sale of electricity calculated on the PLF; and
- d) Maintenance spare equivalent to 15% of operation and maintenance expenses

29. Interest on Working Capital shall be at interest rate equivalent to the normative interest rate of three hundred fifty (350) 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, Accordingly, The details are as under:

| <b>Details</b>                       | <b>Biomass</b> | <b>Non-fossil fuel cogeneration</b> | <b>Biomass Gasifier</b> | <b>power projects using Municipal solid waste/refuse derived fuel and based on Rankine cycle technology</b> |
|--------------------------------------|----------------|-------------------------------------|-------------------------|---|
| For Fixed Charge                     |                |                                     |                         |   |
| <b>i. O &amp; M Expenses (Month)</b> | 1              | 1                                   | 1                       | 1   |

|   |        |        |        |        |
|---|--------|--------|--------|--------|
| <b>ii. Maintenance spares (% of O&amp;M expenses)</b> | 15     | 15     | 15     | 15     |
| <b>iii. Receivables (months)</b>                      | 1.5    | 1.5    | 1.5    | 1.5    |
| For Variable Charge                                   |        |        |        |        |
| <b>Fuel stock (months)</b>                            | 4      | 1      | 4      | 4      |
| <b>Interest On Working Capital (%)</b>                | 11.98% | 11.98% | 11.98% | 11.98% |

30. Calculation of PLF.—The number of hours per annum for calculation of PLF for various RE technologies shall be 8760.

**Operation and Maintenance Expenses**

31. Regulation 20 of the RE Tariff Regulations explains the computation of O & M expenses as under:

- (1) ‘Operation and Maintenance or O&M expenses’ shall comprise repair and maintenance (R&M), establishment including employee expenses, and administrative and general expenses.
- (2) Operation and maintenance expenses shall be determined for the Tariff Period of the project based on normative O&M expenses specified by the Commission subsequently in these Regulations for the Second Year of Control Period.
- (3) Normative O&M expenses allowed during second year of the Control Period (i.e. for FY 2023-24) under RE Tariff Regulations shall be escalated at the rate of 3.84% per annum over the Tariff Period.

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

| <b>Details</b> | <b>Biomass</b> | <b>Non-fossil fuel cogeneration</b> | <b>Biomass Gasifier</b> | <b>power projects using Municipal solid waste cycle technology</b> | <b>power projects using refuse derived fuel and based on Rankine cycle technology</b> |
|----------------|----------------|-------------------------------------|-------------------------|--|---|
|                |                |                                     |                         |  |   |

|  |       |       |       |        |       |
|--|-------|-------|-------|--------|-------|
| O & M Expenses<br>(Lakh per MW)(FY<br>2023-24) | 51.98 | 27.45 | 68.65 | 116.96 | 70.17 |
|--|-------|-------|-------|--------|-------|

**Plant Load Factor**

32. Regulations 26, 34, 41 and 47 of the RE Tariff Regulations specify the plant load factor for Biomass, Biomass Gasifier and MSW/ RDF based renewable energy generating stations as given in the table below which has been considered for determination of fixed charges component of tariff.

| Renewable Energy Projects   | PLF (%) |     |
|---|---------|-----|
| <b>(A) Biomass Power Projects based on Rankine cycle Technology</b>           | 80      |     |
| <b>(B) Biomass Gasifier based Power Projects</b>                              | 85      |     |
| (C) Non-fossil fuel based Cogeneration Projects                               | 53      |     |
| (D) Municipal solid waste (MSW) /refuse derived fuel (RDF)                    | MSW     | RDF |
| (a) During stabilization(6months)   | 65      | 65  |
| (b) During remaining period of the first year (after stabilization<br>Period) | 65      | 65  |
| (c) Second year onwards   | 75      | 80  |

33. RE Tariff Regulations stipulate the auxiliary power consumption factor for different technologies as under:

| Renewable Energy Projects  | Auxiliary Consumption Factor |
|--|------------------------------|
| <b>Biomass Power Projects based on Rankine cycle Technology</b>          |                              |
| a) The project using water cooled condenser                              | 10%.                         |
| b) project using air cooled condenser                                    | 12%.                         |
| Non-fossil fuel co-generation Projects                                   | 8.5%                         |
| Biomass Gasifier based Power Projects                                    | 10%                          |
| Municipal solid waste based and refuse derived fuel based power projects | 15%                          |

### **STATION HEAT RATE**

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

| <b>Renewable Energy Projects</b>  | <b>SHR (kCal/kWh)</b>   |
|---|---|
| Biomass Power Projects based on Rankine cycle Technology                          | a. 4200 :for project using travelling grate boilers;<br>b. 4125:for project using AFBC boilers. |
| Non-fossil fuel based co-generation (for power generation component alone)        | 3600  |
| Municipal solid waste based (MSW) /refuse derived fuel (RDF) based power projects | <b>4200</b>   |

### **Fuel Mix**

35. The biomass power plant shall be designed in such 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 MNRE.

The Biomass Power Generating Companies shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

36. The Biomass Gasifier based Power Generating Companies shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements normative specific fuel consumption shall be 1.25 kg per kWh for Biomass Gasifier based power generating stations.
- The Calorific Value of the biomass fuel used for the purpose of determination of tariff shall be at 3100 kCal/kg.
  - The Gross Calorific Value for Bagasse shall be considered as 2250 kCal/kg. For the use of biomass fuels other than bagasse the calorific value as specified above shall be applicable.
  - The Calorific Value of the refuse derived fuel (RDF) fuel used for the purpose of determination of tariff shall be at 2500 kcal/kg.



**Fuel cost: Fuel Cost for FY 2023-24:-**

- a. Biomass fuel price during second year of Control Period (i.e. FY 2023-24) shall be Rs. 4117.68 /MT .For each subsequent year of the Tariff Period, the normative escalation factor of 5% per annum shall be applicable at the option of the biomass project developer or shall be as decided by the Commission.
- b. (i) the price of Bagasse second year of the Control Period (i.e. FY 2023-24) shall be Rs. 2632.35/MT. For each subsequent year of the Control Period, the normative escalation factor of 5% per annum shall be applicable at the option of the project developer or as decided by the Commission.  
(ii) For use of biomass other than bagasse in co-generation projects, the biomass prices as specified above shall be applicable.
- c. Biomass fuel price for the Biomass gasifier based power project applicable for FY 2023-24 shall be the same as for the biomass based power project (Rankine cycle) as mentioned above.
- d. Refuse derived fuel (RDF) price for FY 2023-24 shall be Rs 2412.49 per MT. For each subsequent year of the Tariff Period, the normative escalation factor of 5% per annum shall be applicable at the option of the refuse derived fuel (RDF) project developer.

No fuel cost shall be considered for determination of tariff for the power projects using municipal solid waste (MSW).

**Subsidy or incentive by the Central / State Government**

Regulation 23 of the RE Tariff Regulations provides as under:

*"The Commission shall take into consideration any incentive grant or subsidy from the Central or State Government, including accelerated depreciation benefit if availed by the 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:*

- i) *Assessment of benefit shall be based on normative capital cost, accelerated depreciation rate and corporate income tax rate as per relevant provisions of Income Tax Act, 1961.....*

.....

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

In terms of the above regulation, for the projects availing the benefit of accelerated depreciation, an applicable Income tax rate of 25.097% has been considered. For the purpose of determining net depreciation benefits, depreciation @ 7 % 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 has been extended to new assets acquired by power generation companies vide amendment in the section 32, sub-section (1) clause (ia) of the Income Tax Act, accordingly depreciation as per Income Tax Act for the first year has been calculated at the rate of 60% i.e accelerated depreciation of 40% plus additional depreciation of 20%. Income tax benefits of accelerated depreciation and additional depreciation, has been worked out as per normal tax rate on the net depreciation benefit. Per unit levelled accelerated depreciation benefit has been computed considering the post-tax weighted average cost of capital as discount factor. Accelerated depreciation benefit has been computed as per existing provisions of Income Tax Act.

**In the light of the discussion made in the preceding paragraphs, the generic tariffs of different RE projects for the financial year 2023-24 have been arrived at and are specified as under:**

The generic levelled tariff for Renewable Energy (RE) based generating stations in accordance with provisions of Bihar Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2022, proposed to be determined on the basis of above parameter shall be as hereunder:

| S.No. | Project | Fixed Cost | Variable Cost | # Tariff (Without Accelerated Depreciation) | Tariff (With Accelerated Depreciation) |
|-------|---------|------------|---------------|---|--|
|       |         |            |               |   |  |

|    |  |              |              |              |              |
|----|--|--------------|--------------|--------------|--------------|
| 1  | <b>Biomass Gasifier Power Projects</b>   | <b>3.122</b> | <b>5.719</b> | <b>8.841</b> | <b>8.747</b> |
| 2  | <b>Non Fossil fuel based Co-generation projects (Bagasse) Project</b>  | <b>2.635</b> | <b>4.603</b> | <b>7.238</b> | <b>7.115</b> |
| 3  | <b>Non Fossil fuel based Co-generation projects (Other Than Bagasse) Project</b>   | <b>2.659</b> | <b>5.226</b> | <b>7.885</b> | <b>7.762</b> |
| 4  | <b>Municipal solid waste based on Rankine cycle technology</b>   | <b>6.661</b> | <b>NA</b>    | <b>6.661</b> | <b>6.375</b> |
| 5  | <b>RDF based on Rankine cycle technology.</b>  | <b>4.184</b> | <b>4.768</b> | <b>8.952</b> | <b>8.791</b> |
| 6  | <b>Biomass Power Project [other than rice straw and Juliflora(plantation) based project with air cooled condenser with AFBC boiler</b>                 | <b>3.022</b> | <b>6.226</b> | <b>9.248</b> | <b>9.145</b> |
| 7  | <b>Biomass Power Project [For rice straw and juliflora(plantation) based project] with air cooled condenser with AFBC boiler</b>                       | <b>3.133</b> | <b>6.226</b> | <b>9.360</b> | <b>9.248</b> |
| 8  | <b>Biomass Power Project [For rice straw and juliflora (plantation)] with water cooled condenser with AFBC boiler</b>                                  | <b>2.978</b> | <b>6.088</b> | <b>9.066</b> | <b>8.963</b> |
| 9  | <b>Biomass Power Project [other than rice straw and juliflora (plantation) based project] with water cooled condenser with AFBC boiler</b>             | <b>2.869</b> | <b>6.088</b> | <b>8.957</b> | <b>8.863</b> |
| 10 | <b>Biomass Power Project [other than rice straw and Juliflora(plantation) based project with air cooled condenser with travelling grate boiler</b>     | <b>3.03</b>  | <b>6.34</b>  | <b>9.37</b>  | <b>9.27</b>  |
| 11 | <b>Biomass Power Project [For rice straw and juliflora(plantation) based project] with air cooled condenser with travelling grate boiler</b>           | <b>3.14</b>  | <b>6.34</b>  | <b>9.48</b>  | <b>9.37</b>  |
| 12 | <b>Biomass Power Project [For rice straw and juliflora (plantation)] with water cooled condenser with travelling grate boiler</b>                      | <b>2.99</b>  | <b>6.20</b>  | <b>9.19</b>  | <b>9.09</b>  |
| 13 | <b>Biomass Power Project [other than rice straw and juliflora (plantation) based project] with water cooled condenser with travelling grate boiler</b> | <b>2.88</b>  | <b>6.20</b>  | <b>9.08</b>  | <b>8.99</b>  |

The Generic (levellised) tariff from Renewable Energy Sources for the second year of the control period i.e FY 2023-24 shall be applicable for RE Projects commissioned up to 31.03.2024. This tariff shall also be applicable for RE projects commissioned after 31<sup>st</sup> March 2024 until the subsequent generic levelised tariff order for RE projects is approved by the commission.

**Annexure-I A**

**Norms and Parameter for Biomass Gasifier Power Project**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>   | <b>Unit</b>  | <b>Assumptions</b> |
|---------------|------------------------|---------------------|---|--------------|--------------------|
| 1.            | Power Generation       | Capacity            | Installed Power Generation Capacity<br>Plant Load Factor<br><br>Auxiliary Consumption | MW<br>%<br>% | 1<br>85<br>10      |
| 2.            | Power Cost             | Capital Cost/MW     | Capital Cost Project  | Rs.Lac/MW    | 593                |

|               |   |  |                                   |          |        |
|---------------|---|--|-----------------------------------|----------|--------|
| 3.            | Financial Assumptions                           |  | Tariff Period                     | Year     | 25     |
|               |   | Debt :Equity   | Debt                              | %        | 70     |
|               |   |  | Equity                            | %        | 30     |
|               |   | Debt Component   | Total Debt Amount                 | Rs. Lakh | 415.10 |
|               |   |  | Total Equity Amount               | Rs. Lakh | 177.90 |
|               |   |  | Repayment Period                  | Year     | 10     |
|               |   |  | Interest rate                     | %        | 10.48% |
|               |   | Equity Component   | Equity Amount                     | Rs. Lakh | 177.90 |
|               |   |  | Return on Equity first 20 years   | %        | 16.784 |
|               |   |  | ROE 20 <sup>th</sup> year onwards | %        | 18.691 |
| discount rate | %   |  | 9.7                               |          |        |
| Depreciation  | Depreciation rate first 10 years                | %  | 7                                 |          |        |
|               | Depreciation rate 11 <sup>th</sup> year onwards | %  | 1.333                             |          |        |
|               |   |  |                                   |          |        |
| 4.            | Operation & Maintenance                         | Normative O&M expenses p.a. Escalation for O&M                         |                                   | Rs.Lakh  | 68.65  |
|               |   |  |                                   | %        | 3.84   |
| 5.            | Working capital                                 | O&M expenses Maintenance Spare Receivables Interest on working capital | (% O&M expenses)                  | Month    | 1      |
|               |   |  |                                   | %        | 15     |
|               |   |  |                                   | Month    | 1.5    |
|               |   |  |                                   | %        | 11.98  |
| 6.            | Fuel related assumptions                        | Station Heat Rate  |                                   | kCal/Kwh | 1.25   |

|  |  |                 |                              |          |         |
|--|--|-----------------|------------------------------|----------|---------|
|  |  | Fuel Type & mix | GCV of Fuel                  | kCal/Kwh | 4117.68 |
|  |  |                 | Specific fuel Consumption    | Kg/Kwh   | 5       |
|  |  |                 | Price of Fuel                | Rs/MT    |         |
|  |  |                 | fuel price escalation factor | % p.a    |         |

