

Baseline GHG Emission Study Report

(Draft)

Fig¹



Plant

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXX

Month/Year of Report

Conducted by

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXX

XXXX

¹ Change Image for different sector

ACKNOWLEDGEMENT

***** Team

Undertaking

By plant to NISST & Baseline Agency that data and other details provided are true and complete as per records if there is any change in data provided plant intimate to NISST and Baseline Agency.

STUDY TEAM

Team 1

Sr No	Name	Qualification	EM/EA/Lead Verifier Registration No	Experience (In Years)/ Sector
Team Leader				
1	Shri. *****			
Lead Verifier				
3	Shri. *****			
Team Members				
4	Shri. *****			
5	Shri. *****			
6	Shri. *****			

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Executive Summary & Critical Comments

1. Introduction of Baseline Agency

1.1 Name of the Firm

1.2 Team Details

i.....

ii.....

2. Introduction of Plant

2.1 Name and Address of Plant

2.2 Name and details of Plant Head/Authorised Signatory

Name	Designation	Telephone	Mobile	Email

2.3 Name and details of Energy manager/Nodal Officer

Name	Designation	EA/EM/NO	Mobile	Email

2.4 History of establishment, ownership (public / private / co-operative sector)

In 100 word

3. Approach, Scope and methodology

3.1 Work order copy for plant (Annex)

3.2 Period of Baseline (site visit)

3.3 Assignments to the Team

3.3.1 Brief write-up on Time & Activities Chart with task in man days

In 100 words

4. Baseline Scenario

4.1 Defining the Boundary limit (GtG Boundary) (Graphical representation)
Along with name of the Sections/Departments

4.2 Plant Capacity & Production

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4.3 Emission source information and source stream (Production & Energy) along with Nodal points of emissions within the plant sections/major equipment

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4.4 Fuel Quality and Emission Factor

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4.5 Inclusion and Exclusion/adjustments

5. Energy & Emission Scenario in Baseline year

5.1 Brief write-up on Energy & Emission Scenario of Plant

1. Monthly analytical & statistical details (Graphical representation) of Fuel Mix, Production & GHG Emission/Pattern.

In 50 words

5.2 Thermal Energy Consumption and Emission scenario (Direct emission)

5.2.1 Emission through Solid Fuel Consumption (**Documentation – Link with Annexure**)

- a) Type of Fuel.....
- b) Monthly Wt. Avg Landed Cost.....
- c) Monthly Fuel Quality (NCV, GCV, TC%, TM%).....
- d) Solid Fuel Purchased.....
- e) Fuel Balance (opening & Closing Stock).....
- f) Solid Fuel consumption
- g) GHG Emission from Solid Fuel consumption – *Provide document Annexure details along with page number in the report.*

5.2.2 Emission through Liquid Fuel Consumption

- a) Type of Fuel.....
- b) Monthly Wt. Avg Landed Cost.....
- c) Monthly Fuel Quality.....
- d) Liquid Fuel Purchased.....
- e) Fuel Balance(opening & Closing Stock).....
- f) Liquid Fuel consumption
- g) GHG Emissions from Liquid fuel consumption - *Provide document Annexure details along with page number in the report*.....

5.2.3 Emission through Gaseous Fuel Consumption

- a) Type of Fuel.....
- b) Monthly Wt. Avg Landed Cost.....
- c) Monthly Fuel Quality.....
- d) Gaseous Fuel Purchased.....
- e) Fuel Balance(opening & Closing Stock).....
- f) Gaseous Fuel consumption
- g) GHG Emission from Gaseous fuel consumption- *Provide document Annexure details along with page number in the report*.....

5.2.4 Renewable thermal energy utilization:

(Along with all documentation)

Biogenic and Biomass Energy:

- a) Cost of Fuel.....
- b) Average Moisture Content.....
- c) Average GCV and NCV as Fired.....
- d) Quantity used.....
- e) % Carbon in Fuel. - *Provide document Annexure details along with page number in the report*.....

5.3 Electricity Generation (Direct emission)

5.3.1 CPP/Co-Gen/DG generation & Utilisation with Heat Rate calculation:

(Along with all documentation)

- a) Installed Capacity.....
- b) Designed & actual Gross Heat Rate.....
- c) Fuel Consumption & Balance.....
- d) Fuel Quality.....
- e) Emission intensity or emission factor of heat generation. - *Provide document Annexure details along with page number in the report*.....

