PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT

Title	:	10 MW Captive Power Project by S. C. E. P. L
Version	:	1.0
PCN Date	:	23/08/2024
CoU Issuance Period	:	13 years 4 Months
Monitoring Duration	:	01/09/2022 to 31/12/2035

Project Concept Note (PCN)

CARBON OFFSET UNIT (CoU) PROJECT

BASIC INFORMATION

Title of the project activity	10 MW Captive Power Project in S. C. E. P. L.
Scale of the project activity	Small Scale
Completion date of the PCN	23/08/2024
Project participants	M/s. Creduce Technologies Private Limited (Aggregator) M/s Shreeji Coke and Energy Pvt. Ltd. (Project Proponent)
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-III. Q: Waste Energy Recovery, version 06.1 Standardized Methodology: Not Applicable.
Sectoral scopes	04 Manufacturing industries (Renewable/Non-Renewable Sources)
Estimated amount of total GHG emission reductions	To be estimated during verification [An ex-ante estimate is 32226 CoUs per year]

SECTION - A - Description of project activity

A.1 General description of Carbon offset Unit (CoU) project activity

The proposed project titled under UCR is "10 MW Captive Power Project by S. C. E. P. L.", which is Captive power project located in the state of Gujarat (India). SCEPL has installed a 10 MW waste heat recovery boiler (WHRB) captive power plant (CPP). The project was commissioned on 26/05/2022.

Purpose of the project activity:

The project activity is a waste heat recovery power generation activity which incorporates installation and operation of waste heat recovery boiler (WHRB) having capacity of 10 MW manufactured and supplied Thermax Limited Project respectively in district Jamnagar of the state of Gujarat in India. This project has been promoted by M/s Shreeji Coke and Energy Pvt. Ltd.

The Coke Oven Waste Heat Recovery (WHR) Boiler system, where hot flue gases from coke oven batteries are directed through the boiler and connected to an MS/RCC chimney via an ID fan. The boiler is a two-pass natural circulation type, with the first pass housing radiation sections, screens, super heaters, and evaporators, and the second pass containing an economizer within a steel casing. Soot blowers are included to clean the heating surfaces, especially due to the sticky nature of coke oven gas dust. Insulation is provided to minimize heat loss and maintain surface temperatures 20°C above ambient. Additionally, refractory materials are used from the coke oven battery outlet to the boiler inlet, and dampers are installed for isolation during normal operations and shutdowns.

The WHRB under the project activity was commissioned on 26/05/2022 by Gujarat Energy Transmission Corporation Limited (GETCO), Government of Gujarat, India.

As per the ex-ante estimate, the project will generate approximately 36078 MWh per Annum of electricity per annum. The net generated electricity from the project activity is used for captive consumption by the project proponent (PP). The project activity has been helping in greenhouse gas (GHG) emission reduction by using manufacturing industries sectoral scope of waste heat recovery for generating cleaner power using boiler & turbine.

The estimated annual average and the total CO_2e emission reduction by the project activity is expected to be 32470 tCO_2e, whereas actual emission reduction achieved during the first CoU period shall be submitted as a part of first monitoring and verification.

Since the project activity generates electricity through WHRB, a clean energy source it will not cause any negative impact on the environment and thereby contributes to climate change mitigation efforts.

A.1.1 Project's Contribution to Sustainable Development

This project is a greenfield activity where grid power is the baseline. The Indian grid system has been predominantly dependent on fossil fuel-powered plants. Renewable power generation is gradually contributing to the share of clean & green power in the grid; however, the grid emission factor is still on the higher side which defines the grid as a distinct baseline.

The Government of India has stipulated the following indicators for sustainable development in the interim approval guidelines for such projects which are contributing to GHG mitigations. The Ministry of Environment, Forests & Climate Change, has stipulated economic, social, environmental, and technological well-being as the four indicators of sustainable development. It has been envisaged that

the project shall contribute to sustainable development using the following ways:

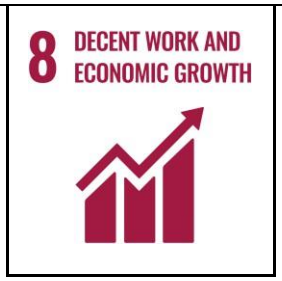
Social well-being: There has been good employment opportunities created for the local workforce during the project construction phase. The project after implementation has also continued to provide employment opportunities for the local populace in a sustained manner and the same would be continued over the project life time. The employment opportunities created will contribute towards alleviation of poverty in the surrounding area throughout the lifetime of the project activity.