# Annexure-I B

| Determination of Tariff for Biomass Gasifier based technology (FY 2023-24) |                |              |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
|--|----------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------|
| Capital Cost   | Lakh/MW        | 593          |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Units Generation   | Unit           | Year-->      | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20            | 21            | 22            | 23            | 24            | 25            |      |
| Installed Capacity   | MW             |              | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             |      |
| Net Generation   | MU             |              | 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          | 7.45          | 7.45          | 7.45          | 7.45          | 7.45          |      |
| Auxiliary Consumption  | MU             |              | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         | 0.745         |      |
| Actual Generation  | MU             |              | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         |      |
| Actual Generation month Wise   | MU             |              | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         | 0.558         |      |
| Tariff Components Fixed Cost   | Unit           | Year-->      | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20            | 21            | 22            | 23            | 24            | 25            |      |
| O&M Expenses   | Rs Lakh        |              | 68.65         | 71.29         | 74.02         | 76.87         | 79.82         | 82.88         | 86.07         | 89.37         | 92.80         | 96.37         | 100.07        | 103.91        | 107.90        | 112.04        | 116.34        | 120.81        | 125.45        | 130.27        | 135.27        | 140.47        | 145.86        | 151.46        | 157.28        | 163.32        | 169.59        |      |
| Depreciation   | Rs Lakh        |              | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         | 41.51         |      |
| Interest on term loan  | Rs Lakh        |              | 41.34         | 36.99         | 32.64         | 28.29         | 23.93         | 19.58         | 15.23         | 10.88         | 6.53          | 2.18          | 0.00          | 0.00          | 0.00          | 0.00          | 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        |              | 26.08         | 27.19         | 28.37         | 29.60         | 30.90         | 32.27         | 33.71         | 35.22         | 36.80         | 38.47         | 39.75         | 41.65         | 43.65         | 45.75         | 47.96         | 50.27         | 52.69         | 55.23         | 57.90         | 60.70         | 63.68         | 66.76         | 69.99         | 73.38         | 76.94         |      |
| Return on Equity   | Rs Lakh        |              | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         | 29.86         |      |
| <b>Total Fixed Cost</b>  | <b>Rs Lakh</b> |              | <b>207.44</b> | <b>206.84</b> | <b>206.40</b> | <b>206.12</b> | <b>206.02</b> | <b>206.10</b> | <b>206.37</b> | <b>206.83</b> | <b>207.50</b> | <b>208.38</b> | <b>177.58</b> | <b>183.33</b> | <b>189.32</b> | <b>195.56</b> | <b>202.07</b> | <b>208.84</b> | <b>215.91</b> | <b>223.27</b> | <b>230.94</b> | <b>238.93</b> | <b>250.70</b> | <b>259.38</b> | <b>268.43</b> | <b>277.86</b> | <b>287.68</b> |      |
| Variable Cost  |                |              |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| VARIABLE COST PER UNIT AT BUS BAR  | Rs./Kwh        | 5.72         | 6.00          | 6.31          | 6.62          | 6.95          | 7.30          | 7.66          | 8.05          | 8.45          | 8.87          | 9.32          | 9.78          | 10.27         | 10.78         | 11.32         | 11.89         | 12.48         | 13.11         | 13.76         | 14.45         | 15.17         | 15.93         | 16.73         | 17.57         | 18.44         |               |      |
| BIOMASS FUEL COST  | Rs. Lakh       | 383.25       | 402.42        | 422.54        | 443.66        | 465.85        | 489.14        | 513.60        | 539.28        | 566.24        | 594.55        | 624.28        | 655.49        | 688.27        | 722.68        | 758.81        | 796.76        | 836.59        | 878.42        | 922.34        | 968.46        | 1016.88       | 1067.73       | 1121.12       | 1177.17       | 1236.03       |               |      |
| 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            |               |      |
| O&M expn   | Rs/kWh         | 1.02         | 1.06          | 1.10          | 1.15          | 1.19          | 1.24          | 1.28          | 1.33          | 1.38          | 1.44          | 1.49          | 1.55          | 1.61          | 1.67          | 1.74          | 1.80          | 1.87          | 1.94          | 2.02          | 2.10          | 2.18          | 2.26          | 2.35          | 2.44          | 2.53          |               |      |
| Depreciation   | Rs/kWh         | 0.62         | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          |               |      |
| Int. on term loan  | Rs/kWh         | 0.62         | 0.55          | 0.49          | 0.42          | 0.36          | 0.29          | 0.23          | 0.16          | 0.10          | 0.03          | 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          |               |      |
| Int. on working capital  | Rs/kWh         | 0.39         | 0.41          | 0.42          | 0.44          | 0.46          | 0.48          | 0.50          | 0.53          | 0.55          | 0.57          | 0.59          | 0.62          | 0.65          | 0.68          | 0.72          | 0.75          | 0.79          | 0.82          | 0.86          | 0.91          | 0.95          | 1.00          | 1.04          | 1.10          | 1.15          |               |      |
| RoE  | Rs/kWh         | 0.45         | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          |               |      |
| <b>Total COG</b>   | <b>Rs/kWh</b>  | <b>3.10</b>  | <b>3.09</b>   | <b>3.08</b>   | <b>3.08</b>   | <b>3.07</b>   | <b>3.08</b>   | <b>3.08</b>   | <b>3.09</b>   | <b>3.10</b>   | <b>3.11</b>   | <b>2.65</b>   | <b>2.74</b>   | <b>2.83</b>   | <b>2.92</b>   | <b>3.02</b>   | <b>3.12</b>   | <b>3.22</b>   | <b>3.33</b>   | <b>3.45</b>   | <b>3.57</b>   | <b>3.74</b>   | <b>3.87</b>   | <b>4.01</b>   | <b>4.15</b>   | <b>4.29</b>   |               |      |
| <b>Levelised fixed cost 3.12</b>   | <b>Rs/Unit</b> |              |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| LEVELLISED FIXED COST  |                |              |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| NOMINAL FIXED TARIFF   | Rs./Unit       | 3.10         | 3.09          | 3.08          | 3.08          | 3.07          | 3.08          | 3.08          | 3.09          | 3.10          | 3.11          | 2.65          | 2.74          | 2.83          | 2.92          | 3.02          | 3.12          | 3.22          | 3.33          | 3.45          | 3.57          | 3.74          | 3.87          | 4.01          | 4.15          | 4.29          |               |      |
| DISCOUNT FACTOR  |                | 1.00         | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21          | 0.19          | 0.17          | 0.16          | 0.14          | 0.13          | 0.12          | 0.11          |               |      |
| PV OF NOMINAL FIXED TARIFF   | Rs./Unit       | 3.10         | 2.81          | 2.56          | 2.33          | 2.12          | 1.94          | 1.77          | 1.61          | 1.48          | 1.35          | 1.05          | 0.99          | 0.93          | 0.88          | 0.83          | 0.78          | 0.73          | 0.69          | 0.65          | 0.61          | 0.59          | 0.55          | 0.52          | 0.49          | 0.47          |               |      |
| LEVELLISED FIXED TARIFF  | Rs./Unit       | <b>3.122</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| VARIABLE COST FOR FY 23-24   | Rs./Unit       | <b>5.719</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| APPLICABLE TARIFF FOR 23-24  | Rs./Unit       | <b>8.841</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Depreciation Amount  | %              | 90%          |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Book Depreciation Rate   | %              | 5.28%        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Tax Depreciation Rate  | %              | 40%          |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Additional Depreciation  | %              | 20%          |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Income Tax (Normal Rate)   | %              | 25.097%      |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Capital Cost   | Rs. Lakh       | 593.00       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Discount Factor  | %              | 9.70%        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Accelerted Depreciation  |                |              |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Book Depreciation  | %              | 2.64%        | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 2.88%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |               |      |
| Book Depreciation  | Rs. Lakh       | 15.66        | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 31.31         | 17.08         | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |               |      |
| Aceelerted Depreciation  |                |              |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Opening  | %              | 100.00%      | 70.00%        | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |               |      |
| Allowed during the year  | %              | 30.00%       | 35.00%        | 14.00%        | 8.40%         | 5.04%         | 3.02%         | 1.81%         | 1.09%         | 0.65%         | 0.39%         | 0.24%         | 0.14%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |               |      |
| Closing  | %              | 70.00%       | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |               |               |      |
| Accelerted Depreciation  | Rs. Lakh       | 177.90       | 207.55        | 83.02         | 49.81         | 29.89         | 17.93         | 10.76         | 6.46          | 3.87          | 2.32          | 1.39          | 0.84          | 0.50          | 0.30          | 0.18          | 0.11          | 0.07          | 0.04          | 0.02          | 0.01          | 0.01          | 0.01          | 0.00          | 0.00          | 0.00          |               |      |
| Net Depreciation Benefit   | Rs. Lakh       | 162.24       | 176.24        | 51.71         | 18.50         | -1.42         | -13.38        | -20.55        | -24.85        | -27.44        | -28.99        | -29.92        | -30.47        | -30.81        | -31.01        | -31.13        | -31.20        | -31.25        | -17.04        | 0.02          | 0.01          | 0.01          | 0.01          | 0.00          | 0.00          | 0.00          |               |      |
| Income Tax Gain  | Rs. Lakh       | 40.72        | 44.23         | 12.98         | 4.64          | -0.36         | -3.36         | -5.16         | -6.24         | -6.89         | -7.27         | -7.51         | -7.65         | -7.73         | -7.78         | -7.81         | -7.83         | -7.84         | -4.28         | 0.01          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |               |      |
| Discounting Factor   |                | 1.00         | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21          | 0.19          | 0.17          | 0.16          | 0.14          | 0.13          | 0.12          | 0.11          |               |      |
| Discounted Tax Gain  | Rs. Lakh       | 40.72        | 40.32         | 10.78         | 3.52          | -0.25         | -2.11         | -2.96         | -3.26         | -3.28         | -3.16         | -2.98         | -2.76         | -2.55         | -2.34         | -2.14         | -1.95         | -1.78         | -0.89         | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |               |      |
| Levelised Income Tax Gain  | Rs. Lakh       | 6.17         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Net Generation   | MU             | 3.351        | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         | 6.701         |               |      |
| Average Generation   | Lakh U         | 65.67        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |
| Levelised Income Tax Benefit   | Rs./Kwh        | 0.094        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |      |

**Annexure-II A**

**Norms and Parameter for Non-fossil fuel based Cogeneration (bagasse) Projects**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>  | <b>Unit</b>                       | <b>Assumptions</b>                |
|---------------|------------------------|---------------------|--|-----------------------------------|-----------------------------------|
| 1.            | Power Generation       | Capacity            | Installed Power<br>Generation Capacity<br>Plant Load Factor<br><br>Auxiliary<br>Consumption                        | MW<br><br>%<br><br>%              | 1<br><br>53<br><br>8.5            |
| 2.            | Power Cost             | Capital Cost/MW     | Capital Cost Project   | Rs.Lac/MW                         | 492                               |
| 3.            | Financial Assumptions  |                     | Tariff Period  | Year                              | 25                                |
|               |                        | Debt :Equity        | Debt<br>Equity   | %<br>%                            | 70<br>30                          |
|               |                        | Debt Component      | Total Debt Amount<br>Total Equity Amount<br>Repayment Period<br>Interest rate                                      | Rs. Lakh<br>Rs. Lakh<br>Year<br>% | 344.40<br>147.60<br>10<br>10.48%  |
|               |                        | Equity Component    | Equity Amount<br>Return on Equity first<br>20 years<br>ROE 20 <sup>th</sup> year<br>onwards                        | Rs. Lakh<br>%<br><br>%            | 147.60<br><br>16.784<br>18.691    |
|               |                        | Depreciation        | discount rate<br><br>Depreciation rate first<br>10 years<br><br>Depreciation rate 11 <sup>th</sup><br>year onwards | <br><br>%<br><br>%                | <br><br>9.7<br><br>7<br><br>1.333 |



|    |                          |   |   |   |                                      |
|----|--------------------------|---|---|---|--------------------------------------|
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                  |   | Rs. Lakh/MW<br><br>%                          | 27.46<br><br>3.84                    |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare Receivables<br>Interest on working capital | (%O&M expenses)   | Month<br>%<br>Month<br>%                      | 1<br>15<br>1.5<br>11.98              |
| 6. | Fuel related assumptions | Station Heat Rate<br><br>Fuel Type & mix  | GCV of Fuel<br><br>Price of Fuel<br>fuel price<br>escalation factor | kCal/Kwh<br><br>kCal/Kwh<br><br>Rs/MT<br>%p.a | 3600<br><br>2250<br><br>2632.35<br>5 |

| Determination of Tariff for Non-fossil fuel based (Bagasse)<br>Cogeneration Projects (FY 2023-24) |                 |             |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
|---|-----------------|-------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Capital Cost  |                 | Lakh/MW     | 492           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Units Generation  | Unit            | Year-->     | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17           | 18           | 19           | 20           | 21           | 22           | 23           | 24           | 25           |
| Installed Capacity  | MW              |             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1            |
| Net Generation  | MU              |             | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         |
| Auxiliary Consumption   | MU              |             | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        |
| Actual Generation   | MU              |             | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        |
| Actual Generation month Wise  | MU              |             | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        |
| Tariff Components Fixed Cost  | Unit            | Year-->     | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17           | 18           | 19           | 20           | 21           | 22           | 23           | 24           | 25           |
| O&M Expenses  | Rs Lakh         |             | 27.46         | 28.51         | 29.61         | 30.75         | 31.93         | 33.15         | 34.43         | 35.75         | 37.12         | 38.55         | 40.03         | 41.56         | 43.16         | 44.82         | 46.54         | 48.32         | 50.18        | 52.11        | 54.11        | 56.19        | 58.34        | 60.58        | 62.91        | 65.33        | 67.83        |
| 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        | 34.44        | 34.44        | 34.44        | 34.44        |
| Interest on term loan   | Rs Lakh         |             | 34.30         | 30.69         | 27.08         | 23.47         | 19.86         | 16.25         | 12.64         | 9.03          | 5.42          | 1.81          | 0.00          | 0.00          | 0.00          | 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         |             | 7.58          | 7.81          | 8.07          | 8.33          | 8.62          | 8.92          | 9.23          | 9.57          | 9.92          | 10.30         | 10.79         | 11.26         | 11.78         | 12.32         | 12.89         | 13.48         | 14.11        | 14.76        | 15.45        | 16.21        | 16.97        | 17.76        | 18.59        | 19.46        |              |
| Return on Equity  | Rs Lakh         |             | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        |
| <b>Total Fixed Cost</b>   | <b>Rs Lakh</b>  |             | <b>128.55</b> | <b>126.23</b> | <b>123.97</b> | <b>121.76</b> | <b>119.62</b> | <b>117.53</b> | <b>115.51</b> | <b>113.56</b> | <b>111.67</b> | <b>109.86</b> | <b>108.15</b> | <b>106.56</b> | <b>105.07</b> | <b>103.66</b> | <b>102.32</b> | <b>101.05</b> | <b>99.84</b> | <b>98.68</b> | <b>97.57</b> | <b>96.50</b> | <b>95.47</b> | <b>94.48</b> | <b>93.53</b> | <b>92.61</b> | <b>91.72</b> |
| Variable Cost   |                 | YEAR        | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17           | 18           | 19           | 20           | 21           | 22           | 23           | 24           | 25           |
| VARIABLE COST PER UNIT AT BUS BAR   | Rs./Kwh         | 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         | 10.55        | 11.08        | 11.63        | 12.21        | 12.82        | 13.47        | 14.14        | 14.85        |              |
| BIOMASS FUEL COST   | Rs. Lakh        | 195.54      | 205.32        | 215.59        | 226.37        | 237.68        | 249.57        | 262.05        | 275.15        | 288.91        | 303.35        | 318.52        | 334.45        | 351.17        | 368.73        | 387.16        | 406.52        | 426.85        | 448.19       | 470.60       | 494.13       | 518.84       | 544.78       | 572.02       | 600.62       | 630.65       |              |
| 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           |              |
| O&M expn  | Rs./kWh         | 0.65        | 0.67          | 0.70          | 0.72          | 0.75          | 0.78          | 0.81          | 0.84          | 0.87          | 0.91          | 0.94          | 0.98          | 1.02          | 1.05          | 1.10          | 1.14          | 1.18          | 1.23         | 1.27         | 1.32         | 1.37         | 1.43         | 1.48         | 1.54         | 1.60         |              |
| Depreciation  | Rs./kWh         | 0.81        | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         |
| Int. on term loan   | Rs./kWh         | 0.81        | 0.72          | 0.64          | 0.55          | 0.47          | 0.38          | 0.30          | 0.21          | 0.13          | 0.04          | 0.00          | 0.00          | 0.00          | 0.00          | 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         | 0.18        | 0.18          | 0.19          | 0.20          | 0.20          | 0.21          | 0.22          | 0.23          | 0.23          | 0.24          | 0.24          | 0.25          | 0.27          | 0.28          | 0.29          | 0.30          | 0.32          | 0.33         | 0.35         | 0.36         | 0.38         | 0.40         | 0.42         | 0.44         | 0.46         |              |
| RoE   | Rs./kWh         | 0.58        | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         |
| <b>Total COG</b>  | <b>Rs./kWh</b>  | <b>3.03</b> | <b>2.97</b>   | <b>2.92</b>   | <b>2.87</b>   | <b>2.82</b>   | <b>2.77</b>   | <b>2.72</b>   | <b>2.67</b>   | <b>2.63</b>   | <b>2.59</b>   | <b>2.55</b>   | <b>2.51</b>   | <b>2.47</b>   | <b>2.43</b>   | <b>2.39</b>   | <b>2.35</b>   | <b>2.31</b>   | <b>2.27</b>  | <b>2.23</b>  | <b>2.19</b>  | <b>2.15</b>  | <b>2.11</b>  | <b>2.07</b>  | <b>2.03</b>  | <b>1.99</b>  | <b>1.95</b>  |
| <b>Levelised fixed Cost 2.63</b>  | <b>Rs./Unit</b> |             |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| LEVELISED FIXED COST  |                 | YEAR        | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17           | 18           | 19           | 20           | 21           | 22           | 23           | 24           | 25           |
| NOMINAL FIXED TARIFF  | Rs./Unit        | 3.03        | 2.97          | 2.92          | 2.87          | 2.82          | 2.77          | 2.72          | 2.67          | 2.63          | 2.59          | 2.55          | 2.51          | 2.47          | 2.43          | 2.39          | 2.35          | 2.31          | 2.27         | 2.23         | 2.19         | 2.15         | 2.11         | 2.07         | 2.03         | 1.99         | 1.95         |
| DISCOUNT FACTOR   | 9.70%           | 1.00        | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21         | 0.19         | 0.17         | 0.16         | 0.14         | 0.13         | 0.12         | 0.11         | 0.11         |
| PV OF NOMINAL FIXED TARIFF  | Rs./Unit        | 3.03        | 2.71          | 2.43          | 2.17          | 1.94          | 1.74          | 1.56          | 1.40          | 1.25          | 1.12          | 0.96          | 0.71          | 0.66          | 0.62          | 0.58          | 0.54          | 0.51          | 0.48         | 0.45         | 0.42         | 0.40         | 0.38         | 0.35         | 0.33         | 0.31         | 0.31         |
| LEVELISED FIXED TARIFF  | Rs./Unit        | <b>2.63</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| VARIABLE COST FOR FY 23-24  | Rs./Unit        | <b>4.60</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| APPLICABLE TARIFF FOR 23-24   | Rs./Unit        | <b>7.23</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Depreciation Amount   | %               | 90%         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Book Depreciation Rate  | %               | 5.28%       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Tax Depreciation Rate   | %               | 40%         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Additional Depreciation   | %               | 20%         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Income Tax (Normal Rate)  | %               | 25.097%     |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Capital Cost  | Rs. Lakh        | 492.00      |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Discount Factor   | %               | 9.70%       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Accelerated Depreciation  |                 | YEAR        | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17           | 18           | 19           | 20           | 21           | 22           | 23           | 24           | 25           |
| Book Depreciation   | %               | 2.64%       | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%        | 2.88%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        |
| Book Depreciation   | Rs. Lakh        | 12.99       | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98        | 14.17        | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Accelerated Depreciation  |                 | %           | 100.00%       | 70.00%        | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%        | 0.02%        | 0.01%        | 0.01%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        |
| Opening   | %               | 100.00%     | 70.00%        | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%         | 0.02%        | 0.01%        | 0.01%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        |              |
| Allowed during the year   | %               | 30.00%      | 35.00%        | 14.00%        | 8.40%         | 5.04%         | 3.02%         | 1.81%         | 1.09%         | 0.65%         | 0.39%         | 0.24%         | 0.14%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        |              |
| Closing   | %               | 70.00%      | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%        | 0.01%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        | 0.00%        |              |
| Accelerated Depreciation  | Rs. Lakh        | 147.60      | 172.20        | 68.88         | 41.33         | 24.80         | 14.88         | 8.93          | 5.36          | 3.21          | 1.93          | 1.16          | 0.69          | 0.42          | 0.25          | 0.15          | 0.09          | 0.05          | 0.03         | 0.02         | 0.01         | 0.01         | 0.00         | 0.00         | 0.00         | 0.00         |              |
| Net Depreciation Benefit  | Rs. Lakh        | 134.61      | 146.22        | 42.90         | 15.35         | -1.18         | -11.10        | -17.05        | -20.62        | -22.76        | -24.05        | -24.82        | -25.28        | -25.56        | -25.73        | -25.83        | -25.89        | -25.92        | -25.92       | -14.14       | 0.02         | 0.01         | 0.01         | 0.00         | 0.00         | 0.00         | 0.00         |
| Income Tax Gain   | Rs. Lakh        | 33.78       | 36.70         | 10.77         | 3.85          | -0.30         | -2.79         | -4.28         | -5.18         | -5.71         | -6.04         | -6.23         | -6.35         | -6.42         | -6.46         | -6.48         | -6.50         | -6.51         | -6.51        | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |              |
| Discounting Factor  | 1.00            | 0.91        | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21          | 0.19         | 0.17         | 0.16         | 0.14         | 0.13         | 0.12         | 0.11         | 0.11         |              |
| Discounted Tax Gain   | Rs. Lakh        | 33.78       | 33.45         | 8.95          | 2.92          | -0.20         | -1.75         | -2.46         | -2.71         | -2.72         | -2.62         | -2.47         | -2.29         | -2.11         | -1.94         | -1.77         | -1.62         | -1.48         | -1.48        | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |              |
| Levelised Income Tax Gain   | Rs. Lakh        | 5.12        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Net Generation  | MU              | 2.124       | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        |              |
| Average Generation  | Lakh U          | 41.63       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |
| Levelised Income Tax Benefit  | Rs./Kwh         | 0.123       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |              |

