



**Verified Carbon
Standard**

1.6 MW BUNDLED RICE HUSK BASED COGENERATION PLANT BY M/S MILKFOOD LIMITED (MFL) IN PATIALA (PUNJAB) & MORADABAD (U.P) DISTRICTS

Document Prepared By

Enen Green Services Pvt. Ltd.

Email: enengreen@gmail.com

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Prepared By	Enen Green Services
Contact	C 094,Vipul Plaza, Sector 81, Faridabad Telephone: +91-9953935506 E-mail:enengreen@gmail.com Website: www.engspl.com

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The purpose of the project activity is to utilize rice husk (biomass) available in the region for cogeneration of steam and electricity for captive consumption at two locations of Milk food Limited viz. Patiala and Moradabad. The implementation of the bundled project activity has resulted in the partial displacement of power supply and the complete displacement of steam generation new rice husk based co-generation plants.

As the project activity utilizes a carbon neutral fuel, it thereby reduces the anthropogenic Green House Gas (GHG) emission that would have been generated as a result of continued operation of coal based boilers.

Brief description of the installed technology and equipment:

The two projects that form the proposed bundled CDM project activity are:

Project I: 1 MW Rice Husk Based Cogeneration Plant at Post Office (P.O.) Bahadurgarh, Distt. Patiala -147021, Punjab, India:

The boiler of this cogeneration plant generates 14 TPH of steam with the outlet parameters i.e. pressure 45 kg/cm², and temperature as 420°C. The part of the steam generated in the boiler i.e. 1.2 TPH at 17kg/cm², 275°C is fed directly to the process and the rest 12.8 TPH is fed to a back pressure turbine-generator. The bleed steam flow from the turbine is at 17 kg/cm², 3.1 TPH, 240°C and the exhaust steam flow from the turbine is at 4 kg/cm², 9.7 TPH, 170°C. This steam is further sent for process requirement. The electricity generating capacity is 1 MW.

Project II: 0.6 MW Rice Husk Based Cogeneration Plant at Village: MugalpururAgwanpurMustakam, Dist.: Moradabad, Uttar Pradesh, India:

The boiler involved in this cogeneration plant generates 12 TPH of steam with the outlet parameters i.e. pressure 32 kg/cm², and temperature as 400°C. Out of 12 TPH steam generated in the boiler 2.3 TPH is fed to a Dryer at 17 Kg/ cm², 360°C and another 9.7 TPH of steam is fed to a Back PressureTG set at 30 Kg/cm², 360°C, the exhaust steam is at 3 kg/cm², 240°C. The electricity generating capacity is 0.6 MW.

Relevant dates for the project activity:

Project Activity I was commissioned on 6th May, 2009

Project Activity II was commissioned on 4th June, 2009

Both the project activities have been operational since then at full capacity.

Total GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period (01/01/2021 – 31/12/2021): 67,742tCO₂e

1.2 Sectoral Scope and Project Type

The project belongs to Sectoral Scope 1, Energy industries (renewable - / non-renewable sources)

The type is project with less than 1,000,000 tCO₂e per year. Further, the project is not a part of any grouped project.

1.3 Project Proponent

Organization name	M/s Milk food Limited
Contact person	Amar Baljeet Singh
Title	Mr.
Address	5th Floor, Bhandari House, 91 Nehru Place New Delhi-110019 (India)
Telephone	+91-11-26460670, 26463773
Email	abs@milkfoodltd.com

Organization name	Enen Green Services Private Limited
Contact Person	Ruchika Sharma
Title	Ms.
Address	C 094, Vipul Plaza, sector 81, Faridabad
Telephone	+91-9953935506
Email	enengreen@gmail.com

1.4 Other Entities Involved in the Project

No other entities involved.

1.5 Project Start Date

The project start date is 06-May-2009

1.6 Project Crediting Period

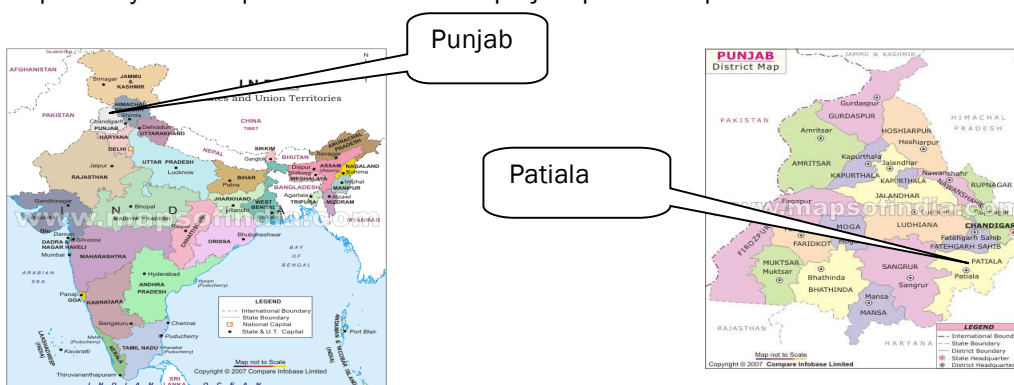
The validated choice of crediting period is 10 years(renewed twice)