5.3.2 Write up on type of WHR and generation

- a) Waste Heat Recovery Generation.....
- b) Waste Heat Recovery.....
- c) WHR Running Hours.....
- d) Operating Condition. - *Provide document Annexure details along with page number in the report*.....

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(Along with all documentation)

- a) Solar Energy Contribution to the Power Mix.....
- b) Wind Energy Contribution to the Power Mix.....
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- c) Through Dedicated Transmission Line along with documentation to establish Gross and net Heat Rate, Emission factor etc - *Provide document Annexure details along with page number in the report*.....

5.4.2 Sent out/ Exported to the Grid/Colony: (Along with all documentation)

- a) Emission intensity or emission factor of heat generation.....
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5.6 Process Emission (Production)

5.6.1 Emission from Production Process – (Production Balance)

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5.7 Gate to Gate Specific GHG Emission product-wise (SGE).....

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6. Process and Fuel Description

6.1 Process flow diagram

- 6.1.1 Detail Process Flow Diagram along with present (Baseline year) available major technology

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6.2 Raw Material Processing

- 6.2.1 List of Raw material used in the year with quality parameters based on use of Carbonates and other carbonaceous material

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- 6.2.2 Conversion or product factor to final product.....

- 6.2.3 Qty to be measured based on Surface Moisture free condition.....

6.3 Fuel Analysis

- 6.3.1 Date wise, List of Fuel analysis report, internally and externally available with the Plant

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- 6.3.2 Write up on procedure followed on Fuel analysis in internal lab (Clearly mention GCV or NCV basis analysis report)

In 200 words

- 6.3.3 Fuel Analysis report (Internal and External) as annexures with frequency of fuel testing as per detailed procedure for Compliance Mechanism under CCTS – calculation method

In 200 words

- 6.3.4 Sampling Plan and minimum frequency of analysis

For emission calculation based on fuel and material quality, the Plant shall have a sampling plan in the form of a written procedure, which contains the information on the procedure on the preparation of samples, including locations for sample collection, frequencies of collection, quantity, storage, and transport of samples.

The verifier should be aware about the sampling plan developed by the OE and shall be a part of this Baseline report

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6.3.5 Fuel Analysis on GCV and NCV (Moisture Free) by internal and external lab.

However, The verifier to insist for the Lab analysis of the Fuel for GCV and NCV

6.3.6 GCV to NCV conversion method

.....

6.3.7 Measurement of Total Carbon (TC) (%) for solid fuels:

For the determination of the type II emission factors, the obligated entities shall undertake the ultimate analysis of solid fuels to determine the total carbon content of the fuel.

(ii) The Plant shall follow the Indian Standard IS 1350 (Part 4/Sec 1): 1974 or relevant international standard for the determination of the total carbon for solid fuels.

.....

6.4 Determination of Site-Specific Emission Factors

6.4.1 Type II -Site specific emission factors shall be used by obligated entities for emission calculation from solid fuel, gaseous fuel, and process emissions and only in the case of unreasonable cost and technical infeasibility, the Type I emission factors shall be referred.

6.4.2 The Type II emission factors values shall be calculated using parameters from laboratory analysis of fuels and raw materials.

6.5 Others (If Any)

7. Energy & Mass Balance

7.1 Graphical representation/Tabulated form or through method devised by Agency

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8. Pro-forma Baseline

8.1 Findings on linking errors, calculation errors if any

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8.4 Baseline data Baseline

8.4.1 List of documents verified with each parameter

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8.4.2 List of essential parameters

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8.4.3 Data Sampling

8.4.3.1 No of data samples verified up to Primary source of data.....

8.4.3.2 List of sample data and documents as source of data verified

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8.4.3.3 Discrepancies (if any) from the reported data and document for sample data

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8.4.4 Discrepancies or Others if any

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8.5 Others (if any)

i.....

ii.....

9. **Others** (if required)

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10. Conclusions & Recommendations

In 500 words

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12. Annexures

- 12.1 Pro-forma (Signed along with source data filled)
- 12.2 Summary Sheet (Signed)
- 12.3 Baseline Report Acceptance letter from Plant
- 12.4 Declaration (Signed by Plant and Baseline agency)
- 12.5 Work Order Copy issued by JPC
- 12.6 BIS certificate for finished product
- 12.7 Other Documents (List to be provided)

(Note: Baseline agency to incorporate additional titles and documentation to fulfil the provisions of Detailed Procedure for Compliance Mechanism under the Indian Carbon Market, CCTS Guidelines and Plant specific requirement if any)