**Annexure-III A**

**Norms and Parameter for Non-fossil fuel based Cogeneration (Other than bagasse) Projects**

| <b>Sl. No.</b> | <b>Assessment Head</b>           | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>               | <b>Unit</b> | <b>Assumptions</b> |
|----------------|----------------------------------|---------------------|-----------------------------------|-------------|--------------------|
| 1.             | Power Generation                 | Capacity            | Installed Power                   | MW          | 1                  |
|                |                                  |                     | Generation Capacity               |             |                    |
|                |                                  |                     | Plant Load Factor                 | %           | 53                 |
|                |                                  |                     | Auxiliary Consumption             | %           | 8.5                |
| 2.             | Power Cost                       | Capital Cost/MW     | Capital Cost Project              | Rs.Lac/MW   | 492                |
| 3.             | Financial Assumptions            | Debt :Equity        | Tariff Period                     | Year        | 25                 |
|                |                                  |                     | Debt                              | %           | 70                 |
|                |                                  |                     | Equity                            | %           | 30                 |
|                |                                  | Debt Component      | Total Debt Amount                 | Rs. Lakh    | 344.40             |
|                |                                  |                     | Total Equity Amount               | Rs. Lakh    | 147.60             |
|                |                                  |                     | Repayment Period                  | Year        | 10                 |
|                |                                  |                     | Interest rate                     | %           | 10.48              |
|                |                                  | Equity Component    | Equity Amount                     | Rs. Lakh    | 147.60             |
|                |                                  |                     | Return on Equity first 20 years   | %           | 16.784             |
|                |                                  |                     | ROE 21 <sup>th</sup> year onwards | %           | 18.691             |
| Depreciation   | discount rate                    | %                   | 9.7                               |             |                    |
|                | Depreciation rate first 10 years | %                   | 7                                 |             |                    |

|    |                          |   |   |             |         |
|----|--------------------------|---|---|-------------|---------|
|    |                          |   | Depreciation rate 11 <sup>th</sup> year onwards | %           | 1.333   |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                  |   | Rs. Lakh/MW | 27.46   |
|    |                          |   |   | %           | 3.84    |
| 5. | Working capital          | O&M expenses<br>Maintenance Spare<br>Receivables<br>Interest on working capital | (% O&M expenses)                                | Month       | 1       |
|    |                          |   |   | %           | 15      |
|    |                          |   |   | Month       | 1.5     |
|    |                          |   |   | %           | 11.98   |
| 6. | Fuel related assumptions | Station Heat Rate   |   | kCal/Kwh    | 3600    |
|    |                          | Fuel Type & mix   | GCV of Fuel                                     | kCal/Kwh    | 3100    |
|    |                          |   | Price of Fuel<br>fuel price                     | Rs/MT       | 4117.68 |
|    |                          |   | escalation factor                               | %p.a        | 5       |

## Annexure-III B

| Determination of Tariff for Non-fossil fuel other than Bagasse<br>Cogeneration Projects (FY 2023-24) |                |         |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
|--|----------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------|----|
| Capital Cost   | Lakh/MW        | 492     |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Units Generation   | Unit           | Year--> | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11           | 12           | 13           | 14           | 15           | 16           | 17           | 18           | 19            | 20            | 21            | 22            | 23            | 24            | 25          |    |
| Installed Capacity   | MW             |         | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1             | 1             | 1             | 1             | 1             | 1             | 1           |    |
| Net Generation   | MU             |         | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64         | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64          | 4.64        |    |
| Auxiliary Consumption  | MU             |         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395        | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395         | 0.395       |    |
| Actual Generation  | MU             |         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248        | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248         | 4.248       |    |
| Actual Generation month Wise   | MU             |         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354        | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354         | 0.354       |    |
| Tariff Components Fixed Cost   | Unit           | Year--> | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11           | 12           | 13           | 14           | 15           | 16           | 17           | 18           | 19            | 20            | 21            | 22            | 23            | 24            | 25          |    |
| O&M Expenses   | Rs Lakh        |         | 27.46         | 28.51         | 29.61         | 30.75         | 31.93         | 33.15         | 34.43         | 35.75         | 37.12         | 38.55         | 40.03        | 41.56        | 43.16        | 44.82        | 46.54        | 48.32        | 50.18        | 52.11        | 54.11         | 56.19         | 58.34         | 60.58         | 62.91         | 65.33         | 67.83       |    |
| 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        | 6.56         | 6.56         | 6.56         | 6.56         | 6.56         | 6.56         | 6.56          | 6.56          | 6.56          | 6.56          | 6.56          | 6.56          | 6.56        |    |
| Interest on term loan  | Rs Lakh        |         | 34.30         | 30.69         | 27.08         | 23.47         | 19.86         | 16.25         | 12.64         | 9.03          | 5.42          | 1.81          | 0.00         | 0.00         | 0.00         | 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        |         | 8.25          | 8.52          | 8.81          | 9.11          | 9.43          | 9.77          | 10.13         | 10.51         | 10.91         | 11.34         | 11.79        | 12.26        | 12.76        | 13.29        | 13.85        | 14.44        | 15.05        | 15.69        | 16.36         | 17.06         | 17.79         | 18.54         | 19.32         | 20.13         | 20.97       |    |
| Return on Equity   | Rs Lakh        |         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77        | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77         | 24.77       |    |
| <b>Total Fixed Cost</b>  | <b>Rs Lakh</b> |         | <b>129.22</b> | <b>126.93</b> | <b>124.71</b> | <b>122.54</b> | <b>120.43</b> | <b>118.39</b> | <b>116.41</b> | <b>114.50</b> | <b>112.66</b> | <b>110.90</b> | <b>82.75</b> | <b>84.81</b> | <b>86.96</b> | <b>89.19</b> | <b>91.52</b> | <b>93.94</b> | <b>96.46</b> | <b>99.09</b> | <b>101.82</b> | <b>104.66</b> | <b>110.48</b> | <b>116.78</b> | <b>120.12</b> | <b>123.61</b> |             |    |
| Variable Cost  |                |         | YEAR          | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10           | 11           | 12           | 13           | 14           | 15           | 16           | 17           | 18            | 19            | 20            | 21            | 22            | 23            | 24          | 25 |
| VARIABLE COST PER UNIT AT BUS BAR  | Rs./Kwh        |         | 5.23          | 5.49          | 5.76          | 6.05          | 6.35          | 6.67          | 7.00          | 7.35          | 7.72          | 8.11          | 8.51         | 8.94         | 9.39         | 9.85         | 10.35        | 10.86        | 11.41        | 11.98        | 12.58         | 13.21         | 13.87         | 14.56         | 15.29         | 16.05         | 16.85       |    |
| BIOMASS FUEL COST  | Rs. Lakh       |         | 222.01        | 233.11        | 244.77        | 257.00        | 269.86        | 283.35        | 297.52        | 312.39        | 328.01        | 344.41        | 361.63       | 379.71       | 398.70       | 418.63       | 439.57       | 461.54       | 484.62       | 508.85       | 534.29        | 561.01        | 589.06        | 618.51        | 649.44        | 681.91        | 716.01      |    |
| 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          |    |
| O&M expn   | Rs/kWh         |         | 0.65          | 0.67          | 0.70          | 0.72          | 0.75          | 0.78          | 0.81          | 0.84          | 0.87          | 0.91          | 0.94         | 0.98         | 1.02         | 1.05         | 1.10         | 1.14         | 1.18         | 1.23         | 1.27          | 1.32          | 1.37          | 1.43          | 1.48          | 1.54          | 1.60        |    |
| Depreciation   | Rs/kWh         |         | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81          | 0.81         | 0.81         | 0.15         | 0.15         | 0.15         | 0.15         | 0.15         | 0.15         | 0.15          | 0.15          | 0.15          | 0.15          | 0.15          | 0.15          | 0.15        |    |
| Int. on term loan  | Rs/kWh         |         | 0.81          | 0.72          | 0.64          | 0.55          | 0.47          | 0.38          | 0.30          | 0.21          | 0.13          | 0.04          | 0.00         | 0.00         | 0.00         | 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         |         | 0.19          | 0.20          | 0.21          | 0.21          | 0.22          | 0.23          | 0.24          | 0.25          | 0.26          | 0.27          | 0.27         | 0.28         | 0.29         | 0.31         | 0.32         | 0.34         | 0.35         | 0.37         | 0.39          | 0.40          | 0.42          | 0.44          | 0.46          | 0.49          | 0.51        |    |
| RoE  | Rs/kWh         |         | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58          | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58         | 0.58          | 0.58          | 0.58          | 0.65          | 0.65          | 0.65          | 0.65        |    |
| <b>Total COG</b>   | <b>Rs/kWh</b>  |         | <b>3.04</b>   | <b>2.99</b>   | <b>2.94</b>   | <b>2.88</b>   | <b>2.83</b>   | <b>2.79</b>   | <b>2.74</b>   | <b>2.70</b>   | <b>2.65</b>   | <b>2.61</b>   | <b>1.95</b>  | <b>2.00</b>  | <b>2.05</b>  | <b>2.10</b>  | <b>2.15</b>  | <b>2.21</b>  | <b>2.27</b>  | <b>2.33</b>  | <b>2.40</b>   | <b>2.46</b>   | <b>2.60</b>   | <b>2.67</b>   | <b>2.75</b>   | <b>2.83</b>   | <b>2.91</b> |    |
| <b>Levelised fixed Cost 2.66</b>   | <b>Rs/Unit</b> |         |               |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| LEVELLISED FIXED COST  |                |         | YEAR          | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10           | 11           | 12           | 13           | 14           | 15           | 16           | 17           | 18            | 19            | 20            | 21            | 22            | 23            | 24          | 25 |
| NOMINAL FIXED TARIFF   | Rs./Unit       |         | 3.04          | 2.99          | 2.94          | 2.88          | 2.83          | 2.79          | 2.74          | 2.70          | 2.65          | 2.61          | 1.95         | 2.00         | 2.05         | 2.10         | 2.15         | 2.21         | 2.27         | 2.33         | 2.40          | 2.46          | 2.60          | 2.67          | 2.75          | 2.83          | 2.91        |    |
| DISCOUNT FACTOR  | 9.70%          |         | 1.00          | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40         | 0.36         | 0.33         | 0.30         | 0.27         | 0.25         | 0.23         | 0.21         | 0.19          | 0.17          | 0.16          | 0.14          | 0.13          | 0.12          | 0.11        |    |
| PV OF NOMINAL FIXED TARIFF   | Rs./Unit       |         | 3.04          | 2.72          | 2.44          | 2.19          | 1.96          | 1.75          | 1.57          | 1.41          | 1.26          | 1.14          | 0.77         | 0.72         | 0.67         | 0.63         | 0.59         | 0.55         | 0.52         | 0.48         | 0.45          | 0.42          | 0.41          | 0.38          | 0.36          | 0.34          | 0.32        |    |
| LEVELLISED FIXED TARIFF  | Rs./Unit       |         | <b>2.659</b>  |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| VARIABLE COST FOR FY 23-24   | Rs./Unit       |         | <b>5.226</b>  |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| APPLICABLE TARIFF FOR 23-24  | Rs./Unit       |         | <b>7.885</b>  |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Depreciation Amount  | %              |         | 90%           |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Book Depreciation Rate   | %              |         | 5.28%         |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Tax Depreciation Rate  | %              |         | 40%           |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Additional Depreciation  | %              |         | 20%           |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Income Tax (Normal Rate)   | %              |         | 25.097%       |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Capital Cost   | Rs. Lakh       |         | 492.00        |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Discount Factor  | %              |         | 9.70%         |               |               |               |               |               |               |               |               |               |              |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |
| Accelerated Depreciation   |                |         | YEAR          | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10           | 11           | 12           | 13           | 14           | 15           | 16           | 17           | 18            | 19            | 20            | 21            | 22            | 23            | 24          | 25 |
| Book Depreciation  | %              |         | 2.64%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%        | 5.28%        | 5.28%        | 5.28%        | 5.28%        | 5.28%        | 5.28%        | 5.28%        | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%       |    |
| Book Depreciation  | Rs. Lakh       |         | 12.99         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98         | 25.98        | 25.98        | 25.98        | 25.98        | 25.98        | 25.98        | 25.98        | 25.98        | 14.17         | 0.00          | 0.00          | 0.00          | 0.00          | 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%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%       |    |
| Opening  | %              |         | 100.00%       | 70.00%        | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%        |              |              |              |              |              |              |              |               |               |               |               |               |               |             |    |

**Annexure-IV A**

**Norms and Parameter for Municipal solid waste based on Rankine cycle technology Power Project**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>  | <b>Unit</b>                                       | <b>Assumptions</b>                      |
|---------------|------------------------|---------------------|--|---|---|
| 1.            | Power Generation       | Capacity            | Installed Power<br>Generation Capacity<br>PLF(During Stabilization)<br>PLF (during 1 <sup>st</sup> year stabilization)<br>PLF (2 <sup>nd</sup> year onwards)<br>Commercial Operation Date Useful life<br><br>Auxiliary Consumption | MW<br><br>%<br>%<br>%<br>mm/yyyy<br>Year<br><br>% | 1<br><br>65<br>65<br>75<br>25<br><br>15 |
| 2.            | Power Cost             | Capital Cost/MW     | Capital Cost Project   | Rs.Lac/MW   | 1500                                    |
| 3.            | Financial Assumptions  |                     | Tariff Period  | Year  | 25                                      |
|               |                        | Debt :Equity        | Debt<br>Equity   | %<br>%  | 70<br>30                                |
|               |                        | Debt Component      | Total Debt Amount<br>Total Equity Amount<br>Repayment Period<br>Interest rate  | Rs. Lakh<br>Rs. Lakh<br>Year<br>%                 | 1050<br>450<br>10<br>10.48              |
|               |                        | Equity Component    | Equity Amount<br>Return on Equity first 20 years<br>ROE 21 <sup>th</sup> year onwards<br><br>discount rate   | Rs. Lakh<br><br>%<br><br>%                        | 450<br><br>16.784<br>18.691<br>9.7      |

|    |                          |  |   |          |        |
|----|--------------------------|--|---|----------|--------|
|    |                          | Depreciation   | Depreciation rate first 10 years                | %        | 7      |
|    |                          |  | Depreciation rate 11 <sup>th</sup> year onwards | %        | 1.333  |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a.<br>Escalation for O&M                                  |   | Rs.Lakh  | 116.95 |
|    |                          |  |   | %        | 3.84   |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare<br>Receivables<br>Interest on working capital | (%O&M expenses)                                 | Month    | 1      |
|    |                          |  |   | %        | 15     |
|    |                          |  |   | Month    | 1.5    |
|    |                          |  |   | %        | 11.98  |
| 6. | Fuel related assumptions | Station Heat Rate  |   | kCal/Kwh |        |
|    |                          | FuelType & mix   | Price of fuel                                   | kCal/Kwh | 0      |
|    |                          |  | fuel price escalation factor                    | Rs/MT    |        |
|    |                          |  |   | % p.a    |        |