The first crediting period is 06-May-2009 to 05-May-2019

The Second crediting period is 06-May-2019 to 05-May-2029

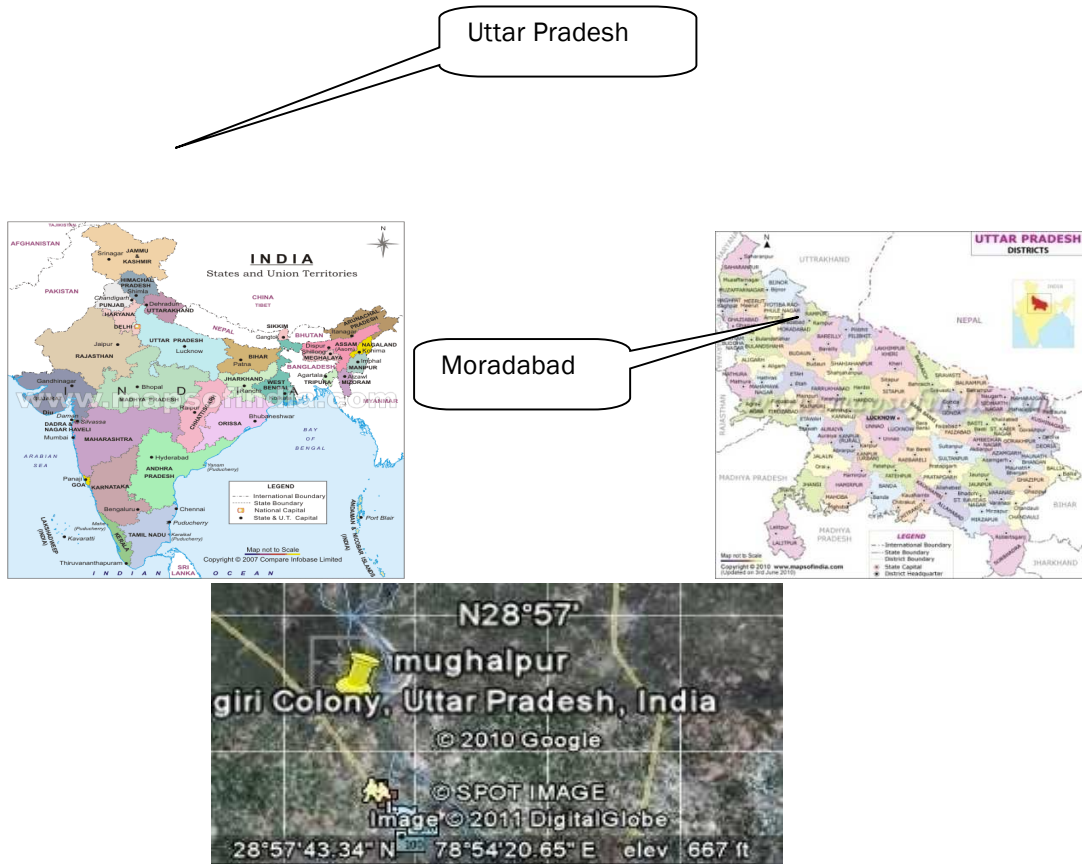
1.7 Project Location

Project I: The project is located at Milk food Limited at P.O. Bahadurgarh and Patiala District of Punjab. The project site is located within latitude 30°21'55.23" N and longitude 76°28'17.59" E respectively. The map with location of the project plant is depicted below:



Map and Geo-Coordinates for Bahadurgarh, Patiala.

Project II: The proposed project activity site is located at Village: Mugalpur, Agwanpur, Mustakam, and Moradabad district of UP. The latitude and longitude for the district are 28° 57'43.34" N and 78° 54'20.65" E respectively. The map with location of the Project Plant is depicted below:



Map and Geo-Coordinates for Mughalpur, Moradabad

1.8 Title and Reference of Methodology

Title of the methodology applied: Thermal energy production with or without electricity

Type I – Renewable energy project

Category I.C: Thermal Energy production with or without electricity; I.C/Version 18

Sectoral Scope: 1

Type I – Renewable energy project

Category I.D: Grid connected renewable electricity generation; I.D Version 16

Sectoral Scope: 1

The reference has been taken from the list of the small-scale CDM project activity categories contained in Appendix B of the simplified M&P for small-scale CDM project activities.

1.9 Participation under other GHG Programs

The project is also registered under CDM mechanism of UNFCCC. Reference no of project is 5219. Credits from period 14/02/2012 - 31/01/2014 is claimed as CDM project. However for the current monitoring period there is no application for verification under CDM mechanism in order to avoid double counting.

1.10 Other Forms of Credit

The project is also registered under CDM mechanism of UNFCCC. Reference no of project is 5219. Credits from period 14/02/2012 - 31/01/2014 is claimed as CDM project. However for the current monitoring period there is no application for verification under CDM mechanism in order to avoid double counting. Project activity is not registered under REC mechanism. https://www.recregistryindia.nic.in/index.php/publics/registered_regens

1.11 Sustainable Development

Project's contribution to Sustainable Development

The contributions of proposed project activity towards sustainable development are explained with indicators like social, economical, environmental and technological well-being, as follows:

Environmental well-being

The project activity will conserve coal by avoiding the process steam and power generation from coal fired boiler. Also helps in Mitigating the emission of GHG (CO₂) as rice husk is a carbon neutral fuel.

Social well being

The project activity will pave the way for development and increases the social status and living conditions and the prevailing living standard in the vicinity of the project activity and thus results in empowering the nearby population (supplier of the major amount of workforce for construction of the project activity). Also it will contribute to a small increase in the local employment by employing skilled and un-skilled personnel for operation and maintenance of the equipment. This Proposed Project Activity will result in reduced migration of the local population.

Economic well being

The project has created a business opportunity during construction phase for local stakeholders such as suppliers, contractors, bankers etc. contributing to economic well-being aspects. Further, the project also influences creation of employment opportunities for local people, which would enhance their social status. Also it saves the coal and HSD and thus allows it to be diverted to other needy sections of the economy

Technological well being

The project activity utilizes biomass as fuel to generate steam and electricity. It is an advanced and sustainable technology for long term benefits. The project activity is expected to increase awareness and interest among the industry players to make investments in similar areas.