**Annexure-V A**

**Norms and parameter for Bio Mass [For rice straw and juliflora (plantation) based project] with water cooled condenser Power Project and AFBC Boiler**

| <b>Sl. No</b>    | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>                   | <b>Unit</b>     | <b>Assumptions</b> |
|------------------|------------------------|---------------------|---------------------------------------|-----------------|--------------------|
| 1.               | Power Generation       | Capacity            | Installed Power Generation Capacity   | MW              | 1                  |
|                  |                        |                     | Plant Load Factor                     | %               | 80                 |
|                  |                        |                     | Commercial Operation Date Useful life | mm/yyyy<br>Year | 25                 |
|                  |                        |                     | Auxiliary Consumption                 | %               | 10                 |
| 2.               | Power Cost             | Capital Cost/MW     | Capital Cost Project                  | Rs.Lac/MW       | 611                |
| 3.               | Financial Assumptions  | Debt :Equity        | Tariff Period                         | Year            | 25                 |
|                  |                        |                     | Debt                                  | %               | 70                 |
|                  |                        | Equity              | %                                     | 30              |                    |
|                  |                        | Debt Component      | Total Debt Amount                     | Rs. Lakh        | 427.7              |
|                  |                        |                     | Total Equity Amount                   | Rs. Lakh        | 183.3              |
|                  |                        |                     | Repayment Period                      | Year            | 10                 |
| Interest rate    | %                      | 10.48               |                                       |                 |                    |
| Equity Component | Equity Amount          | Rs. Lakh            | 183.3                                 |                 |                    |
|                  | Return on Equity first |                     |                                       |                 |                    |

|    |                             |  |  |          |                   |
|----|-----------------------------|--|--|----------|-------------------|
|    |                             |  | 20 years<br>ROE 21 <sup>th</sup> year onwards      | %        | 17.784<br>18.691  |
|    |                             | Depreciation   | discount rate                                      | %        | 9.7               |
|    |                             |  | Depreciation rate first<br>10 years                | %        | 7                 |
|    |                             |  | Depreciation rate 11 <sup>th</sup><br>year onwards | %        | 1.33              |
| 4. | Operation &<br>Maintenance  | Normative<br>O&M<br>expenses<br>p.a.<br>Escalation<br>for O&M                                |  | Rs.Lakh  | 51.98<br>lakhs/MW |
|    |                             |  |  | %        | 3.84              |
| 5. | Working<br>capital          | O&M<br>expenses<br>Maintenanc<br>e Spare<br>Receivables<br>Interest on<br>working<br>capital | (% O&M expenses)                                   | Month    | 1                 |
|    |                             |  |  | %        | 15                |
|    |                             |  |  | Month    | 1.5               |
|    |                             |  |  | %        | 11.98             |
| 6. | Fuel related<br>assumptions | Station Heat<br>Rate   | projects using AFBC boilers                        | kCal/Kwh | 4125              |
|    |                             | Fuel Type &<br>mix   | GCV of Biomass<br>fuel                             | kCal/Kwh | 3100              |
|    |                             |  | Biomass Price                                      | Rs/MT    | 4117.68           |
|    |                             |  | fuel price escalation factor                       | % p.a    | 5                 |



**Annexure-VI A**

**Norms and Parameter for Bio Mass [other than rice straw and Juliflora plantation) based project] with air cooled condenser Power Project and AFBC boiler**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>                             | <b>Unit</b> | <b>Assumptions</b> |
|---------------|------------------------|---------------------|---|-------------|--------------------|
| 1.            | Power Generation       | Capacity            | Installed Power Generation Capacity             | MW          | 1                  |
|               |                        |                     | Plant Load Factor                               | %           | 80                 |
|               |                        |                     | Commercial Operation Date Useful life           | Year        | 25                 |
|               |                        |                     | Auxiliary Consumption                           | %           | 12                 |
| 2.            | Power Cost             | Capital Cost/MW     | Capital Cost                                    | Rs.Lac/MW   | 600                |
| 3.            | Financial Assumptions  |                     | Tariff Period                                   | Year        | 25                 |
|               |                        | Debt :Equity        | Debt  | %           | 70                 |
|               |                        |                     | Equity  | %           | 30                 |
|               |                        | Debt Component      | Total Debt Amount                               | Rs. Lakh    | 420                |
|               |                        |                     | Total Equity Amount                             | Rs. Lakh    | 180                |
|               |                        |                     | Repayment Period                                | Year        | 10                 |
|               |                        |                     | Interest rate                                   | %           | 10.48              |
|               |                        | Equity Component    | Equity Amount                                   | Rs. Lakh    | 180                |
|               |                        |                     | Return on Equity first 20 years                 | %           | 16.784             |
|               |                        |                     | ROE 21 <sup>th</sup> year onwards               |             | 18.691             |
|               |                        |                     | discount rate                                   | %           | 9.7                |
|               |                        | Depreciation        | Depreciation rate first 10 years                | %           | 7                  |
|               |                        |                     | Depreciation rate 11 <sup>th</sup> year onwards | %           | 1.33               |

|    |                          |   |  |   |  |
|----|--------------------------|---|--|---|--|
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                  |  | Rs.Lakh<br><br>%                                  | 51.98 lakhs/MW<br><br>3.84               |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare Receivables<br>Interest on working capital | (%O&M expenses)  | Month<br><br>%<br><br>Month<br><br>%              | 1<br><br>15<br><br>1.5<br><br>11.98      |
| 6. | Fuel related assumptions | Station Heat Rate<br><br>Fuel Type & mix  | projects using AFBC boilers<br><br>GCV of Biomassfuel<br><br>Biomass Price<br><br>fuel price escalation factor | kCal/Kwh<br><br>kCal/Kwh<br><br>Rs/MT<br><br>%p.a | 4125<br><br>3100<br><br>4117.68<br><br>5 |



**Annexure-VII A**

**Norms and Parameter for Bio Mass [For rice straw and juliflora(plantation) based project] with air cooled condenser and AFBC boiler Power Project**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b>  | <b>Sub-Head (2)</b>   | <b>Unit</b>   | <b>Assumptions</b>  |
|---------------|------------------------|--|---|---|---|
| 1.            | Power Generation       | Capacity   | Installed Power<br>Generation Capacity<br>Plant Load Factor<br>Commercial Operation<br>Date Useful life<br><br>Auxiliary<br>Consumption   | MW<br><br>%<br>mm/yyyy<br>Year<br><br>%   | 1<br><br>80<br><br>25<br><br>12   |
| 2.            | Power Cost             | Capital Cost/MW  | Capital Cost Project  | Rs.Lac/MW   | 652   |
| 3.            | Financial Assumptions  | Debt :Equity<br><br>Debt Component<br><br>Equity Component<br><br>Depreciation | Tariff Period<br><br>Debt<br>Equity<br><br>Total Debt Amount<br>Total Equity Amount<br>Repayment Period<br>Interest rate<br><br>Equity Amount<br>Return on Equity first<br>20 years<br>ROE 21 <sup>th</sup> year<br>onwards<br><br>discount rate<br><br>Depreciation rate first<br>10 years<br><br>Depreciation rate 11 <sup>th</sup><br>year onwards | Year<br><br>%<br>%<br><br>Rs. Lakh<br>Rs. Lakh<br>Year<br>%<br><br>Rs. Lakh<br><br>%<br><br>%<br><br>%<br><br>% | 25<br><br>70<br>30<br><br>456.4<br>195.6<br>10<br>10.48<br><br>195.6<br><br>16.784<br>18.691<br><br>9.70<br><br>7<br><br>1.33 |

|    |                          |   |   |  |                                      |
|----|--------------------------|---|---|--|--------------------------------------|
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                  |   | Rs. Lakh<br><br>%                              | 51.98 lakhs/MW<br><br>3.84           |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare Receivables<br>Interest on working capital | (%O&M expenses)   | Month<br><br>%<br>Month<br><br>%               | 1<br><br>15<br><br>1.5<br><br>11.98  |
| 6. | Fuel related assumptions | Station Heat Rate<br><br>Fuel Type & mix  | projects using AFBC boilers<br><br>GCV of Biomass fuel<br><br>Biomass Price<br><br>fuel price escalation factor | kCal/Kwh<br><br>kCal/Kwh<br>Rs/MT<br><br>% p.a | 4125<br><br>3100<br>4117.68<br><br>5 |



## Annexure-VII B

| Determination of Tariff for Biomass Power Project [For rice straw and Juliflora(plantation) based project] with air cooled condenser and AFBC boiler (FY 2023-24) |                 |         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
|---|-----------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Capital Cost  |                 | Lakh/MW | 652           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Units Generation  |                 | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
|   |                 |         | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20            | 21            | 22            | 23            | 24            | 25            |
| Installed Capacity  | MW              |         | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             |
| Net Generation  | MU              |         | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 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              |         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         | 0.841         |
| Actual Generation   | MU              |         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         |
| Actual Generation month Wise  | MU              |         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         | 0.514         |
| Tariff Components Fixed Cost  |                 | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| O&M Expenses  | Rs Lakh         |         | 51.98         | 53.98         | 56.05         | 58.20         | 60.44         | 62.76         | 65.17         | 67.67         | 70.27         | 72.97         | 75.77         | 78.68         | 81.70         | 84.84         | 88.09         | 91.48         | 94.99         | 98.64         | 102.42        | 106.36        | 110.44        | 114.68        | 119.09        | 123.66        | 128.41        |
| Depreciation  | Rs Lakh         |         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         |
| Interest on term loan   | Rs Lakh         |         | 45.44         | 40.66         | 35.87         | 31.09         | 26.31         | 21.52         | 16.74         | 11.96         | 7.17          | 2.39          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |
| Interest on working Capital   | Rs Lakh         |         | 25.55         | 26.64         | 27.78         | 28.98         | 30.24         | 31.57         | 32.97         | 34.44         | 35.99         | 37.61         | 38.80         | 40.67         | 42.63         | 44.69         | 46.85         | 49.12         | 51.49         | 53.99         | 56.61         | 59.35         | 62.29         | 65.32         | 68.49         | 71.82         | 75.31         |
| Return on Equity  | Rs Lakh         |         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         |
| <b>Total Fixed Cost</b>   | <b>Rs Lakh</b>  |         | <b>201.44</b> | <b>199.74</b> | <b>198.17</b> | <b>196.74</b> | <b>195.46</b> | <b>194.32</b> | <b>193.35</b> | <b>192.54</b> | <b>191.90</b> | <b>191.44</b> | <b>191.09</b> | <b>190.87</b> | <b>190.74</b> | <b>190.68</b> | <b>190.68</b> | <b>190.74</b> | <b>190.87</b> | <b>191.09</b> | <b>191.44</b> | <b>191.90</b> | <b>192.54</b> | <b>193.35</b> | <b>194.32</b> | <b>195.46</b> | <b>196.74</b> |
| Variable Cost   |                 | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| VARIABLE COST PER UNIT AT BUS BAR   | Rs./Kwh         |         | 6.23          | 6.54          | 6.86          | 7.21          | 7.57          | 7.95          | 8.34          | 8.76          | 9.20          | 9.66          | 10.14         | 10.65         | 11.18         | 11.74         | 12.33         | 12.94         | 13.59         | 14.27         | 14.98         | 15.73         | 16.52         | 17.35         | 18.21         | 19.12         | 20.08         |
| BIOMASS FUEL COST   | Rs. Lakh        |         | 383.98        | 403.18        | 423.34        | 444.51        | 466.73        | 490.07        | 514.57        | 540.30        | 567.31        | 595.68        | 625.46        | 656.74        | 689.57        | 724.05        | 760.25        | 798.27        | 838.18        | 880.09        | 924.09        | 970.30        | 1018.81       | 1069.75       | 1123.24       | 1179.40       | 1238.37       |
| Per Unit Cost of Generation   |                 | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| O&M expn  | Rs/kWh          |         | 0.84          | 0.88          | 0.91          | 0.94          | 0.98          | 1.02          | 1.06          | 1.10          | 1.14          | 1.18          | 1.23          | 1.28          | 1.32          | 1.38          | 1.43          | 1.48          | 1.54          | 1.60          | 1.66          | 1.72          | 1.79          | 1.86          | 1.93          | 2.01          | 2.08          |
| Depreciation  | Rs/kWh          |         | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          | 0.74          |
| Int. on term loan   | Rs/kWh          |         | 0.74          | 0.66          | 0.58          | 0.50          | 0.43          | 0.35          | 0.27          | 0.19          | 0.12          | 0.04          | 0.00          | 0.00          | 0.00          | 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          |         | 0.41          | 0.43          | 0.45          | 0.47          | 0.49          | 0.51          | 0.53          | 0.56          | 0.58          | 0.61          | 0.63          | 0.66          | 0.69          | 0.72          | 0.76          | 0.80          | 0.83          | 0.88          | 0.92          | 0.96          | 1.00          | 1.06          | 1.11          | 1.16          | 1.22          |
| RoE   | Rs/kWh          |         | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          | 0.53          |
| <b>Total COG</b>  | <b>Rs/kWh</b>   |         | <b>3.27</b>   | <b>3.24</b>   | <b>3.21</b>   | <b>3.19</b>   | <b>3.17</b>   | <b>3.15</b>   | <b>3.14</b>   | <b>3.12</b>   | <b>3.11</b>   | <b>3.10</b>   | <b>3.10</b>   | <b>3.09</b>   | <b>3.08</b>   | <b>3.07</b>   | <b>3.06</b>   | <b>3.05</b>   | <b>3.04</b>   | <b>3.03</b>   | <b>3.02</b>   | <b>3.01</b>   | <b>2.99</b>   | <b>2.97</b>   | <b>2.95</b>   | <b>2.93</b>   | <b>2.91</b>   |
| <b>Levelised fixed Cost 3.13</b>  | <b>Rs/Unit</b>  |         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| LEVELLED FIXED COST   |                 | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| NOMINAL FIXED TARIFF  | Rs./Unit        |         | 3.27          | 3.24          | 3.21          | 3.19          | 3.17          | 3.15          | 3.14          | 3.12          | 3.11          | 3.10          | 3.10          | 3.09          | 3.08          | 3.07          | 3.06          | 3.05          | 3.04          | 3.03          | 3.02          | 3.01          | 2.99          | 2.97          | 2.95          | 2.93          | 2.91          |
| DISCOUNT FACTOR   |                 |         | 1.00          | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21          | 0.19          | 0.17          | 0.16          | 0.14          | 0.13          | 0.12          | 0.11          |
| PV OF NOMINAL FIXED TARIFF  | Rs./Unit        |         | 3.27          | 2.95          | 2.67          | 2.42          | 2.19          | 1.98          | 1.80          | 1.63          | 1.48          | 1.35          | 1.23          | 1.12          | 1.02          | 0.94          | 0.89          | 0.83          | 0.78          | 0.74          | 0.69          | 0.65          | 0.61          | 0.58          | 0.55          | 0.52          | 0.49          |
| <b>LEVELLED FIXED TARIFF</b>  | <b>Rs./Unit</b> |         | <b>3.133</b>  |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| <b>VARIABLE COST FOR FY 23-24</b>   | <b>Rs./Unit</b> |         | <b>6.226</b>  |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| <b>APPLICABLE TARIFF FOR 23-24</b>  | <b>Rs./Unit</b> |         | <b>9.360</b>  |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Depreciation Amount   | %               |         | 90%           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Book Depreciation Rate  | %               |         | 5.28%         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Tax Depreciation Rate   | %               |         | 40.00%        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Additional Depreciation   | %               |         | 20.00%        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Income Tax (Normal Rate)  | %               |         | 25.097%       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Capital Cost  | Rs. Lakh        |         | 652.00        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Discount Factor   | %               |         | 9.700%        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Accelerated Depreciation  |                 | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Book Depreciation   | %               |         | 2.64%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 2.88%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |
| Book Depreciation   | Rs. Lakh        |         | 17.21         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 34.43         | 18.78         | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 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%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |
| Allowed during the year   | %               |         | 30.00%        | 35.00%        | 14.00%        | 8.40%         | 5.04%         | 3.02%         | 1.81%         | 1.09%         | 0.65%         | 0.39%         | 0.24%         | 0.14%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |
| Closing   | %               |         | 70.00%        | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |
| Accelerated Depreciation  | Rs. Lakh        |         | 195.60        | 228.20        | 91.28         | 54.77         | 32.86         | 19.72         | 11.83         | 7.10          | 4.26          | 2.56          | 1.53          | 0.92          | 0.55          | 0.33          | 0.20          | 0.12          | 0.07          | 0.04          | 0.03          | 0.02          | 0.01          | 0.01          | 0.00          | 0.00          | 0.00          |
| Net Depreciation Benefit  | Rs. Lakh        |         | 178.39        | 193.77        | 56.85         | 20.34         | -1.56         | -14.71        | -22.60        | -27.33        | -30.17        | -31.87        | -32.89        | -33.51        | -33.87        | -34.09        | -34.23        | -34.31        | -34.35        | -18.73        | 0.03          | 0.02          | 0.01          | 0.01          | 0.00          | 0.00          | 0.00          |
| Income Tax Gain   | Rs. Lakh        |         | 44.77         | 48.63         | 14.27         | 5.11          | -0.39         | -3.69         | -5.67         | -6.86         | -7.57         | -8.00         | -8.26         | -8.41         | -8.50         | -8.56         | -8.59         | -8.61         | -8.62         | -4.70         | 0.01          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |
| Discounting Factor  |                 |         | 1.00          | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21          | 0.19          | 0.17          | 0.16          | 0.14          | 0.13          | 0.12          | 0.11          |
| Discounted Tax Gain   | Rs. Lakh        |         | 44.77         | 44.33         | 11.86         | 3.87          | -0.27         | -2.32         | -3.25         | -3.59         | -3.61         | -3.48         | -3.27         | -2.80         | -2.57         | -2.35         | -2.15         | -1.96         | -0.97         | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |
| Levelised Income Tax Gain   | Rs. Lakh        |         | 6.79          |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Net Generation  | MU              |         | 3.084         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         | 6.167         |
| Average Generation  | Lakh U          |         | 60.44         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| Levelised Income Tax Benefit  | Rs./Kwh         |         | 0.112         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |

**Annexure-VIII A**

**Norms and Parameter for Bio Mass [other than rice straw and Juliflora plantation) based project] with water cooled condenser Power Project and AFBC boiler**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>                             | <b>Unit</b>     | <b>Assumptions</b> |
|---------------|------------------------|---------------------|---|-----------------|--------------------|
| 1.            | Power Generation       | Capacity            | Installed Power Generation Capacity             | MW              | 1                  |
|               |                        |                     | Plant Load Factor                               | %               | 80                 |
|               |                        |                     | Commercial Operation Date Useful life           | mm/yyyy<br>Year | 25                 |
|               |                        |                     | Auxiliary Consumption                           | %               | 10                 |
| 2.            | Power Cost             | Capital Cost/MW     | Capital Cost                                    | Rs.Lac/MW       | 559                |
| 3.            | Financial Assumptions  |                     | Tariff Period                                   | Year            | 25                 |
|               |                        | Debt :Equity        | Debt  | %               | 70                 |
|               |                        |                     | Equity  | %               | 30                 |
|               |                        | Debt Component      | Total Debt Amount                               | Rs. Lakh        | 391.3              |
|               |                        |                     | Total Equity Amount                             | Rs. Lakh        | 167.7              |
|               |                        |                     | Repayment Period                                | Year            | 10                 |
|               |                        |                     | Interest rate                                   | %               | 10.48              |
|               |                        | Equity Component    | Equity Amount                                   | Rs. Lakh        | 167.7              |
|               |                        |                     | Return on Equity first 20 years                 | %               | 16.784             |
|               |                        |                     | ROE 21 <sup>th</sup> year onwards               |                 | 18.691             |
|               |                        | Depreciation        | discount rate                                   | %               | 9.7                |
|               |                        |                     | Depreciation rate first 10 years                | %               | 7                  |
|               |                        |                     | Depreciation rate 11 <sup>th</sup> year onwards | %               | 1.33               |

|    |                          |   |   |   |                                  |
|----|--------------------------|---|---|---|----------------------------------|
|    |                          |   |   |   |                                  |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                  |   | Rs.Lakh<br><br>%                          | 51.98 lakhs/MW<br><br>3.84       |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare Receivables<br>Interest on working capital | (% O&M expenses)  | Month<br><br>%<br>Month<br><br>%          | 1<br><br>15<br>1.5<br>11.98      |
| 6. | Fuel related assumptions | Station Heat Rate<br><br>Fuel Type & mix  | projects using AFBC boilers<br><br>GCV of Biomass fuel<br><br>Biomass Price<br><br>fuel price escalation factor | kCal/Kwh<br><br>kCal/Kwh<br>Rs/MT<br>%p.a | 4125<br><br>3100<br>4117.68<br>5 |

# Annexure-VIII B

## Determination of Tariff for Biomass Power Project [other than rice straw and Juliflora(plantation) based project] with water cooled condenser and AFBC boiler (FY 2023-24)

| Capital Cost                 |      | Lakh/MW | ₹50   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|------------------------------|------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Units Generation             | Unit | Year--> | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    | 25    |
| Installed Capacity           | MW   |         | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Net Generation               | MU   |         | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 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   |         | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 |
| Actual Generation            | MU   |         | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 |
| Actual Generation month Wise | MU   |         | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 | 0.526 |

| Variable Cost                     |          | YEAR | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21      | 22      | 23      | 24      | 25      |
|-----------------------------------|----------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| VARIABLE COST PER UNIT AT BUS BAR | Rs./kwh  |      | 6.09   | 6.39   | 6.71   | 7.05   | 7.40   | 7.77   | 8.16   | 8.57   | 8.99   | 9.44   | 9.92   | 10.41  | 10.93  | 11.48  | 12.05  | 12.66  | 13.29  | 13.95  | 14.65  | 15.38  | 16.15   | 16.96   | 17.81   | 18.70   | 19.63   |
| BIOMASS FUEL COST                 | Rs./Lakh |      | 383.98 | 403.18 | 423.34 | 444.51 | 466.73 | 490.07 | 514.57 | 540.30 | 567.31 | 595.68 | 625.46 | 656.74 | 689.57 | 724.05 | 760.25 | 798.27 | 838.18 | 880.09 | 924.09 | 970.30 | 1018.81 | 1069.75 | 1123.24 | 1179.40 | 1238.37 |
| 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      |
| O&M expn                          | Rs./kWh  |      | 0.82   | 0.86   | 0.89   | 0.92   | 0.96   | 0.99   | 1.03   | 1.07   | 1.11   | 1.16   | 1.20   | 1.25   | 1.30   | 1.35   | 1.40   | 1.45   | 1.51   | 1.56   | 1.62   | 1.69   | 1.75    | 1.82    | 1.89    | 1.96    | 2.04    |
| Depreciation                      | Rs./kWh  |      | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62    | 0.62    | 0.62    | 0.62    | 0.62    |
| Int. on term loan                 | Rs./kWh  |      | 0.62   | 0.55   | 0.49   | 0.42   | 0.36   | 0.29   | 0.23   | 0.16   | 0.10   | 0.03   | 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    |
| Int. on working capital           | Rs./kWh  |      | 0.40   | 0.42   | 0.44   | 0.46   | 0.48   | 0.50   | 0.52   | 0.54   | 0.57   | 0.59   | 0.61   | 0.64   | 0.67   | 0.71   | 0.74   | 0.78   | 0.82   | 0.85   | 0.90   | 0.94   | 0.99    | 1.03    | 1.08    | 1.14    | 1.19    |
| RoE                               | Rs./kWh  |      | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45   | 0.45    | 0.45    | 0.45    | 0.45    | 0.45    |
| Total COG                         | Rs./kWh  |      | 2.91   | 2.89   | 2.88   | 2.87   | 2.86   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85   | 2.85    | 2.85    | 2.85    | 2.85    | 2.85    |
| Levelised fixed Cost 2.87         | Rs/Unit  |      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |

| LEVELISED FIXED COST        |          | YEAR | 1     | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   |
|-----------------------------|----------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| NOMINAL FIXED TARIFF        | Rs./Unit |      | 2.91  | 2.89 | 2.88 | 2.87 | 2.86 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 | 2.85 |
| DISCOUNT FACTOR             |          |      | 1.00  | 0.91 | 0.83 | 0.76 | 0.69 | 0.63 | 0.57 | 0.52 | 0.48 | 0.43 | 0.40 | 0.36 | 0.33 | 0.30 | 0.27 | 0.25 | 0.23 | 0.21 | 0.19 | 0.17 | 0.16 | 0.14 | 0.13 | 0.12 | 0.11 |
| PV OF NOMINAL FIXED TARIFF  | Rs./Unit |      | 2.91  | 2.64 | 2.39 | 2.17 | 1.97 | 1.79 | 1.63 | 1.49 | 1.36 | 1.24 | 1.14 | 1.04 | 0.94 | 0.83 | 0.79 | 0.74 | 0.70 | 0.66 | 0.62 | 0.58 | 0.55 | 0.53 | 0.50 | 0.47 | 0.44 |
| LEVELISED FIXED TARIFF      | Rs./Unit |      | 2.869 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| VARIABLE COST FOR FY 23-24  | Rs./Unit |      | 6.088 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| APPLICABLE TARIFF FOR 23-24 | Rs./Unit |      | 8.957 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

|                          |          |         |
|--------------------------|----------|---------|
| Depreciation Amount      | %        | 90%     |
| Book Depreciation Rate   | %        | 5.28%   |
| Tax Depreciation Rate    | %        | 40%     |
| Additional Depreciation  | %        | 20%     |
| Income Tax (Normal Rate) | %        | 25.097% |
| Capital Cost             | Rs. Lakh | 559.00  |
| Discount Factor          | %        | 9.70%   |

| Accelerated Depreciation     |          | YEAR | 1       | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19    | 20    | 21    | 22    | 23    | 24    | 25    |
|------------------------------|----------|------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| Book Depreciation            | %        |      | 2.64%   | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28% | 5.28% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Book Depreciation            | Rs. Lakh |      | 14.76   | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 29.52  | 16.10 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Opening                      | %        |      | 100.00% | 70.00% | 35.00% | 21.00% | 12.60% | 7.56%  | 4.54%  | 2.72%  | 1.63%  | 0.98%  | 0.59%  | 0.35%  | 0.21%  | 0.13%  | 0.08%  | 0.05%  | 0.03%  | 0.02%  | 0.01% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Allowed during the year      | %        |      | 30.00%  | 35.00% | 34.00% | 8.40%  | 5.04%  | 3.02%  | 1.81%  | 1.09%  | 0.65%  | 0.39%  | 0.24%  | 0.14%  | 0.08%  | 0.05%  | 0.03%  | 0.02%  | 0.01%  | 0.01%  | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Closing                      | %        |      | 70.00%  | 35.00% | 21.00% | 12.60% | 7.56%  | 4.54%  | 2.72%  | 1.63%  | 0.98%  | 0.59%  | 0.35%  | 0.21%  | 0.13%  | 0.08%  | 0.05%  | 0.03%  | 0.02%  | 0.01%  | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Accelerated Depreciation     | Rs. Lakh |      | 167.70  | 195.65 | 78.26  | 46.96  | 28.17  | 16.90  | 10.14  | 6.09   | 3.65   | 2.19   | 1.31   | 0.79   | 0.47   | 0.28   | 0.17   | 0.10   | 0.06   | 0.04   | 0.02  | 0.01  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  |
| Net Depreciation Benefit     | Rs. Lakh |      | 152.94  | 166.13 | 48.74  | 17.44  | -1.34  | -12.61 | -19.37 | -23.43 | -25.86 | -27.32 | -28.20 | -28.73 | -29.04 | -29.23 | -29.34 | -29.41 | -29.45 | -16.06 | 0.02  | 0.01  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  |
| Income Tax Gain              | Rs. Lakh |      | 38.38   | 41.69  | 12.23  | 4.38   | -0.34  | -3.16  | -4.86  | -5.88  | -6.49  | -6.86  | -7.08  | -7.21  | -7.29  | -7.34  | -7.36  | -7.38  | -7.39  | -4.03  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Discounting Factor           |          |      | 1.00    | 0.91   | 0.83   | 0.76   | 0.69   | 0.63   | 0.57   | 0.52   | 0.48   | 0.43   | 0.40   | 0.36   | 0.33   | 0.30   | 0.27   | 0.25   | 0.23   | 0.21   | 0.19  | 0.17  | 0.16  | 0.14  | 0.13  | 0.12  | 0.11  |
| Discounted Tax Gain          | Rs. Lakh |      | 38.38   | 38.01  | 10.17  | 3.32   | -0.23  | -1.99  | -2.79  | -3.08  | -3.10  | -2.98  | -2.80  | -2.60  | -2.40  | -2.20  | -2.01  | -1.84  | -1.68  | -1.84  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Levelised Income Tax Gain    | Rs. Lakh |      | 5.82    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |
| Net Generation               | MU       |      | 3.154   | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307  | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 | 6.307 |
| Average Generation           | Lakh U   |      |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |
| Levelised Income Tax Benefit | Rs./kWh  |      | 0.094   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |

**Norms and Parameter for Bio Mass [other than rice straw and Juliflora plantation) based project] with water cooled condenser Power Project and travelling grate boiler**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>                 | <b>Unit</b> | <b>Assumptions</b> |
|---------------|------------------------|---------------------|-------------------------------------|-------------|--------------------|
| 1.            | Power Generation       | Capacity            | Installed Power Generation Capacity | MW          | 1                  |
|               |                        |                     | Plant Load Factor                   | %           | 80                 |
|               |                        |                     | Commercial Operation Date           | mm/yyyy     | 25                 |
|               |                        |                     | Useful life                         | %           | 10                 |
|               |                        |                     | Auxiliary Consumption               |             |                    |
| 2.            | Power Cost             | Capital Cost/MW     | Capital Cost                        | Rs.Lac/MW   | 559                |
| 3.            | Financial Assumptions  |                     | Tariff Period                       | Year        | 25                 |
|               |                        | Debt :Equity        | Debt                                | %           | 70                 |
|               |                        |                     | Equity                              | %           | 30                 |
|               |                        | Debt Component      | Total Debt Amount                   | Rs. Lakh    | 391.3              |
|               |                        |                     | Total Equity Amount                 | Rs. Lakh    | 167.7              |
|               |                        |                     | Repayment Period                    | Year        | 10                 |
|               |                        |                     | Interest rate                       | %           | 10.48              |
|               |                        | Equity Component    | Equity Amount                       | Rs. Lakh    | 167.7              |
|               |                        |                     | Return on Equity                    |             |                    |

|    |                          |  |  |          |                   |
|----|--------------------------|--|--|----------|-------------------|
|    |                          | Depreciation   | first 20 years ROE 21 <sup>th</sup> year onwards | %        | 16.784<br>18.691  |
|    |                          |  | discount rate                                    | %        | 9.7               |
|    |                          |  | Depreciation rate first 10 years                 | %        | 7                 |
|    |                          |  | Depreciation rate 11 <sup>th</sup> year onwards  | %        | 1.33              |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                     |  | Rs. Lakh | 51.98<br>lakhs/MW |
|    |                          |  |  | %        | 3.84              |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare<br>Receivables<br>Interest on working capital | (%O&M expenses)                                  | Month    | 1                 |
|    |                          |  |  | %        | 15                |
|    |                          |  |  | Month    | 1.5               |
|    |                          |  |  | %        | 11.98             |
| 6. | Fuel related assumptions | Station Heat Rate  | projects using AFBC boilers                      | kCal/Kwh | 4200              |
|    |                          | Fuel Type & mix  | GCVof Biomass fuel                               | kCal/Kwh | 3100              |
|    |                          |  | Biomass Price                                    | Rs/MT    | 4117.68           |
|    |                          |  | fuel price escalation factor                     | %p.a     | 5                 |

## Annexure IX B

### Determination of Tariff for Biomass Power Project [other than rice straw and Juliflora(plantation) based project] with water cooled condenser and travelling grate boiler (FY 2023-24)