2 SAFEGUARDS

2.1 No Net Harm

There are no potential negative environmental and socio-economic impacts.

2.2 Local Stakeholder Consultation

Both the plants have register and contact details at reception for local stakeholders to communicate. Local stakeholders may even meet after prior appointment with appointed person by management for any issues or concern. Appointed person will resolve their issues if any and also notify higher management about their concern and steps taken to resolve their issues. The same will be recorded and reviewed on quarterly basis.

2.3 AFOLU-Specific Safeguards

Not Applicable to this as this is not an AFOLU project activity.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Project I (part of VCS project activity) was commissioned on 06th May 2009 followed by Project II (part of VCS project activity) on 04th June 2009. Since then project is operation at full capacity. Project activity was operational during the first monitoring period.

However, all equipments (Boiler, TG units and other accessories) were undergone daily maintenance (planned shutdown for 2 hours) There is no exchange of equipment during the monitoring period. There is no event occurred during this monitoring period, which may have impact on the applicability of the methodology as well as emission reduction.

3.2 Deviations

3.2.1 Methodology Deviations

No deviation from methodology is sought during this monitoring period.

3.2.2 Project Description Deviations

There is no deviation from registered project description.

3.3 Grouped Projects

This is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF_{EF,CO_2}
Data unit	tCO ₂ / TJ
Description	The CO ₂ emission factor per unit of energy of coal that would have been used in the baseline plant in absence of the project activity
Source of data	As per IPCC 2006 Volume 2 Energy Table 1.4
Value applied	94.6
Justification of choice of data or description of measurement methods and procedures applied	Default values, as per table 1.4 of IPCC 2006 Volume 2 Energy. Para 34 of AMS I C version 21, also suggested to adopt IPCC default emission factor.
Purpose of Data	Data is used for project emission calculations
Comments	-

Data / Parameter	$\eta_{BL, thermal}$
Data unit	%
Description	The efficiency of the boiler using coal that would have been used in the absence of the project activity.
Source of data	Manufacturer specification
Value applied	82
Justification of choice of data or description of measurement methods and procedures applied	This value is provided by the boiler manufacturer.
Purpose of Data	Data is used for Baseline and project emission calculations
Comments	-

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO ₂ / MWh

Description	Combined margin CO2 emission factor for Indian grid
Source of data	Central Electricity Authority (CEA) version 15 Value of data
Value applied	0.94193
Justification of choice of data or description of measurement methods and procedures applied	The Combined Emission Factor for Indian grid has been calculated in accordance with Version 7 of "Tool to calculate the emission factor for an electric system". The weightage for Operating and Build margin emission factors are taken as 0.25 and 0.75. The operating and build margin values (including imports) have been sourced from CEA Baseline Database, version 15.
Purpose of Data	Data is used for Baseline emission calculations
Comments	-

Data / Parameter	COEF_{i,y}
Data unit	tCO ₂ / litre
Description	<p>The CO2 emission coefficient of fuel type I (Diesel) (tCO₂/mass or volume unit)</p> <p>It is calculated based on EB 41, Annex 11;</p> $COEF_{i,y} = NCV_{i,y} \cdot EF_{CO_2,i,y}$ <p>Where, NCV_{i,y} = weighted average net calorific value of the fuel type i (Diesel) in year y (GJ/mass or volume unit)</p> <p style="text-align: center;">$EF_{CO_2,i,y}$ = weighted average CO2 emission factor of fuel type I (Diesel) in year y (tCO₂/GJ)</p>
Source of data	Table 1.2 & Table 1.4 Chapter 1 Volumes 2 of IPCC, 2006.
Value applied	0.0032
Justification of choice of data or description of measurement methods and procedures applied	Default values, as per EB 41, Annex 11 (IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 & Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories if values are not provided by the fuel supplier
Purpose of Data	Baseline emission calculations
Comments	-

Data / Parameter	PLF
Data unit	%
Description	Plant Load Factor
Source of data	Third party Determination
Value applied	90
Justification of choice of data or description of measurement methods and procedures applied	According to EB48 annex 11 third party determination of the PLF is required and the same value to be used.
Purpose of Data	Baseline emission calculations
Comments	-

Data / Parameter	$\eta_{BI,biomass}$
Data unit	%
Description	The efficiency of the project activity biomass based boiler.
Source of data	Manufacturer specification
Value applied	78
Justification of choice of data or description of measurement methods and procedures applied	As per feasibility report approved by PEDDA and technical specification provide by boiler supplier
Purpose of Data	Baseline emission calculations
Comments	-

4.2 Data and Parameters Monitored

Data / Parameter	Net Electricity ($EG_{PJ,y}$)
Data unit	MWh/yr
Description	Net electricity generated by project I
Source of data	On-site instruments (energy meter)
Description of	<u>Monitoring</u> :electronic energy meter at the sent out point of the

measurement methods and procedures to be applied	<p>project activity plant is used to measure the data of net electricity generated.</p> <p><u>Data type:</u> Measured</p> <p><u>Accuracy:</u> 0.5s</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	4514.75MWh(cumulative value for the monitoring period)
Monitoring equipment	<p>Equipment: Energy meter</p> <p>Type: Electronic</p> <p><u>Accuracy:</u> 0.5s</p> <p><u>Calibration details:</u> Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	Energy meter was duly calibrated. It was calibrated by accredited agency and Yes, Quality Management System will be used and the same procedurally records of net electricity generation will be checked by Plant in charge and a consolidated monthly monitoring report will be submitted to top management for internal review.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	Net Electricity (EG_{PI,y})
Data unit	MWh/yr
Description	Net electricity generated by project II
Source of data	On-site instruments (energy meter)
Description of	<u>Monitoring:</u> electronic energy meter at the sent out point of the

measurement methods and procedures to be applied	<p>project activity plant is used to measure the data of net electricity generated.</p> <p><u>Data type:</u> Measured</p> <p><u>Accuracy:</u> 0.5s</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	3813.90MWh (cumulative value for the monitoring period)
Monitoring equipment	<p>Equipment: Energy meter</p> <p>Type : Electronic</p> <p><u>Accuracy:</u> 0.5s</p> <p><u>Calibration details:</u> Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	<p>Energy meters will be duly calibrated by accredited agency and Yes, Quality Management System will be used and the same procedurally records of net electricity generation will be checked by Plant in charge and a consolidated monthly monitoring report will be submitted to top management for internal review.</p>
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$Q_{\text{fossil}, i, y}$
Data unit	Tonnes
Description	Quantity of fossil fuel (coal) of type i combusted in boiler in year y
Source of data	On site measurement; plant log sheet/records.

Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> Weigh bridge will monitor the data (If used)</p> <p><u>Data type:</u> Measured.</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> Daily</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the Weigh bridge</p> <p>Range of weigh bridge: 0 to 40 TON</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Daily
Value monitored	0
Monitoring equipment	<p>Equipment: Weigh bridge</p> <p>Type: Electronic</p> <p>Range: 0 to 40 TON</p> <p><u>Calibration details:</u> Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	The data is recorded by the supervisor daily and it is verified by the plant manager by cross checking it with the fossil fuel of type iprocurement data (Invoices). Weigh scale was calibrated annually by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	FC i,j,y
Data unit	Litre
Description	Quantity of fossil fuel (diesel) combusted in boiler in year y
Source of data	On site measurement; plant log sheet/records.
Description of measurement methods and procedures to be applied	<p>Quantity of fossil fuel type i-(Diesel) DG sets was not operated.</p> <p><u>Monitoring:</u> Measurement through invoices.</p>

	<p><u>Data type:</u> Measured</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> Daily</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular achieving of diesel used.</p>
Frequency of monitoring/recording	Daily
Value monitored	Project 1: 0 Project 2: 0
Monitoring equipment	Log book
QA/QC procedures to be applied	The data is recorded by the supervisor daily and it is verified by the plant manager by cross checking it with the fossil fuel procurement data (Invoices).
Purpose of the data	Calculation of project emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	Q_{steam}
Data unit	Tonnes
Description	Quantity of steam generated from project activity biomass fired boiler.
Source of data	On site measurement taken from steam flow meters.
Description of measurement methods and procedures to be applied	<p>Reading is directly taken from steam flow meter by boiler attendant supervisor on hourly basis.</p> <p><u>Monitoring:</u> steam flow meter.</p> <p><u>Data type:</u> Measured.</p> <p>Range: 0 to 18 Ton</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> Once in three year.</p>
Frequency of	Hourly

monitoring/recording	
Value monitored	Project I: 114307.97(cumulative value for the monitoring period) Project II: 96673.75(cumulative value for the monitoring period)
Monitoring equipment	Equipment: Stem flow meter Type: Paper and Electronic <u>Range: 0 to 18 Ton</u> Calibration details : Pl. refer to appendix 1. Results: under the specified limits.
QA/QC procedures to be applied	The data is recorded by the supervisor every and it is verified by the plant manager. Steam flow meters is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	T_{steam}
Data unit	Degree Celsius
Description	Temperature of the steam generated.
Source of data	On site measurement taken from temperature gauge installed at steam outlet from the boiler.
Description of measurement methods and procedures to be applied	<u>Monitoring:</u> temperature gauge <u>Data type:</u> Measured <u>Range:</u> 0 to 1200 DEG. C <u>Archiving policy:</u> Paper <u>Recording Frequency:</u> hourly <u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter. <u>Calibration Frequency:</u> once in a three year.
Frequency of monitoring/recording	Hourly
Value monitored	Project I:403.80 °C Project II: 401°C

Monitoring equipment	Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 1200 DEG. C</u> Calibration details: Pl. refer to appendix 1. Results: under the specified limits.
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Temperature gauges is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	P_{steam}
Data unit	Kg/cm ²
Description	Pressure of the steam generated.
Source of data	On site measurement from pressure gauge.
Description of measurement methods and procedures to be applied	<u>Monitoring:</u> Pressure gauge <u>Data type:</u> Measured. <u>Range: 0 to 80 bar</u> <u>Archiving policy:</u> Paper <u>Recording Frequency:</u> hourly <u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter. <u>Calibration Frequency:</u> once in a three year.
Frequency of monitoring/recording	Hourly
Value monitored	Project I: 41.49 Kg/cm ² Project II: 32 Kg/cm ²
Monitoring equipment	Equipment: Pressure gauge. Type : Electronic

	<p><u>Range: 0 to 80 bar</u></p> <p>Calibration details: Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Pressure gauges is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$Q_{\text{steam,HP,I}}$
Data unit	Tonne
Description	Quantity of steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)
Source of data	Onsite measurement taken from steam flow meter.
Description of measurement methods and procedures to be applied	<p>Reading is directly taken from steam flow meter by boiler supervisor on hourly basis.</p> <p><u>Monitoring:</u> steam flow meter at plant.</p> <p><u>Data type:</u> Measured.</p> <p><u>Range:</u> 0 to 7.50 TPH</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> Once in three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project I: 60509.45(cumulative value for the monitoring period)
Monitoring equipment	<p>Equipment: Steam flow meter.</p> <p>Type : Electronic</p> <p><u>Range: 0 to 7.50 TPH</u></p> <p>Calibration details:Pl. refer to appendix 1.</p>