| Capital Cost                      |                | Lakh/MW | 559           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
|-----------------------------------|----------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------|
| Units Generation                  |                | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
|                                   |                |         | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20            | 21            | 22            | 23            | 24            | 25            |             |
| Installed Capacity                | MW             |         | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             |             |
| Net Generation                    | MU             |         | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 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             |         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         |             |
| Actual Generation                 | MU             |         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         |             |
| Actual Generation month Wise      | MU             |         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         |             |
| Tariff Components Fixed Cost      |                | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| O&M Expenses                      | Rs Lakh        |         | 51.98         | 53.98         | 56.05         | 58.20         | 60.44         | 62.76         | 65.17         | 67.67         | 70.27         | 72.97         | 75.77         | 78.68         | 81.70         | 84.84         | 88.09         | 91.48         | 94.99         | 98.64         | 102.42        | 106.36        | 110.44        | 114.68        | 119.09        | 123.66        | 128.41        |             |
| Depreciation                      | Rs Lakh        |         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         | 39.13         |             |
| Interest on term loan             | Rs Lakh        |         | 38.97         | 34.87         | 30.77         | 26.66         | 22.56         | 18.46         | 14.36         | 10.26         | 6.15          | 2.05          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |             |
| Interest on working Capital       | Rs Lakh        |         | 25.68         | 26.80         | 27.97         | 29.20         | 30.50         | 31.86         | 33.30         | 34.80         | 36.39         | 38.05         | 39.85         | 41.26         | 43.25         | 45.35         | 47.54         | 49.85         | 52.27         | 54.81         | 57.47         | 60.26         | 63.25         | 66.32         | 69.55         | 72.94         | 76.49         |             |
| Returns on Equity                 | Rs Lakh        |         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         | 28.15         |             |
| <b>Total Fixed Cost</b>           | <b>Rs Lakh</b> |         | <b>183.91</b> | <b>182.92</b> | <b>182.06</b> | <b>181.34</b> | <b>180.77</b> | <b>180.35</b> | <b>180.10</b> | <b>180.00</b> | <b>180.09</b> | <b>180.35</b> | <b>180.72</b> | <b>155.53</b> | <b>160.55</b> | <b>165.78</b> | <b>171.24</b> | <b>176.92</b> | <b>182.86</b> | <b>189.04</b> | <b>195.49</b> | <b>202.22</b> | <b>212.48</b> | <b>219.80</b> | <b>227.43</b> | <b>235.40</b> | <b>243.70</b> |             |
| Variable Cost                     |                | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| VARIABLE COST PER UNIT AT BUS BAR | Rs./Kwh        |         | 6.20          | 6.51          | 6.83          | 7.18          | 7.53          | 7.91          | 8.31          | 8.72          | 9.16          | 9.62          | 10.10         | 10.60         | 11.13         | 11.69         | 12.27         | 12.89         | 13.53         | 14.21         | 14.92         | 15.66         | 16.45         | 17.27         | 18.13         | 19.04         | 19.99         |             |
| BIOMASS FUEL COST                 | Rs. Lakh       |         | 390.96        | 410.51        | 431.04        | 452.59        | 475.22        | 498.98        | 523.93        | 550.12        | 577.63        | 606.51        | 636.84        | 668.68        | 702.11        | 737.22        | 774.08        | 812.78        | 853.42        | 896.09        | 940.90        | 987.94        | 1037.34       | 1089.20       | 1143.67       | 1200.85       | 1260.89       |             |
| Per Unit Cost of Generation       |                | Unit    | Year-->       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| O&M expn                          | Rs./kWh        |         | 0.82          | 0.86          | 0.89          | 0.92          | 0.96          | 0.99          | 1.03          | 1.07          | 1.11          | 1.16          | 1.20          | 1.25          | 1.30          | 1.35          | 1.40          | 1.45          | 1.51          | 1.56          | 1.62          | 1.69          | 1.75          | 1.82          | 1.89          | 1.96          | 2.04          |             |
| Depreciation                      | Rs./kWh        |         | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          | 0.62          |             |
| Int. on term loan                 | Rs./kWh        |         | 0.62          | 0.55          | 0.49          | 0.42          | 0.36          | 0.29          | 0.23          | 0.16          | 0.10          | 0.03          | 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          |             |
| Int. on working capital           | Rs./kWh        |         | 0.41          | 0.42          | 0.44          | 0.46          | 0.48          | 0.51          | 0.53          | 0.55          | 0.58          | 0.60          | 0.62          | 0.65          | 0.69          | 0.72          | 0.75          | 0.79          | 0.83          | 0.87          | 0.91          | 0.96          | 1.00          | 1.05          | 1.10          | 1.16          | 1.21          |             |
| RoE                               | Rs./kWh        |         | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          | 0.45          |             |
| <b>Total COG</b>                  | <b>Rs./kWh</b> |         | <b>2.92</b>   | <b>2.90</b>   | <b>2.89</b>   | <b>2.88</b>   | <b>2.87</b>   | <b>2.86</b>   | <b>2.86</b>   | <b>2.85</b>   | <b>2.85</b>   | <b>2.86</b>   | <b>2.86</b>   | <b>2.89</b>   | <b>2.47</b>   | <b>2.55</b>   | <b>2.63</b>   | <b>2.71</b>   | <b>2.81</b>   | <b>2.90</b>   | <b>3.00</b>   | <b>3.10</b>   | <b>3.21</b>   | <b>3.37</b>   | <b>3.48</b>   | <b>3.61</b>   | <b>3.73</b>   | <b>3.86</b> |
| <b>Levelised fixed Cost 2.88</b>  | <b>Rs/Unit</b> |         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| LEVELISED FIXED COST              |                | YEAR    | 1             |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| NOMINAL FIXED TARIFF              | Rs./Unit       |         | 2.90          | 2.89          | 2.88          | 2.87          | 2.86          | 2.86          | 2.85          | 2.86          | 2.86          | 2.89          | 2.47          | 2.55          | 2.63          | 2.71          | 2.81          | 2.90          | 3.00          | 3.10          | 3.21          | 3.37          | 3.48          | 3.61          | 3.73          | 3.86          |               |             |
| DISCOUNT FACTOR                   | 9.70%          |         | 1.00          | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21          | 0.19          | 0.17          | 0.16          | 0.14          | 0.13          | 0.12          | 0.11          |             |
| PV OF NOMINAL FIXED TARIFF        | Rs./Unit       |         | 2.92          | 2.64          | 2.40          | 2.18          | 1.98          | 1.80          | 1.64          | 1.49          | 1.36          | 1.24          | 0.95          | 0.89          | 0.84          | 0.79          | 0.74          | 0.70          | 0.66          | 0.62          | 0.59          | 0.55          | 0.53          | 0.50          | 0.47          | 0.44          | 0.42          |             |
| LEVELISED FIXED TARIFF            | Rs./Unit       |         | <b>2.88</b>   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| VARIABLE COST FOR FY 23-24        | Rs./Unit       |         | <b>6.20</b>   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| APPLICABLE TARIFF FOR 23-24       | Rs./Unit       |         | <b>9.08</b>   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Depreciation Amount               | %              |         | 90%           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Book Depreciation Rate            | %              |         | 5.28%         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Tax Depreciation Rate             | %              |         | 40%           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Additional Depreciation           | %              |         | 20%           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Income Tax (Normal Rate)          | %              |         | 25.097%       |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Capital Cost                      | Rs. Lakh       |         | 559.00        |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Discount Factor                   | %              |         | 9.70%         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Accelerated Depreciation          |                | YEAR    | 1             |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Book Depreciation                 | %              |         | 2.64%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 5.28%         | 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         | 29.52         | 29.52         |             |
| Opening                           | %              |         | 100.00%       | 70.00%        | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |             |
| Allowed during the year           | %              |         | 30.00%        | 35.00%        | 14.00%        | 8.40%         | 5.04%         | 3.02%         | 1.81%         | 1.09%         | 0.65%         | 0.39%         | 0.24%         | 0.14%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |             |
| Closing                           | %              |         | 70.00%        | 35.00%        | 21.00%        | 12.60%        | 7.56%         | 4.54%         | 2.72%         | 1.63%         | 0.98%         | 0.59%         | 0.35%         | 0.21%         | 0.13%         | 0.08%         | 0.05%         | 0.03%         | 0.02%         | 0.01%         | 0.01%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         | 0.00%         |               |             |
| Accelerated Depreciation          | Rs. Lakh       |         | 167.70        | 195.65        | 78.26         | 46.96         | 28.17         | 16.90         | 10.14         | 6.09          | 3.65          | 2.19          | 1.31          | 0.79          | 0.47          | 0.28          | 0.17          | 0.10          | 0.06          | 0.04          | 0.02          | 0.01          | 0.01          | 0.00          | 0.00          | 0.00          | 0.00          |             |
| Net Depreciation Benefit          | Rs. Lakh       |         | 152.94        | 166.13        | 48.74         | 17.44         | -1.34         | -12.61        | -19.37        | -23.43        | -25.86        | -27.32        | -28.20        | -28.73        | -29.04        | -29.34        | -29.41        | -29.45        | -16.06        | 0.02          | 0.01          | 0.01          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |             |
| Income Tax Gain                   | Rs. Lakh       |         | 38.38         | 41.69         | 12.23         | 4.38          | 0.34          | -3.16         | -4.86         | -5.88         | -6.49         | -6.86         | -7.08         | -7.21         | -7.29         | -7.34         | -7.36         | -7.38         | -7.39         | -4.03         | 0.01          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |             |
| Discounting Factor                |                |         | 1.00          | 0.91          | 0.83          | 0.76          | 0.69          | 0.63          | 0.57          | 0.52          | 0.48          | 0.43          | 0.40          | 0.36          | 0.33          | 0.30          | 0.27          | 0.25          | 0.23          | 0.21          | 0.19          | 0.17          | 0.16          | 0.14          | 0.13          | 0.12          | 0.11          |             |
| Discounted Tax Gain               | Rs. Lakh       |         | 38.38         | 38.01         | 10.17         | 3.32          | -0.23         | -1.99         | -2.79         | -3.08         | -3.10         | -2.98         | -2.81         | -2.60         | -2.40         | -2.20         | -2.02         | -1.84         | -1.68         | -0.84         | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |             |
| Levelised Income Tax Gain         | Rs. Lakh       |         | 5.82          |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Net Generation                    | MU             |         | 3.154         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         |               |             |
| Average Generation                | Lakh U         |         | 61.81         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |
| Levelised Income Tax Benefit      | Rs./Kwh        |         | 0.09          |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |             |

**Norms and parameter for Bio Mass [For rice straw and juliflora (plantation) based project] with water cooled condenser Power Project and travelling grate Boiler**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>                   | <b>Unit</b>  | <b>Assumptions</b> |
|---------------|------------------------|---------------------|---------------------------------------|--------------|--------------------|
| 1.            | Power Generation       | Capacity            | Installed Power Generation Capacity   | MW           | 1                  |
|               |                        |                     | Plant Load Factor                     | %<br>mm/yyyy | 80                 |
|               |                        |                     | Commercial Operation Date Useful life | Year         | 25                 |
|               |                        |                     | Auxiliary Consumption                 | %            | 10                 |
| 2.            | Power Cost             | Capital Cost/MW     | CapitalCost Project                   | Rs.Lac/MW    | 611                |
| 3.            | Financial Assumptions  |                     | Tariff Period                         | Year         | 25                 |
|               |                        | Debt :Equity        | Debt                                  | %            | 70                 |
|               |                        |                     | Equity                                | %            | 30                 |
|               |                        | Debt Component      | Total Debt Amount                     | Rs. Lakh     | 427.7              |
|               |                        |                     | Total Equity Amount                   | Rs. Lakh     | 183.3              |
|               |                        |                     | Repayment Period                      | Year         | 10                 |
|               |                        |                     | Interest rate                         | %            | 10.48              |



|    |                          |  |   |          |                |
|----|--------------------------|--|---|----------|----------------|
|    |                          | Equity Component                               | Equity Amount                                   | Rs. Lakh | 183.3          |
|    |                          |  | Return on Equity first 20 years                 | %        | 17.784         |
|    |                          |  | ROE 21 <sup>th</sup> year onwards               |          | 18.691         |
|    |                          | Depreciation                                   | discount rate                                   | %        | 9.7            |
|    |                          |  | Depreciation rate first 10 years                | %        | 7              |
|    |                          |  | Depreciation rate 11 <sup>th</sup> year onwards | %        | 1.33           |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M |   | Rs.Lakh  | 51.98 lakhs/MW |
|    |                          |  |   | %        | 3.84           |
| 5. | Working capital          | O&M expenses                                   |   | Month    | 1              |
|    |                          | Maintenance                                    |   | %        | 15             |
|    |                          | Spare  | (% O&M expenses)                                | Month    | 1.5            |
|    |                          | Receivables                                    |   | %        | 11.98          |
|    |                          | Interest on working capital                    |   |          |                |
| 6. | Fuel related assumptions | Station Heat Rate                              | projects using travelling grate boilers         | kCal/Kwh | 4200           |
|    |                          | Fuel Type &mix                                 | GCV of Biomass fuel                             | kCal/Kwh | 3100           |
|    |                          |  | BiomassPrice                                    | Rs/MT    | 4117.68        |
|    |                          |  | fuel price escalation factor                    | %p.a     | 5              |

## Annexure X B

### Determination of Tariff for Biomass Power Project [For rice straw and Juliflora(plantation) based project] with water cooled condenser and travelling grate boiler (FY 2023-24)

| Capital Cost                             |                 | Lakh/MW        | 611               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
|--|-----------------|----------------|-------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|---------------|
| Units Generation                         |                 | Unit           | Year-->           |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
|  |                 |                | 1                 | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20             | 21             | 22             | 23             | 24             | 25            |
| Installed Capacity                       | MW              |                | 1                 | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1             | 1              | 1              | 1              | 1              | 1              | 1             |
| Net Generation                           | MU              |                | 7.01              | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 7.01          | 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              |                | 0.701             | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701         | 0.701          | 0.701          | 0.701          | 0.701          | 0.701          | 0.701         |
| Actual Generation                        | MU              |                | 6.307             | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307         | 6.307          | 6.307          | 6.307          | 6.307          | 6.307          | 6.307         |
| Actual Generation month Wise             | MU              |                | 0.526             | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526         | 0.526          | 0.526          | 0.526          | 0.526          | 0.526          | 0.526         |
| <b>Tariff Components Fixed Cost</b>      |                 | <b>Unit</b>    | <b>Year--&gt;</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| O&M Expenses                             | Rs Lakh         |                | 51.98             | 53.98         | 56.05         | 58.20         | 60.44         | 62.76         | 65.17         | 67.67         | 70.27         | 72.97         | 75.77         | 78.68         | 81.70         | 84.84         | 88.09         | 91.48         | 94.99         | 98.64         | 102.42        | 106.36         | 110.44         | 114.68         | 119.09         | 123.66         | 128.41        |
| Depreciation                             | Rs Lakh         |                | 42.77             | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77         | 42.77          | 42.77          | 42.77          | 42.77          | 42.77          | 42.77         |
| Interest on term loan                    | Rs Lakh         |                | 42.60             | 38.11         | 33.63         | 29.14         | 24.66         | 20.18         | 15.69         | 11.21         | 6.73          | 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          |
| Interest on working Capital              | Rs Lakh         |                | 25.83             | 26.94         | 28.11         | 29.33         | 30.63         | 31.98         | 33.41         | 34.91         | 36.49         | 38.15         | 39.40         | 41.31         | 43.30         | 45.40         | 47.59         | 49.90         | 52.32         | 54.86         | 57.52         | 60.31          | 63.30          | 66.38          | 69.61          | 72.99          | 76.53         |
| Returns on Equity                        | Rs Lakh         |                | 30.77             | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77         | 30.77          | 30.77          | 30.77          | 30.77          | 30.77          | 30.77         |
| <b>Total Fixed Cost</b>                  | <b>Rs Lakh</b>  |                | <b>193.94</b>     | <b>192.56</b> | <b>191.32</b> | <b>190.21</b> | <b>189.26</b> | <b>188.45</b> | <b>187.81</b> | <b>187.33</b> | <b>187.02</b> | <b>186.89</b> | <b>184.08</b> | <b>158.89</b> | <b>163.91</b> | <b>169.14</b> | <b>174.60</b> | <b>180.29</b> | <b>186.22</b> | <b>192.40</b> | <b>198.86</b> | <b>205.58</b>  | <b>216.15</b>  | <b>223.47</b>  | <b>231.10</b>  | <b>239.06</b>  | <b>247.36</b> |
| <b>Variable Cost</b>                     |                 |                |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>VARIABLE COST PER UNIT AT BUS BAR</b> | <b>Rs./Kwh</b>  | <b>6.20</b>    | <b>6.51</b>       | <b>6.83</b>   | <b>7.18</b>   | <b>7.53</b>   | <b>7.91</b>   | <b>8.31</b>   | <b>8.72</b>   | <b>9.16</b>   | <b>9.62</b>   | <b>10.10</b>  | <b>10.60</b>  | <b>11.13</b>  | <b>11.69</b>  | <b>12.27</b>  | <b>12.89</b>  | <b>13.53</b>  | <b>14.21</b>  | <b>14.92</b>  | <b>15.66</b>  | <b>16.45</b>   | <b>17.27</b>   | <b>18.13</b>   | <b>19.04</b>   | <b>19.99</b>   |               |
| <b>BIOMASS FUEL COST</b>                 | <b>Rs. Lakh</b> | <b>390.96</b>  | <b>410.51</b>     | <b>431.04</b> | <b>452.59</b> | <b>475.22</b> | <b>498.98</b> | <b>523.93</b> | <b>550.12</b> | <b>577.63</b> | <b>606.51</b> | <b>636.84</b> | <b>668.68</b> | <b>702.11</b> | <b>737.22</b> | <b>774.08</b> | <b>812.78</b> | <b>853.42</b> | <b>896.09</b> | <b>940.90</b> | <b>987.94</b> | <b>1037.34</b> | <b>1089.20</b> | <b>1143.67</b> | <b>1200.85</b> | <b>1260.89</b> |               |
| <b>Per Unit Cost of Generation</b>       | <b>Unit</b>     |                | <b>Year--&gt;</b> |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| O&M expn                                 | Rs./Kwh         |                | 0.82              | 0.86          | 0.89          | 0.92          | 0.96          | 0.99          | 1.03          | 1.07          | 1.11          | 1.16          | 1.20          | 1.25          | 1.30          | 1.35          | 1.40          | 1.45          | 1.51          | 1.56          | 1.62          | 1.69           | 1.75           | 1.82           | 1.89           | 1.96           | 2.04          |
| Depreciation                             | Rs./Kwh         |                | 0.68              | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68          | 0.68           | 0.68           | 0.68           | 0.68           | 0.68           | 0.68          |
| Int. on term loan                        | Rs./Kwh         |                | 0.68              | 0.60          | 0.53          | 0.46          | 0.39          | 0.32          | 0.25          | 0.18          | 0.11          | 0.04          | 0.00          | 0.00          | 0.00          | 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         |                | 0.41              | 0.43          | 0.45          | 0.47          | 0.49          | 0.51          | 0.53          | 0.55          | 0.58          | 0.60          | 0.62          | 0.65          | 0.69          | 0.72          | 0.75          | 0.79          | 0.83          | 0.87          | 0.91          | 0.96           | 1.00           | 1.05           | 1.10           | 1.16           | 1.21          |
| Returns on Equity                        | Rs./Kwh         |                | 0.49              | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49          | 0.49           | 0.49           | 0.49           | 0.49           | 0.49           | 0.49          |
| <b>Total COG</b>                         | <b>Rs./Kwh</b>  |                | <b>3.07</b>       | <b>3.05</b>   | <b>3.03</b>   | <b>3.02</b>   | <b>3.00</b>   | <b>2.99</b>   | <b>2.98</b>   | <b>2.97</b>   | <b>2.97</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.95</b>   | <b>2.95</b>   | <b>2.95</b>   | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>   |
| <b>Levelised fixed Cost 2.99</b>         | <b>Rs/Unit</b>  |                |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>LEVELISED FIXED COST</b>              |                 |                |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>NOMINAL FIXED TARIFF</b>              | <b>Rs./Unit</b> | <b>3.07</b>    | <b>3.05</b>       | <b>3.03</b>   | <b>3.02</b>   | <b>3.00</b>   | <b>2.99</b>   | <b>2.98</b>   | <b>2.97</b>   | <b>2.97</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.96</b>   | <b>2.95</b>   | <b>2.95</b>   | <b>2.95</b>   | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>    | <b>2.95</b>   |
| <b>DISCOUNT FACTOR</b>                   | <b>9.70%</b>    | <b>1.00</b>    | <b>0.91</b>       | <b>0.83</b>   | <b>0.76</b>   | <b>0.69</b>   | <b>0.63</b>   | <b>0.57</b>   | <b>0.52</b>   | <b>0.48</b>   | <b>0.43</b>   | <b>0.40</b>   | <b>0.36</b>   | <b>0.33</b>   | <b>0.30</b>   | <b>0.27</b>   | <b>0.25</b>   | <b>0.23</b>   | <b>0.21</b>   | <b>0.19</b>   | <b>0.17</b>   | <b>0.16</b>    | <b>0.14</b>    | <b>0.13</b>    | <b>0.12</b>    | <b>0.11</b>    |               |
| <b>PV OF NOMINAL FIXED TARIFF</b>        | <b>Rs./Unit</b> | <b>3.07</b>    | <b>2.78</b>       | <b>2.52</b>   | <b>2.28</b>   | <b>2.07</b>   | <b>1.88</b>   | <b>1.71</b>   | <b>1.55</b>   | <b>1.41</b>   | <b>1.29</b>   | <b>0.97</b>   | <b>0.91</b>   | <b>0.86</b>   | <b>0.81</b>   | <b>0.76</b>   | <b>0.71</b>   | <b>0.67</b>   | <b>0.63</b>   | <b>0.60</b>   | <b>0.56</b>   | <b>0.54</b>    | <b>0.51</b>    | <b>0.48</b>    | <b>0.45</b>    | <b>0.43</b>    |               |
| <b>LEVELISED FIXED TARIFF</b>            | <b>Rs./Unit</b> | <b>2.99</b>    |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>VARIABLE COST FOR FY 23-24</b>        | <b>Rs./Unit</b> | <b>6.20</b>    |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>APPLICABLE TARIFF FOR 23-24</b>       | <b>Rs./Unit</b> | <b>9.19</b>    |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Depreciation Amount</b>               | <b>%</b>        | <b>90%</b>     |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Book Depreciation Rate</b>            | <b>%</b>        | <b>5.28%</b>   |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Tax Depreciation Rate</b>             | <b>%</b>        | <b>40%</b>     |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Additional Depreciation</b>           | <b>%</b>        | <b>20%</b>     |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Income Tax (Normal Rate)</b>          | <b>%</b>        | <b>25.09%</b>  |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Capital Cost</b>                      | <b>Rs. Lakh</b> | <b>611.00</b>  |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Discount Factor</b>                   | <b>%</b>        | <b>9.70%</b>   |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Accelerated Depreciation</b>          |                 |                |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Book Depreciation</b>                 | <b>%</b>        | <b>2.64%</b>   | <b>5.28%</b>      | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>   | <b>5.28%</b>   | <b>5.28%</b>   | <b>5.28%</b>   | <b>5.28%</b>   | <b>5.28%</b>  |
| <b>Book Depreciation</b>                 | <b>Rs. Lakh</b> | <b>16.13</b>   | <b>32.26</b>      | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>  | <b>32.26</b>   | <b>32.26</b>   | <b>32.26</b>   | <b>32.26</b>   | <b>32.26</b>   | <b>32.26</b>  |
| <b>Accelerated Depreciation</b>          |                 |                |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Opening</b>                           | <b>%</b>        | <b>100.00%</b> | <b>70.00%</b>     | <b>35.00%</b> | <b>21.00%</b> | <b>12.60%</b> | <b>7.56%</b>  | <b>4.54%</b>  | <b>2.72%</b>  | <b>1.63%</b>  | <b>0.98%</b>  | <b>0.59%</b>  | <b>0.35%</b>  | <b>0.21%</b>  | <b>0.13%</b>  | <b>0.08%</b>  | <b>0.05%</b>  | <b>0.03%</b>  | <b>0.02%</b>  | <b>0.01%</b>  | <b>0.00%</b>  | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>  |
| <b>Allowed during the year</b>           | <b>%</b>        | <b>30.00%</b>  | <b>35.00%</b>     | <b>14.00%</b> | <b>8.40%</b>  | <b>5.04%</b>  | <b>3.02%</b>  | <b>1.81%</b>  | <b>1.09%</b>  | <b>0.65%</b>  | <b>0.39%</b>  | <b>0.24%</b>  | <b>0.14%</b>  | <b>0.08%</b>  | <b>0.05%</b>  | <b>0.03%</b>  | <b>0.02%</b>  | <b>0.01%</b>  | <b>0.01%</b>  | <b>0.00%</b>  | <b>0.00%</b>  | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>  |
| <b>Closing</b>                           | <b>%</b>        | <b>70.00%</b>  | <b>35.00%</b>     | <b>21.00%</b> | <b>12.60%</b> | <b>7.56%</b>  | <b>4.54%</b>  | <b>2.72%</b>  | <b>1.63%</b>  | <b>0.98%</b>  | <b>0.59%</b>  | <b>0.35%</b>  | <b>0.21%</b>  | <b>0.13%</b>  | <b>0.08%</b>  | <b>0.05%</b>  | <b>0.03%</b>  | <b>0.02%</b>  | <b>0.01%</b>  | <b>0.00%</b>  | <b>0.00%</b>  | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>   | <b>0.00%</b>  |
| <b>Accelerated Depreciation</b>          | <b>Rs. Lakh</b> | <b>183.30</b>  | <b>213.85</b>     | <b>85.54</b>  | <b>51.32</b>  | <b>30.79</b>  | <b>18.48</b>  | <b>11.09</b>  | <b>6.65</b>   | <b>3.99</b>   | <b>2.39</b>   | <b>1.44</b>   | <b>0.86</b>   | <b>0.52</b>   | <b>0.31</b>   | <b>0.19</b>   | <b>0.11</b>   | <b>0.07</b>   | <b>0.04</b>   | <b>0.02</b>   | <b>0.01</b>   | <b>0.01</b>    | <b>0.01</b>    | <b>0.01</b>    | <b>0.00</b>    | <b>0.00</b>    | <b>0.00</b>   |
| <b>Net Depreciation Benefit</b>          | <b>Rs. Lakh</b> | <b>167.17</b>  | <b>181.59</b>     | <b>53.28</b>  | <b>19.06</b>  | <b>-1.47</b>  | <b>-13.78</b> | <b>-21.17</b> | <b>-25.61</b> | <b>-28.27</b> | <b>-29.87</b> | <b>-30.82</b> | <b>-31.74</b> | <b>-31.95</b> | <b>-32.07</b> | <b>-32.15</b> | <b>-32.19</b> | <b>-32.19</b> | <b>-32.19</b> | <b>-32.19</b> | <b>-32.19</b> | <b>-32.19</b>  | <b>-32.19</b>  | <b>-32.19</b>  | <b>-32.19</b>  | <b>-32.19</b>  | <b>-32.19</b> |
| <b>Income Tax Gain</b>                   | <b>Rs. Lakh</b> | <b>41.95</b>   | <b>45.57</b>      | <b>13.37</b>  | <b>4.78</b>   | <b>-0.37</b>  | <b>-3.46</b>  | <b>-5.31</b>  | <b>-6.43</b>  | <b>-7.09</b>  | <b>-7.50</b>  | <b>-7.74</b>  | <b>-7.88</b>  | <b>-7.97</b>  | <b>-8.02</b>  | <b>-8.05</b>  | <b>-8.07</b>  | <b>-8.08</b>  | <b>-8.08</b>  | <b>-8.08</b>  | <b>-8.08</b>  | <b>-8.08</b>   | <b>-8.08</b>   | <b>-8.08</b>   | <b>-8.08</b>   | <b>-8.08</b>   | <b>-8.08</b>  |
| <b>Discounting Factor</b>                | <b>1.00</b>     | <b>0.91</b>    | <b>0.83</b>       | <b>0.76</b>   | <b>0.69</b>   | <b>0.63</b>   | <b>0.57</b>   | <b>0.52</b>   | <b>0.48</b>   | <b>0.43</b>   | <b>0.40</b>   | <b>0.36</b>   | <b>0.33</b>   | <b>0.30</b>   | <b>0.27</b>   | <b>0.25</b>   | <b>0.23</b>   | <b>0.21</b>   | <b>0.19</b>   | <b>0.17</b>   | <b>0.16</b>   | <b>0.14</b>    | <b>0.13</b>    | <b>0.12</b>    | <b>0.11</b>    | <b>0.10</b>    |               |
| <b>Discounted Tax Gain</b>               | <b>Rs. Lakh</b> | <b>41.95</b>   | <b>41.54</b>      | <b>11.11</b>  | <b>3.62</b>   | <b>-0.25</b>  | <b>-2.18</b>  | <b>-3.05</b>  | <b>-3.36</b>  | <b>-3.38</b>  | <b>-3.26</b>  | <b>-3.07</b>  | <b>-2.85</b>  | <b>-2.62</b>  | <b>-2.41</b>  | <b>-2.20</b>  | <b>-2.01</b>  | <b>-1.84</b>  | <b>-1.69</b>  | <b>-1.56</b>  | <b>-1.44</b>  | <b>-1.33</b>   | <b>-1.23</b>   | <b>-1.14</b>   | <b>-1.06</b>   | <b>-0.99</b>   | <b>-0.93</b>  |
| <b>Levelised Income Tax Gain</b>         | <b>Rs. Lakh</b> | <b>6.36</b>    |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Net Generation</b>                    | <b>MU</b>       | <b>3,154</b>   |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Average Generation</b>                | <b>Lakh U</b>   | <b>61.81</b>   |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |
| <b>Levelised Income Tax Benefit</b>      | <b>Rs./kwh</b>  | <b>0.10</b>    |                   |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |                |               |