	Results: under the specified limits.
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Steam flow meter is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$T_{\text{steam,HP,I}}$
Data unit	Degree Celsius
Description	Temperature of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)
Source of data	On-site measurement from temperature gauge installed at steam outlet from boiler
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> temperature gauge</p> <p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 500 DEG. C</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project I: 323.60 °C
Monitoring equipment	<p>Equipment: temperature gauge.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 500 DEG. C</p> <p>Calibration details: Pl. refer to appendix 1.</p>

	Results: under the specified limits
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Temperature gauge is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$P_{\text{steam, HP,I}}$
Data unit	Kg/cm ²
Description	Pressure of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)
Source of data	On-site measurement from Pressure gauge.
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> Pressure gauge</p> <p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 60.00 KG/CM²</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) would be responsible for regular calibration of the gauge.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project I: 16.31 Kg/cm ²
Monitoring equipment	<p>Equipment: Pressure gauge.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 60.00 KG/CM²</p> <p>Calibration details: Pl. refer to appendix 1.</p>

	Results: under the specified limits.
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Pressure gauge is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$Q_{\text{steam,HP,II}}$
Data unit	Tones
Description	Quantity of steam used in the process at high pressure side.
Source of data	On-site measurement from Steam flow meter.
Description of measurement methods and procedures to be applied	<p>Reading is directly taken from steam flow meter by boiler supervisor on hourly basis.</p> <p><u>Monitoring:</u> steam flow meter at plant.</p> <p><u>Data type:</u> Measured.</p> <p><u>Range:</u> 0 to 7.50 TPH</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) would be responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project II: 26075.51(cumulative value for the monitoring period)
Monitoring equipment	<p>Equipment: Steam flow meter.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 7.50 TPH</p> <p>Calibration details: Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>

QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Steam flow meter is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$T_{\text{steam,HP,II}}$
Data unit	Degree Celsius
Description	Temperature of the steam used in the process at high pressure (at high pressure side).
Source of data	On-site measurement from temperature gauge installed at steam outlet from boiler.
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> temperature gauge</p> <p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 500 DEG. C</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project II: 378°C
Monitoring equipment	<p>Equipment: Temperature gauge.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 500 DEG. C</p> <p>Calibration details: Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is

applied	verified by the plant manager. Temperature gauge is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$P_{\text{steam,HP,II}}$
Data unit	Kg/cm ²
Description	Pressure of the steam used in the process at high pressure (at high pressure side).
Source of data	On-site measurement from pressure gauge.
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> pressure gauge</p> <p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 8 KG/CM²</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project II: 30 Kg/cm ²
Monitoring equipment	<p>Equipment: Pressure gauge.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 8 KG/CM²</p> <p>Calibration Details: Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Pressure gauge is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions

Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$Q_{\text{steam,LP}}$
Data unit	Tonnes
Description	Quantity of steam extracted from the turbine that is used in the process at low pressure (Exhaust Steam at the outlet of the turbine) (at Low pressure side)
Source of data	On-site measurement from steam flow meter.
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> steam flow meter</p> <p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 7.50 TPH</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project I: 53798.52(cumulative value for the monitoring period) Project II: 70598.24(cumulative value for the monitoring period)
Monitoring equipment	Equipment: steam flow meter. Type : Electronic <u>Range: 0 to 7.50 TPH</u> Calibration details :PI. refer to appendix 1. Results: under the specified limits.
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Steam flow meter is calibrated by external accredited agency.
Purpose of the data	Calculation of baseline emissions
Calculation method	-

Comments	Data will be kept for crediting period + 2 years.
Data / Parameter	T_{steam,LP}
Data unit	Degree Celsius
Description	Temperature of the steam extracted from the turbine that is used in the process(at low pressure side)
Source of data	On-site measurement from temperature gauge installed at steam outlet from boiler.
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> Temperature gauge.</p> <p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 400 DEG. C</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project I: 221.67 °C Project II: 252 °C
Monitoring equipment	Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 400 DEG. C</u> Calibration details: Pl. refer to appendix 1. Results: under the specified limits.
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Temperature gauge is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.
Data / Parameter	P_{steam,LP}

Data unit	Kg/cm ²
Description	Pressure of the steam extracted from the turbine that is used in the process(at low pressure side)
Source of data	On-site measurement from Pressure gauge.
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> Pressure gauge.</p> <p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 10 KG/CM²</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	Project I: 3.60 Kg/cm ² Project II: 3.88Kg/cm ²
Monitoring equipment	<p>Equipment: Pressure gauge.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 10 KG/CM²</p> <p>Calibration details: Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Pressure gauges is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	T _{FW}
Data unit	Degree Celsius
Description	Temperature of the feed water in the boiler.
Source of data	On-site measurement from temperature gauge installed at feed water inlet.
Description of measurement methods	<u>Monitoring:</u> temperature gauge

and procedures to be applied	<p><u>Data type:</u> Measured</p> <p><u>Range:</u> 0 to 1200 DEG.C</p> <p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> hourly</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Hourly
Value monitored	<p>Project I: 100.80 °C</p> <p>Project II: 98 °C</p>
Monitoring equipment	<p>Equipment: Temperature gauge.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 1200 DEG.C</p> <p>Calibration details: Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	The data is recorded by the supervisor every hour and it is verified by the plant manager. Temperature gauge is calibrated by external accredited agencies.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	$Q_{\text{biomass, i,y}}$
Data unit	Tones
Description	Quantity of rice husk consumed annually
Source of data	On-site measurement.
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> weigh bridge</p> <p><u>Data type:</u> measured</p>

	<p><u>Range:</u> 0 to 40 TON</p> <p><u>Archiving policy:</u> Paper</p> <p><u>Recording Frequency:</u> Daily</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p> <p><u>Calibration Frequency:</u> once in a three year.</p>
Frequency of monitoring/recording	Daily
Value monitored	Pl. Refer to Appendix - 2
Monitoring equipment	<p>Equipment: Weigh bridge.</p> <p>Type : Electronic</p> <p><u>Range:</u> 0 to 40 TON</p> <p>Calibrations details of weighbridge: Pl. refer to appendix 1.</p> <p>Results: under the specified limits.</p>
QA/QC procedures to be applied	<p>The data is recorded by the supervisor daily and it is verified by the plant manager by cross checking it with the invoices raised by biomass (rice husk) suppliers.</p> <p>Weigh scale is calibrated by external accredited agencies.</p>
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

Data / Parameter	NCV_{biomass}
Data unit	Kcal/kg
Description	Net Calorific Value of biomass residue (rice husk)
Source of data	Third party (lab test of biomass)
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> Net calorific value of biomass was checked through Govt. approved independent laboratory.</p> <p><u>Data type:</u> Estimated</p>

	<p><u>Archiving policy:</u> Paper.</p> <p><u>Recording Frequency:</u> Once in a year.</p> <p><u>Responsibility:</u> Manager (power plant) is responsible for regular calibration of the meter.</p>
Frequency of monitoring/recording	Annually
Value monitored	Pl. refer to Appendix -2
Monitoring equipment	Third party lab test reports
QA/QC procedures to be applied	The net calorific value of the biomass is obtained from the external Govt. approved independent laboratory.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	Data will be kept for crediting period + 2 years.

4.3 Monitoring Plan

For above stated parameters for which monitoring and measurements apply, Supervisors take measurements and records are made.

Management of Milk food Limited ensures that appropriate equipments required for the measurement are provided.

These measuring instruments viz., Weigh Bridge, thermoguages, Pressure gauges and energy meters are calibrated from third party instrumentation labs once in a three years, and records of it are maintained.

All the monitoring equipments required for the calculation of emission reductions have been installed after procedural check; therefore there is less possibility of defects. However, all these equipments are daily inspected by the concerned operator while taking the reading. In case of any irregular reading or unexpected reading the shift in charge is informed for further check and calibration of the equipments. Moreover, all the monitoring equipments were well calibrated.

Monthly report of the cogeneration plant performance parameters were submitted to the top management for review and regular internal audits were conducted by the top management in every three months. No, ambiguities/NC was detected during the internal audits.

Monitoring Data are achieved properly. Plant records such as log books, purchase receipts, calibration certificates of measuring devices, and public data such as IPCC and CEA are maintained systematically during the 1st monitoring period and same will be kept for the retention period specified.

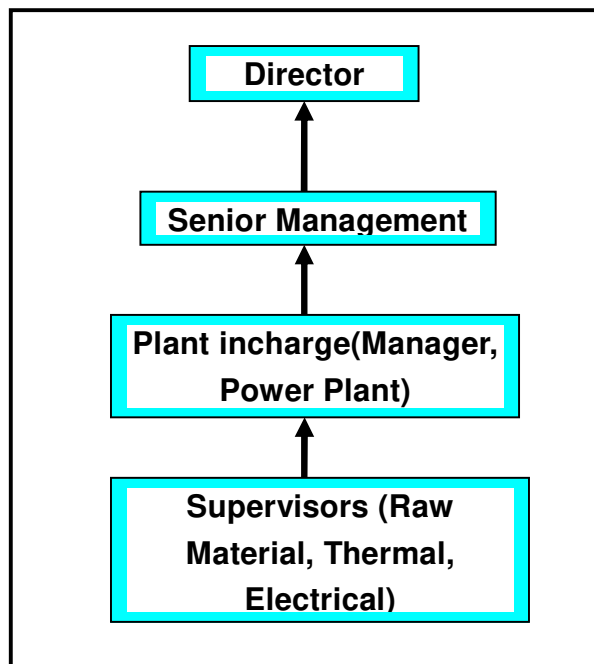
Operational & Management Structure-

The project proponent has practiced the monitoring as per the designed measurement & verification plan and ensures the proper, regular measurement and recording of the data pertaining to the GHG emission reduction.

For carrying out the task of monitoring, the responsibilities were lined with a monitoring team consisting of supervisors (raw material, thermal and electrical). Hourly and daily recording of all monitoring parameters were done by supervisors. Daily plant records were properly reviewed by plant in-charge.

Monthly consolidated reports and periodical internal review reports were made available to the top management.

An organogram regarding the hierarchy of monitoring and QA/QC is given below:



5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

Project I:

A. Baseline Emission

1. Baseline emissions for supply of electricity to and / or displacement electricity from a grid shall be calculated as per the procedures detailed in AMS I. D.