**Norms and Parameter for Bio Mass [other than rice straw and Juliflora plantation) based project] with air cooled condenser Power Project and travelling grate boiler**

| <b>Sl. No</b>    | <b>Assessment Head</b>            | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>                   | <b>Unit</b>     | <b>Assumptions</b> |
|------------------|-----------------------------------|---------------------|---------------------------------------|-----------------|--------------------|
| 1.               | Power Generation                  | Capacity            | Installed Power Generation Capacity   | MW              | 1                  |
|                  |                                   |                     | Plant Load Factor                     | %               | 80                 |
|                  |                                   |                     | Commercial Operation Date Useful life | mm/yyyy<br>Year | 25                 |
|                  |                                   |                     | Auxiliary Consumption                 | %               | 12                 |
| 2.               | Power Cost                        | Capital Cost/MW     | Capital Cost                          | Rs.Lac/MW       | 600                |
| 3.               | Financial Assumptions             | Debt :Equity        | Tariff Period                         | Year            | 25                 |
|                  |                                   |                     | Debt                                  | %               | 70                 |
|                  |                                   | Equity              | %                                     | 30              |                    |
|                  |                                   | Debt Component      | Total Debt Amount                     | Rs. Lakh        | 420                |
|                  |                                   |                     | Total Equity Amount                   | Rs. Lakh        | 180                |
|                  |                                   |                     | Repayment Period                      | Year            | 10                 |
|                  |                                   |                     | Interest rate                         | %               | 10.48              |
| Equity Component | Equity Amount                     | Rs. Lakh            | 180                                   |                 |                    |
|                  | Return on Equity first 20 years   | %                   | 16.784                                |                 |                    |
|                  | ROE 21 <sup>th</sup> year onwards |                     | 18.691                                |                 |                    |

|    |                          |  |   |          |                |
|----|--------------------------|--|---|----------|----------------|
|    |                          | Depreciation   | discount rate                                   | %        | 9.7            |
|    |                          |  | Depreciation rate first 10 years                | %        | 7              |
|    |                          |  | Depreciation rate 11 <sup>th</sup> year onwards | %        | 1.33           |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                     |   | Rs.Lakh  | 51.98 lakhs/MW |
|    |                          |  |   | %        | 3.84           |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare<br>Receivables<br>Interest on working capital | (%O&M expenses)                                 | Month    | 1              |
|    |                          |  |   | %        | 15             |
|    |                          |  |   | Month    | 1.5            |
|    |                          |  |   | %        | 11.98          |
| 6. | Fuel related assumptions | Station Heat Rate  | projects using travelling grate boilers         | kCal/Kwh | 4200           |
|    |                          | Fuel Type & mix  | GCVof Biomass fuel                              | kCal/Kwh | 3100           |
|    |                          |  | Biomass Price                                   | Rs/MT    | 4117.68        |
|    |                          |  | fuel priceescalationfactor                      | %p.a     | 5              |

## Annexure XI B

### Determination of Tariff for Biomass Power Project [other than rice straw and Juliflora(plantation) based project] with air cooled condenser and travelling grate boiler (FY 2023-24)

| Capital Cost                 |      | Lakh/MW | 600   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|------------------------------|------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Units Generation             | Unit | Year--> | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    | 25    |
| Installed Capacity           | MW   |         | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Net Generation               | MU   |         | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 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   |         | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 |
| Actual Generation            | MU   |         | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 |
| Actual Generation month Wise | MU   |         | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 |

| Tariff Components Fixed Cost |                | Unit | Year-->       | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20            | 21            | 22            | 23            | 24     | 25 |
|------------------------------|----------------|------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------|----|
| O&M Expenses                 | Rs Lakh        |      | 51.98         | 53.98         | 56.05         | 58.20         | 60.44         | 62.76         | 65.17         | 67.67         | 70.27         | 72.97         | 75.77         | 78.68         | 81.70         | 84.84         | 88.09         | 91.48         | 94.99         | 98.64         | 102.42        | 106.36        | 110.44        | 114.68        | 119.09        | 123.66        | 128.41 |    |
| Depreciation                 | Rs Lakh        |      | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00         | 42.00  |    |
| Interest on term loan        | Rs Lakh        |      | 41.83         | 37.43         | 33.02         | 28.62         | 24.22         | 19.81         | 15.41         | 11.01         | 6.60          | 2.20          | 0.00          | 0.00          | 0.00          | 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        |      | 25.80         | 26.91         | 28.08         | 29.31         | 30.60         | 31.96         | 33.39         | 34.89         | 36.47         | 38.13         | 39.99         | 41.30         | 43.29         | 45.39         | 47.58         | 49.89         | 52.31         | 54.85         | 57.51         | 60.30         | 63.29         | 66.37         | 69.59         | 72.98         | 76.54  |    |
| Return on Equity             | Rs Lakh        |      | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21         | 30.21  |    |
| <b>Total Fixed Cost</b>      | <b>Rs Lakh</b> |      | <b>191.82</b> | <b>196.52</b> | <b>189.36</b> | <b>188.34</b> | <b>187.46</b> | <b>186.74</b> | <b>186.17</b> | <b>185.78</b> | <b>185.55</b> | <b>185.51</b> | <b>185.37</b> | <b>185.18</b> | <b>184.20</b> | <b>183.89</b> | <b>183.89</b> | <b>183.58</b> | <b>183.51</b> | <b>183.69</b> | <b>183.14</b> | <b>182.87</b> | <b>182.69</b> | <b>182.57</b> | <b>182.49</b> | <b>182.46</b> |        |    |

| Variable Cost                     |          | YEAR   | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20      | 21      | 22      | 23      | 24      | 25 |
|-----------------------------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|----|
| VARIABLE COST PER UNIT AT BUS BAR | Rs./Kwh  | 6.34   | 6.66   | 6.99   | 7.34   | 7.71   | 8.09   | 8.50   | 8.92   | 9.37   | 9.83   | 10.33  | 10.84  | 11.38  | 11.95  | 12.55  | 13.18  | 13.84  | 14.53  | 15.26  | 16.02  | 16.82   | 17.66   | 18.54   | 19.47   | 20.45   |    |
| BIOMASS FUEL COST                 | Rs. Lakh | 390.96 | 410.51 | 431.04 | 452.59 | 475.22 | 498.98 | 523.93 | 550.12 | 577.63 | 606.51 | 636.84 | 668.68 | 702.11 | 737.22 | 774.08 | 812.78 | 853.42 | 896.09 | 940.90 | 987.94 | 1037.34 | 1089.20 | 1143.67 | 1200.85 | 1260.89 |    |

| 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          |
|----------------------------------|----------------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| O&M expn                         | Rs/Kwh         |      | 0.84        | 0.88        | 0.91        | 0.94        | 0.98        | 1.02        | 1.06        | 1.10        | 1.14        | 1.18        | 1.23        | 1.28        | 1.32        | 1.38        | 1.43        | 1.48        | 1.54        | 1.60        | 1.66        | 1.72        | 1.79        | 1.86        | 1.93        | 2.01        | 2.08        |
| Depreciation                     | Rs/Kwh         |      | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        | 0.68        |
| Int. on term loan                | Rs/Kwh         |      | 0.68        | 0.61        | 0.54        | 0.46        | 0.39        | 0.32        | 0.25        | 0.18        | 0.11        | 0.04        | 0.00        | 0.00        | 0.00        | 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         |      | 0.42        | 0.44        | 0.46        | 0.48        | 0.50        | 0.52        | 0.54        | 0.57        | 0.59        | 0.62        | 0.64        | 0.67        | 0.70        | 0.74        | 0.77        | 0.81        | 0.85        | 0.89        | 0.93        | 0.98        | 1.03        | 1.08        | 1.13        | 1.18        | 1.24        |
| RoE                              | Rs/Kwh         |      | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        |
| <b>Total COG</b>                 | <b>Rs/Kwh</b>  |      | <b>3.11</b> | <b>3.09</b> | <b>3.07</b> | <b>3.06</b> | <b>3.04</b> | <b>3.03</b> | <b>3.02</b> | <b>3.01</b> | <b>3.01</b> | <b>3.01</b> | <b>3.01</b> | <b>2.99</b> | <b>2.96</b> | <b>2.93</b> | <b>2.92</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> | <b>2.91</b> |
| <b>Levelised fixed Cost 3.03</b> | <b>Rs/Unit</b> |      |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |

| LEVELLED FIXED COST         |          | YEAR        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   |
|-----------------------------|----------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| NOMINAL FIXED TARIFF        | Rs./Unit | 3.11        | 3.09 | 3.07 | 3.05 | 3.04 | 3.03 | 3.02 | 3.01 | 3.01 | 3.01 | 3.01 | 2.99 | 2.96 | 2.93 | 2.92 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| DISCOUNT FACTOR             | 9.70%    | 1.00        | 0.91 | 0.83 | 0.76 | 0.69 | 0.63 | 0.57 | 0.52 | 0.48 | 0.43 | 0.40 | 0.36 | 0.33 | 0.30 | 0.27 | 0.25 | 0.23 | 0.21 | 0.19 | 0.17 | 0.16 | 0.14 | 0.13 | 0.12 | 0.11 |      |
| PV OF NOMINAL FIXED TARIFF  | Rs./Unit | 3.11        | 2.82 | 2.55 | 2.31 | 2.10 | 1.91 | 1.73 | 1.58 | 1.43 | 1.31 | 1.21 | 1.13 | 1.06 | 1.00 | 0.94 | 0.88 | 0.83 | 0.78 | 0.74 | 0.70 | 0.66 | 0.62 | 0.58 | 0.55 | 0.52 | 0.49 |
| LEVELLED FIXED TARIFF       | Rs./Unit | <b>3.03</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| VARIABLE COST FOR FY 23-24  | Rs./Unit | <b>6.34</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| APPLICABLE TARIFF FOR 23-24 | Rs./Unit | <b>9.37</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

|                          |          |         |
|--------------------------|----------|---------|
| Depreciation Amount      | %        | 90%     |
| Book Depreciation Rate   | %        | 5.28%   |
| Tax Depreciation Rate    | %        | 40%     |
| Additional Depreciation  | %        | 20%     |
| Income Tax (Normal Rate) | %        | 25.097% |
| Capital Cost             | Rs. Lakh | 600.00  |
| Discount Factor          | %        | 9.70%   |

| Accelerated Depreciation        |          | YEAR    | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    | 25    |
|---------------------------------|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Book Depreciation               | %        | 2.64%   | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Book Depreciation               | Rs. Lakh | 15.84   | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68  | 31.68 | 31.68 | 31.68 | 31.68 | 31.68 | 17.28 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| <b>Accelerated Depreciation</b> |          |         |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |
| 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% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Allowed during the year         | %        | 30.00%  | 35.00% | 14.00% | 8.40%  | 5.04%  | 3.02%  | 1.81%  | 1.09%  | 0.65%  | 0.39%  | 0.24%  | 0.14%  | 0.08%  | 0.05%  | 0.03% | 0.02% | 0.01% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Closing                         | %        | 70.00%  | 35.00% | 21.00% | 12.60% | 7.56%  | 4.54%  | 2.72%  | 1.63%  | 0.98%  | 0.59%  | 0.35%  | 0.21%  | 0.13%  | 0.08%  | 0.05% | 0.03% | 0.02% | 0.01% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Accelerated Depreciation        | Rs. Lakh | 180.00  | 210.00 | 84.00  | 50.40  | 30.24  | 18.14  | 10.89  | 6.53   | 3.92   | 2.35   | 1.41   | 0.85   | 0.51   | 0.30   | 0.18  | 0.11  | 0.07  | 0.04  | 0.02  | 0.01  | 0.01  | 0.01  | 0.00  | 0.00  | 0.00  |       |
| Net Depreciation Benefit        | Rs. Lakh | 164.16  | 178.32 | 52.32  | 18.72  | -1.44  | -13.54 | -20.79 | -25.15 | -27.76 | -29.33 | -30.27 | -30.83 | -31.17 | -31.38 | -31.5 |       |       |       |       |       |       |       |       |       |       |       |

**Norms and Parameter for Bio Mass [For rice straw and juliflora(plantation) based project] with air cooled condenser and Travelling grate boiler Power Project**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b> | <b>Sub-Head (2)</b>  | <b>Unit</b>                         | <b>Assumptions</b>            |
|---------------|------------------------|---------------------|--|-------------------------------------|-------------------------------|
| 1.            | Power Generation       | Capacity            | Installed Power<br>Generation Capacity<br>Plant Load Factor<br>Commercial Operation<br>Date Useful life<br><br>Auxiliary Consumption | MW<br>%<br>mm/yyyy<br>Year<br><br>% | 1<br>80<br>25<br>12           |
| 2.            | Power Cost             | Capital Cost/MW     | Capital Cost Project   | Rs.Lac/MW                           | 652                           |
| 3.            | Financial Assumptions  |                     | Tariff Period  | Year                                | 25                            |
|               |                        | Debt :Equity        | Debt<br>Equity   | %<br>%                              | 70<br>30                      |
|               |                        | Debt Component      | Total Debt Amount<br>Total Equity Amount<br>Repayment Period<br>Interest rate  | Rs. Lakh<br>Rs. Lakh<br>Year<br>%   | 456.4<br>195.6<br>10<br>10.48 |
|               |                        | Equity Component    | Equity Amount<br>Return on Equity first<br>20 years  | Rs. Lakh<br>%                       | 195.6<br>16.784               |

|    |                          |  |   |          |                |
|----|--------------------------|--|---|----------|----------------|
|    |                          |  | ROE 21 <sup>th</sup> year onwards               |          | 18.691         |
|    |                          | Depreciation   | discount rate                                   | %        | 9.70           |
|    |                          |  | Depreciation rate first 10 years                | %        | 7              |
|    |                          |  | Depreciation rate 11 <sup>th</sup> year onwards | %        | 1.33           |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                     |   | Rs.Lakh  | 51.98 lakhs/MW |
|    |                          |  |   | %        | 3.84           |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare<br>Receivables<br>Interest on working capital | (%O&M expenses)                                 | Month    | 1              |
|    |                          |  |   | %        | 15             |
|    |                          |  |   | Month    | 1.5            |
|    |                          |  |   | %        | 11.98          |
| 6. | Fuel related assumptions | Station Heat Rate  | projects using AFBC boilers                     | kCal/Kwh | 4125           |
|    |                          | Fuel Type & mix  | GCV of Biomass fuel                             | kCal/Kwh | 3100           |
|    |                          |  | Biomass Price                                   | Rs/MT    | 4117.68        |
|    |                          |  | fuel price escalation factor                    | %p.a     | 5              |

## Annexure XII B

### Determination of Tariff for Biomass Power Project [For rice straw and Juliflora(plantation) based project] with air cooled condenser and travelling grate boiler (FY 2023-24)

| Capital Cost                 | Lakh/MW | 652     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|------------------------------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Units Generation             | Unit    | Year--> | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    | 25    |
| Installed Capacity           | MW      |         | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Net Generation               | MU      |         | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 7.01  | 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      |         | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 | 0.841 |
| Actual Generation            | MU      |         | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 |
| Actual Generation month Wise | MU      |         | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 | 0.514 |

| Tariff Components Fixed Cost | Unit           | Year--> | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20            | 21            | 22            | 23            | 24            | 25            |
|------------------------------|----------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| O&M Expenses                 | Rs Lakh        |         | 51.98         | 53.98         | 56.05         | 58.20         | 60.44         | 62.76         | 65.17         | 67.67         | 70.27         | 72.97         | 75.77         | 78.68         | 81.70         | 84.84         | 88.09         | 91.48         | 94.99         | 98.64         | 102.42        | 106.36        | 110.44        | 114.68        | 119.09        | 123.66        | 128.41        |
| Depreciation                 | Rs Lakh        |         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         | 45.64         |
| Interest on term loan        | Rs Lakh        |         | 45.45         | 40.67         | 35.88         | 31.10         | 26.32         | 21.53         | 16.75         | 11.96         | 7.18          | 2.39          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |
| Interest on working Capital  | Rs Lakh        |         | 25.95         | 27.05         | 28.22         | 29.44         | 30.73         | 32.08         | 33.50         | 35.00         | 36.57         | 38.23         | 39.94         | 41.35         | 43.34         | 45.44         | 47.63         | 49.94         | 52.36         | 54.90         | 57.56         | 60.35         | 63.34         | 66.42         | 69.65         | 73.04         | 76.59         |
| Returns on Equity            | Rs Lakh        |         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         | 32.83         |
| <b>Total Fixed Cost</b>      | <b>Rs Lakh</b> |         | <b>201.85</b> | <b>200.17</b> | <b>198.62</b> | <b>197.21</b> | <b>195.95</b> | <b>194.84</b> | <b>193.88</b> | <b>193.10</b> | <b>192.49</b> | <b>192.06</b> | <b>191.56</b> | <b>191.55</b> | <b>191.56</b> | <b>191.57</b> | <b>191.58</b> | <b>191.59</b> | <b>191.60</b> | <b>191.61</b> | <b>191.62</b> | <b>191.63</b> | <b>191.64</b> | <b>191.65</b> | <b>191.66</b> | <b>191.67</b> | <b>191.68</b> |

| Variable Cost                     |          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
|-----------------------------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| YEAR                              | 1        | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22      | 23      | 24      | 25      |         |
| VARIABLE COST PER UNIT AT BUS BAR | Rs /kwh  | 6.34   | 6.66   | 6.99   | 7.34   | 7.71   | 8.09   | 8.50   | 8.92   | 9.37   | 9.83   | 10.33  | 10.84  | 11.38  | 11.95  | 12.55  | 13.18  | 13.84  | 14.53  | 15.26  | 16.02  | 16.82   | 17.66   | 18.54   | 19.47   | 20.45   |
| BIOMASS FUEL COST                 | Rs. Lakh | 390.96 | 410.51 | 431.04 | 452.59 | 475.22 | 498.98 | 523.93 | 550.12 | 577.63 | 606.51 | 636.84 | 668.68 | 702.11 | 737.22 | 774.08 | 812.78 | 853.42 | 896.09 | 940.90 | 987.94 | 1037.34 | 1089.20 | 1143.67 | 1200.85 | 1260.89 |

| 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          |
|----------------------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| O&M expn                         | Rs/kWh         | 0.84        | 0.88        | 0.91        | 0.94        | 0.98        | 1.02        | 1.06        | 1.10        | 1.14        | 1.18        | 1.23        | 1.28        | 1.32        | 1.38        | 1.43        | 1.48        | 1.54        | 1.60        | 1.66        | 1.72        | 1.79        | 1.86        | 1.93        | 2.01        | 2.08        |
| Depreciation                     | Rs/kWh         | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        | 0.74        |
| Int. on term loan                | Rs/kWh         | 0.74        | 0.66        | 0.58        | 0.50        | 0.43        | 0.35        | 0.27        | 0.19        | 0.12        | 0.04        | 0.00        | 0.00        | 0.00        | 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         | 0.42        | 0.44        | 0.46        | 0.48        | 0.50        | 0.52        | 0.54        | 0.57        | 0.59        | 0.62        | 0.64        | 0.67        | 0.70        | 0.74        | 0.77        | 0.81        | 0.85        | 0.89        | 0.93        | 0.98        | 1.03        | 1.08        | 1.13        | 1.18        | 1.24        |
| RoE                              | Rs/kWh         | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        | 0.53        |
| <b>Total COG</b>                 | <b>Rs/kWh</b>  | <b>3.27</b> | <b>3.25</b> | <b>3.22</b> | <b>3.20</b> | <b>3.18</b> | <b>3.16</b> | <b>3.14</b> | <b>3.13</b> | <b>3.12</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> | <b>3.11</b> |
| <b>Levelised fixed Cost 3.14</b> | <b>Rs/Unit</b> |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |

| LEVELLED FIXED COST         |          |             |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------------------|----------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| YEAR                        | 1        | 2           | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   |      |
| NOMINAL FIXED TARIFF        | Rs./Unit | 3.27        | 3.25 | 3.22 | 3.20 | 3.18 | 3.16 | 3.14 | 3.13 | 3.12 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 | 3.11 |
| DISCOUNT FACTOR             | 9.70%    | 1.00        | 0.91 | 0.83 | 0.76 | 0.69 | 0.63 | 0.57 | 0.52 | 0.48 | 0.43 | 0.40 | 0.36 | 0.33 | 0.30 | 0.27 | 0.25 | 0.23 | 0.21 | 0.19 | 0.17 | 0.16 | 0.14 | 0.13 | 0.12 | 0.11 |
| PV OF NOMINAL FIXED TARIFF  | Rs./Unit | 3.27        | 2.96 | 2.68 | 2.42 | 2.19 | 1.99 | 1.80 | 1.64 | 1.49 | 1.35 | 1.01 | 0.95 | 0.89 | 0.84 | 0.79 | 0.74 | 0.70 | 0.66 | 0.62 | 0.58 | 0.56 | 0.53 | 0.50 | 0.47 | 0.44 |
| LEVELLED FIXED TARIFF       | Rs./Unit | <b>3.14</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| VARIABLE COST FOR FY 23-24  | Rs./Unit | <b>6.34</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| APPLICABLE TARIFF FOR 23-24 | Rs./Unit | <b>9.48</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

|                          |          |         |
|--------------------------|----------|---------|
| Depreciation Amount      | %        | 90%     |
| Book Depreciation Rate   | %        | 5.28%   |
| Tax Depreciation Rate    | %        | 40%     |
| Additional Depreciation  | %        | 20%     |
| Income Tax (Normal Rate) | %        | 25.097% |
| Capital Cost             | Rs. Lakh | 652.00  |
| Discount Factor          | %        | 9.70%   |

| Accelerated Depreciation        |          |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |
|---------------------------------|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| YEAR                            | 1        | 2       | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20    | 21    | 22    | 23    | 24    | 25    |       |
| Book Depreciation               | %        | 2.64%   | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28%  | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% |
| Book Depreciation               | Rs. Lakh | 17.21   | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 34.43  | 18.78 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| <b>Accelerated Depreciation</b> |          |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |
| 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% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Allowed during the year         | %        | 30.00%  | 35.00% | 14.00% | 8.40%  | 5.04%  | 3.02%  | 1.81%  | 1.09%  | 0.65%  | 0.39%  | 0.24%  | 0.14%  | 0.08%  | 0.05%  | 0.03%  | 0.02%  | 0.01%  | 0.01%  | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Closing                         | %        | 70.00%  | 35.00% | 21.00% | 12.60% | 7.56%  | 4.54%  | 2.72%  | 1.63%  | 0.98%  | 0.59%  | 0.35%  | 0.21%  | 0.13%  | 0.08%  | 0.05%  | 0.03%  | 0.02%  | 0.01%  | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Accelerated Depreciation        | Rs. Lakh | 195.60  | 228.20 | 91.28  | 54.77  | 32.86  | 19.72  | 11.83  | 7.10   | 4.26   | 2.56   | 1.53   | 0.92   | 0.55   | 0.33   | 0.20   | 0.12   | 0.07   | 0.04   | 0.03  | 0.02  | 0.01  | 0.01  | 0.00  | 0.00  | 0.00  |
| Net Depreciation Benefit        | Rs. Lakh | 178.39  | 193.77 | 56.85  | 20.34  | -1.56  | -14.71 | -22.60 | -27.33 | -30.17 | -31.87 | -32.89 | -33.51 | -33.87 | -34.09 | -34.23 | -34.31 | -34.35 | -18.73 | 0.03  | 0.02  | 0.01  | 0.01  | 0.00  | 0.00  | 0.00  |
| Income Tax Gain                 | Rs. Lakh | 44.77   | 48.63  | 14.27  | 5.11   | -0.39  | -3.69  | -5.67  | -6.86  | -7.57  | -8.00  | -8.26  | -8.41  | -8.50  | -8.56  | -8.59  | -8.61  | -8.62  | -4.70  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Discounting Factor              | 1.00     | 0.91    | 0.83   | 0.76   | 0.69   | 0.63   | 0.57   | 0.52   | 0.48   | 0.43   | 0.40   | 0.36   | 0.33   | 0.30   | 0.27   | 0.25   | 0.23   | 0.21   | 0.19   | 0.17  | 0.16  | 0.14  | 0.13  | 0.12  | 0.11  |       |
| Discounted Tax Gain             | Rs. Lakh | 44.77   | 44.33  | 11.86  | 3.87   | -0.27  | -2.32  | -3.25  | -3.59  | -3.61  | -3.48  | -3.27  | -3.04  | -2.80  | -2.57  | -2.35  | -2.15  | -1.96  | -0.97  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Levelised Income Tax Gain       | Rs. Lakh | 6.79    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |
| Net Generation                  | MU       | 3.084   | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167  | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 | 6.167 |
| Average Generation              | Lakh U   | 60.44   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |
| Levelised Income Tax Benefit    | Rs./kwh  | 0.11    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |



**Norms and Parameter for Refuse derived fuel (RDF) based on Rankine cycle technology Power Project**

| <b>Sl. No</b> | <b>Assessment Head</b> | <b>Sub-Head (1)</b>  | <b>Sub-Head (2)</b>  | <b>Unit</b>   | <b>Assumptions</b>   |
|---------------|------------------------|--|--|---|--|
| 1.            | Power Generation       | Capacity   | Installed Power<br>Generation Capacity<br>PLF(During<br>Stabilization up to 6<br>month)<br>PLF(during 1 <sup>st</sup> year<br>stabilization)<br>PLF(2 <sup>nd</sup> year onwards)<br>Commercial Operation<br>Date Useful life<br><br>Auxiliary Consumption | MW<br><br>%<br>%<br>%<br>mm/yyyy<br>Year<br><br>%                           | 1<br><br>65<br>65<br>80<br>20<br><br>15                        |
| 2.            | Power Cost             | Capital Cost/MW  | Capital Cost Project   | Rs.Lac/MW   | 900  |
| 3.            | Financial Assumptions  | Debt :Equity<br><br>Debt Component<br><br>Equity Component | Tariff Period<br><br>Debt<br>Equity<br><br>Total Debt Amount<br>Total Equity Amount<br>Repayment Period<br>Interest rate<br><br>Equity Amount<br>Return on Equity first  | Year<br><br>%<br>%<br><br>Rs. Lakh<br>Rs. Lakh<br>Year<br>%<br><br>Rs. Lakh | 20<br><br>70<br>30<br><br>630<br>270<br>10<br>10.48<br><br>270 |

|    |                          |  |   |          |                  |
|----|--------------------------|--|---|----------|------------------|
|    |                          |  | 20 years<br>ROE 21 <sup>th</sup> year onwards   | %        | 16.784<br>18.691 |
|    |                          | Depreciation   | discount rate                                   | %        | 9.7              |
|    |                          |  | Depreciation rate first 10 years                | %        | 7                |
|    |                          |  | Depreciation rate 11 <sup>th</sup> year onwards | %        | 2                |
| 4. | Operation & Maintenance  | Normative O&M expenses p.a. Escalation for O&M                                     |   | Rs.Lakh  | 70.18            |
|    |                          |  |   | %        | 3.84             |
| 5. | Working capital          | O&M expenses<br>Maintenance<br>Spare<br>Receivables<br>Interest on working capital | (%O&M expenses)                                 | Month    | 1                |
|    |                          |  |   | %        | 15               |
|    |                          |  |   | Month    | 2                |
|    |                          |  |   | %        | 11.98            |
| 6. | Fuel related assumptions | Station Heat Rate  | GCV of Fuel                                     | kCal/Kwh | 4200             |
|    |                          |  |   | kCal/Kwh | 2500             |
|    |                          | Fuel Type & mix  | Price of Fuel                                   | Rs/MT    | 2412.49          |
|    |                          |  | fuel price escalation factor                    | %p.a     | 5                |