As per the Para 12 of the AMS.I.D version 16 and section 4 of validated VCS PD:

Combined margin emission factor is taken from the CEA data base and used guide version 15 (A publicly available official source), which provides CM equal to 0.94 tCO₂e/MWh.

$$\text{Baseline emission (tCO}_2\text{)} = \text{Net Electricity generated (MWh)} \times 0.94 \text{ (tCO}_2\text{e/MWh)}.$$

$$= 4514.75 \text{ MWh} \times 0.94 \text{ (tCO}_2\text{e/MWh)}.$$

$$= 4243.87 \text{ tCO}_2\text{e}$$

2. For steam/ heat produced using fossil fuels the baseline emissions are calculated as follows:

As per the Para 16 of the AMS.I.C version 18 and section 4 of validated VCS PD:

The baseline emissions are calculated as follows:

$$\begin{aligned} \text{BE}_{\text{thermal, Co}_2, \text{y}} &= [(\text{EG}_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * \text{EF}_{\text{EF, CO}_2}] \text{ HP} + [(\text{EG}_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * \text{EF}_{\text{EF, CO}_2}] \text{ LP} \\ &= [(143.25 \text{ TJ / yr} / 0.82) \times 94.6 \text{ tCO}_2 / \text{TJ}] + [133.20 \text{ TJ / yr} / 0.82] \times 94.6 \text{ tCO}_2 / \text{TJ} \\ &= 16,526.38 + 15,367.08 \text{ tCO}_2 / \text{yr} \end{aligned}$$

The detailed calculation has been provided in the Excel Sheet.

“Since the project activity displaces both grid power and steam from coal fired boiler, the baseline is summation of both 1 and 2.”

$$\text{Total Baseline Emission Reduction} = 4243.87 \text{ tCO}_2\text{e} + 31,893.46 \text{ tCO}_2 / \text{yr}$$

$$= 36,137.32 \text{ tCO}_2 / \text{yr}$$

Project II:

A. Baseline Emission

1. Baseline emissions for supply of electricity to and / or displacement electricity from a grid shall be calculated as per the procedures detailed in AMS I. D.

As per the Para 12 of the AMS.I.D version 16 and section 4 of validated VCS PD:

$$\text{Baseline emission (tCO}_2\text{)} = \text{Net Electricity generated (MWh)} \times 0.94 \text{ (tCO}_2\text{e/MWh)}.$$

$$= 3813.90 \text{ MWh} \times 0.94 \text{ (tCO}_2\text{e/MWh)}.$$

$$= 3585.07 \text{ tCO}_2\text{e}$$

2. For steam/ heat produced using fossil fuels the baseline emissions are calculated as follows:

As per the Para 16 of the AMS.I.C version 18 and section 4 of validated VCS PD:

The baseline emissions are calculated as follows:

$$\begin{aligned}
 BE_{\text{thermal, Co}_2, y} &= [(EG_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * EF_{\text{EF, CO}_2}]_{\text{HP}} + [(EG_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * EF_{\text{EF, CO}_2}]_{\text{LP}} \\
 &= [(70.98 \text{ TJ / yr} / 0.82) \times 94.6 \text{ tCO}_2 / \text{TJ}] + [175.19 \text{ TJ / yr} / \\
 &0.82] \times 94.6 \text{ tCO}_2 / \text{TJ} \\
 &= 8188.33 + 20211.30 \text{ tCO}_2 / \text{yr}
 \end{aligned}$$

“Since the project activity displaces both grid power and steam from coal fired boiler, the baseline is summation of both 1 and 2.”

$$\begin{aligned}
 \text{Total Baseline Emission} &= 3585.07 \text{ tCO}_2\text{e} + 28,399.63 \text{ tCO}_2 / \text{yr} \\
 &= 31,984.70 \text{ tCO}_2 / \text{yr}
 \end{aligned}$$

$$\begin{aligned}
 \text{Final Baseline Emissions} &= 36,137.32 + 31,984.70 \\
 &= 68,122 \text{ tCO}_2\text{e}
 \end{aligned}$$

5.2 Project Emissions

The diesel consumption details are mentioned below:

Project I:

$$\begin{aligned}
 \text{Project Emission} &= \text{Total diesel consumption} * \text{NCV of Diesel} * \text{Emission factor of Diesel} \\
 &= 59.035 \text{ m}^3 * 43.4 \text{ GJ/m}^3 * 0.0748 \text{ tCo}_2 / \text{GJ} \\
 &= 192 \text{ tCO}_2 \text{ (Round up)}
 \end{aligned}$$

Project II:

$$\begin{aligned}
 \text{Project Emission} &= \text{Total diesel consumption} * \text{NCV of Diesel} * \text{Emission factor of Diesel} \\
 &= 57.73 \text{ m}^3 * 43.39 \text{ GJ/m}^3 * 0.0748 \text{ tCo}_2 / \text{GJ} \\
 &= 188 \text{ tCO}_2 \text{ (Round Up)}
 \end{aligned}$$

$$\text{Total Project Emission} = 380 \text{ tCO}_2 / \text{yr} \text{ (Round Up Value)}$$

5.3 Leakage

As per section 4.1 of VCS PD, project proponents confirm that the renewable energy technology is not equipment transferred from another activity. Hence, no leakage calculation is required.

Also, project activity had procured and utilized biomass (rice husk) available within the 50 km radius from project sites. Hence leakage for this part is Zero.

5.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals
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(tCO ₂ e)				
01/01/2021				
-	68122	380	0	67742
31/12/2021				
Total	68122	380	0	67742

APPENDIX 1: METER DETAILS

SL. NO.	NAME	LOCATION	APPLICATION	ACCURACY CLASS or Range of Equipment	LEAST COUNT	SR. NO.	CALIB. DATE
1	DIGITAL ENERGY METER	STEAM TURBINE	MONITORING ENERGY PROD BY TURBINE	0.5s	1 KWH	0 788000 5	09.05.2020 08.05.2021
2	DIGITAL FLOW INDICATOR AND TOTALISER	MAIN STEAM LINE	MAIN STEAM FLOW INDICATOR AND TOTALISER	Range: 0 to 18 Ton	0.01%	N/A	26.03.2020 25.03.2021
3	FLOW TRANSMITTER	MAIN STEAM LINE	MAIN STEAM FLOW TRANSMITTER	Range: 0 to 7500 MM H2O	0.1 MMH2O	0 237802	08.02.2018 06.02.2021
4	DIGITAL PRESSURE INDICATOR	MAIN STEAM LINE	SUPER HEATER HEADER PRESSURE	Range: 0 to 60.00 KG/CM ²	0.01KG/CM ²	DP150KA	28.03.2020 27.03.2021
5	PRESSURE TRANSMITTER	MAIN STEAM LINE	MAIN STEAM PRESSURE TRANSMITTER	Range: 0 to 80 bar	0.1 BAR	08D0011	08.02.2018 08.02.2021
6	DIGITAL PID CONTROLLER	MAIN STEAM LINE	MAIN STEAM TEMPRATURE MEASURING	Range: 0 to 1200 DEG. C	0.1 DEG.C	1701RP	08.06.2020 06.06.2021
				Range: 0 to 600 DEG.C	0.1 DEG.C	T1P521531	

SL N O.	NAME	LOCATION	APPLICATION	ACCURACY CLASS or Range of Equipment	LEAST COUNT	SR. NO.	CALIB. DATE
7	DIGITAL FLOW INDICATO R AND TOTALISE R	BLEED STEAM LINE	BLEED STEAM FLOW INDICATOR AND TOTALISER	Range: 0 to 750 TON	0.01 TPH	FTX55PL	09.05.2020 08.05.2021
8	FLOW TRANSMI TTER	BLEED STEAM LINE	BLEED STEAM FLOW TRANSMITTE R	Range: 0 to 10000 MMH ₂ O	0.1 MMH ₂ O	91M728 060	08.02.2018 06.02.2021
9	DIGITAL PID CONTROL LER	BLEED STEAM LINE	BLEED STEAM PRESSURE MEASURING	Range: 0 to 60.00 KG/CM ²	0.01KG/ CM ²	04B007 8	28.03.2020 27.03.2021
10	PRESSUR E TRANSMI TTER	BLEED STEAM LINE	BLEED STEAM PRESSURE	Range: 0 to 60 bar	0.1 BAR	0 249655	08.02.2018 06.02.2021
11	DIGITAL PID CONTROL LER	BLEED STEAM LINE	BLEED STEAM TEMPRATUR E MEASURING	Range: 0 to 500 DEG. C	0.1 DEG.C	06D002 3	28.03.2020 27.03.2021
12	DIGITAL FLOW INDICATO R AND TOTALISE R	EXHAUST STEAM LINE	EXHAUST STEAM FLOW INDICATOR AND TOTALISER	Range: 0 to 7.50 TPH	0.01 TPH	0 612221	02.04.2020 01.04.2021
13	FLOW TRANSMI TTER	EXHAUST STEAM LINE	EXHASUT STEAM FLOW TRANSMITTE R	Range: 0 to 3800 MMH ₂ O	0.1 MMH ₂ O	002711 1809/0 6	08.02.2018 06.02.2021

SL · N O.	NAME	LOCATION	APPLICATION	ACCURACY CLASS or Range of Equipment	LEAST COUNT	SR. NO.	CALIB. DATE
1 4	DIGITAL PID CONTROL LER	EXHAUST STEAM LINE	EXHAUST STEAM PRESSURE	Range : 0 to 10 KG/CM ²	0.01KG/ CM ²	05L001 2	24.01.2020 23.01.2021
1 5	PRESSUR E TRANSMI TTER	EXHAUST STEAM LINE	EXHAUST STEAM PRESSURE	Range: 0 to 8 KG/CM ²	0.1 KG/CM ²	06G009 8	08.02.2018 06.02.2021
1 6	TEMPERA TURE GAUGE 4 INCH	EXHAUST STEAM LINE	EXHAUST TEMP. MEASURING	Range: 0 to 400 DEG. C	1 DEG.C	06- 0093/1 4	28.03.2020 27.03.2021
1 7	PRESSUR E GAUGE 4 INCH (ADDITIO NAL)	EXHAUST STEAM LINE	EXHAUST PRESSURE MEASURING	Range: 0 to 10 KG/CM ²	0.1 KG/CM ²	06- 0093/0 6	07.03.2020 06.03.2021
1 8	DIGITAL TEMP. INDICATO R	STEAM BOILER	FEED WATER TEMPRATUR E INDICATION	Range: 0 to 1200 DEG.C	1 DEG.C	0 3122	02.04.2020 01.04.2021
1 9	DIGITAL WEIGHIN G INDICATO R	WEIGH BRIDGE	MATERIAL WEIGHING INDICATION	Range: 0 to 40 TON	5 KG	14WB0 0381	15.12.2020 15.12.2021

APPENDIX 2: BIOMASS DETAILS

Month	Patiala		Moradabad	
	Q _{biomass}	NCV _{Biomass}	Q _{biomass}	NCV _{Biomass}
January	2952	2920	2484	2945
February	2767	2938	2214	2985
March	2963	2945	2479	2947
April	2882	3013	2377	2988
May	2931	2993	2416	2991
June	2377	2998	1841	2976
July	2935	2987	2464	2955
August	2972	2945	2450	2958
September	2920	2960	2350	2938
October	2929	2945	2386	2987
November	2849	2968	2352	2992
December	2947	2997	2489	3003