Economic well-being: The project is a clean technology investment decided based on carbon revenue support, which signifies flows of clean energy investments into the host country. The project activity requires temporary and permanent, skilled and semi-skilled manpower at the project location; this will create additional employment opportunities in the region. The electricity replaced in grid will be available for nearby area which directly and indirectly improves the economy and life style of the area. In addition, success of these kind of project will provide new opportunities for industries and economic activities to be setup in the area. Apart from getting better employment opportunities, the local people will get better prices for their land, thereby resulting in overall economic development.

Technological well-being: The successful operation of project activity would lead to promotion of waste generation-base power generation and would encourage other entrepreneurs to participate in similar projects. Increased interest in waste generation projects will further push R&D efforts by technology providers to develop more efficient and better machinery in future. The project activity leads to the promotion and demonstrates the success of waste generation projects in the region which further motivate more investors to invest in waste generation projects. Hence, the project activity leads to technological well- being.

Environmental well-being: The project activity will generate power using zero emissions waste generation-based power generation facility which helps to reduce GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities. The project utilizes waste energy for generating electricity which is a clean source of energy. Also, being a renewable resource, use of waste energy to generate electricity contributes to resource conservation. It reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. The impact on land, water, air and soil is negligible. Thus, the project causes no negative impact on the surrounding environment contributing to environmental well- being.

SDG Goals	Description
Goal 7 	➢ The project activity will generate clean energy, which with increased shared will increase the affordability at a cheaper rate to end user. ➢ The project activity will utilize waste energy to generate power.
Goal 8	➢ Decent work and economic growth.

	➢ This project activity generates additional employment for skilled and unskilled, also the project situated in remote area will provide employment opportunities to unskilled people from villages. The training on various aspect including safety, operational issues and developing skill set will also be provided to employees ➢ This project will achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
Goal 13 	➢ This 10 MW WHRB project meets the SDG 13 goal by saving fossil fuel and producing clean energy. ➢ This project is expected to reduce CO_2 emissions 32470 tons per year. ➢ **SDG 13** on clean energy is closely related and complementary. ➢ In a Greenfield waste generation project, electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants. Thereby the project activity reduces the dependence on fossil fuel-based generation units and as there are no associated emissions with this project it contributes to the reduction of greenhouse gases (GHG) emissions.

A.1.2 With regards to ESG credentials:

At present specific ESG credentials have not been evaluated, however, the project essentially contributes to various indicators which can be considered under ESG credentials. Some of the examples are as follows:

- **Under Environment:**

Environmental criteria may include a company's energy use, waste, pollution, natural resource conservation, and treatment of animals, etc. For the project proponent, the energy use pattern is now based on waste generation due to the project and it also contributes to GHG emission reduction and conservation of depleting energy sources associated with the project baseline. Also, the criteria can be further evaluated on the basis of any environmental risks that the company might face and how those risks are being managed by the company. Here, as the power generation will be based on waste generation, the risk of environmental concerns associated with non-renewable power generation and risk related to increasing cost of power, etc. are now mitigated. Hence, the project contributes to ESG credentials.

- **Under Social:**

Social criteria reflect on the company's business relationships, qualitative employment, working conditions with regard to its employees' health and safety, interests of other stakeholders' etc. With respect to this project, the project proponent has robust policies in place to ensure equitable employment, health & safety measures, local jobs creation etc. Also, the organizational CSR activities directly support local stakeholders to ensure social sustainability. Thus, the project contributes to ESG credentials.

- **Under Governance:**

Governance criteria relate to overall operational practices and accounting procedure of the organization. With respect to this project activity, the PP practices a good governance practice with transparency, accountability and adherence to local and national rules & regulations etc. This can be further referred from the company's annual report. The electricity generated from the project can be accurately monitored, recorded and further verified under the existing management practice of the company. Thus, the project and the proponent ensure good credentials under ESG.

A.2 Do no harm or Impact test of the project activity

There was no harm identified form the project and hence no mitigations measures are applicable.

Rational: as per the project owner has obtained Consolidate Consent & Authorization (CC&A) from Gujarat Pollution Control Board to install and operate WHRB boiler and adheres to the environmental compliance mentioned in CTO, hence project activity has no damage to environment.

A.3 Location of the project activity

Country	State	District	Town/Village	Taluka	Co-ordinates
India	Gujarat	Jamnagar	Khiri	Jodiya	22°34'26.1"N 70°13'42.0"E

The geographic co-ordinates of the project locations are given below:

The representative location map is shown below

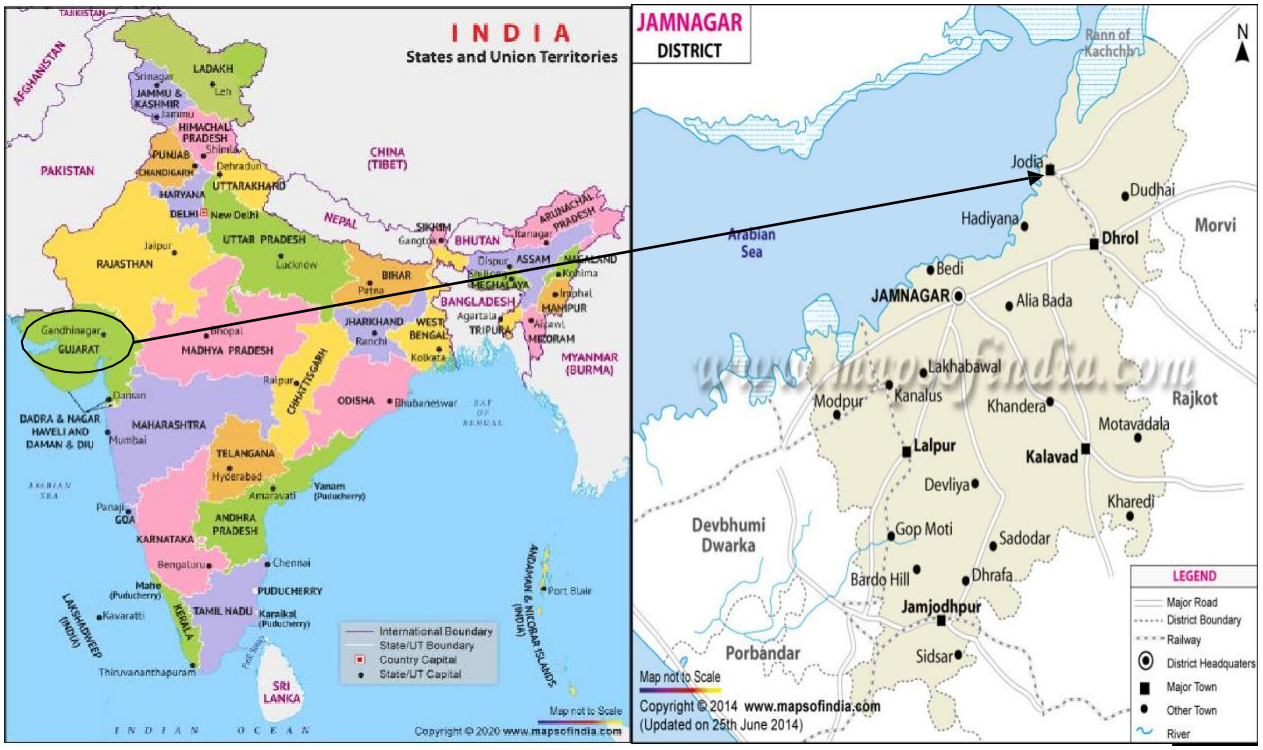


Figure-1- Location of the project activity (courtesy: google images and www.mapofindia.com)

A.4 Technologies/measures

The proposed project activity is installation and operation of Single Waste Heat Recovery Boiler (WHRB) manufactured and supplied Thermax Limited Project. with installed capacity of 10 MW in the state of Gujarat state of India.

Technical details for WHRB manufactured Thermax Limited Project are as follows:

Boiler	Type of boiler	Travagrate Boiler (Travelling Grate Boiler)
	Make of Boiler	Thermax Ltd, B&H
	Specification Standard	45 TPH
	Heat Transfer area	2321.4 m^2
	Rotor Speed Range	7.03 to 13.91 rpm
	Steam Flow	45 TPH
	Rated steam temperature outlet	485+/- 5 °C
	Present steam temperature outlet	480 °C
Steam Turbine	Type of Turbine	EC (Extraction cum condensing)
	Specification Standard	Rated speed 10759 RPM
	Number of Turbine Stages	13
	Turbine outlet steam pressure	0.183Kg/cm2
	Turbine outlet steam temperature	58 °C
Condenser	Type	Air cool condenser
	Steam flow	45
	Design vacuum	0.17 Kg/cm^2(a)

Flue Gas	Inlet hot gas temperature	900-950 °C
	Secondary super heater inlet	830-840 °C
	Secondary super heater outlet	735-745 °C
	Primary super heater inlet	735-745 °C
	Primary super heater outlet	600-610 °C
Boiler Feed Pump	Outlet pressure rated	110Kg/cm2
	Present operating pressure	85Kg/cm2
	Outlet feed water temperature	130 °C

A.5 Parties and project participants

Party (Host)	Participants
India	**Creduce Technologies Private Limited (Aggregator)** **Contact person** : Shailendra Singh Rao **Mobile** : +91 9016850742, 9601378723 **Address** : 2-O-13,14 Housing Board Colony, Banswara, Rajasthan -327001, India **M/s Shreeji Coke and Energy Pvt. Ltd. (Project Owner)** Address: R.S.NO. 5/P-7 and 12, New R.S.NO. 68 to 75, Taluka- Jodiya, District- Jamnagar, Gujarat. 361001

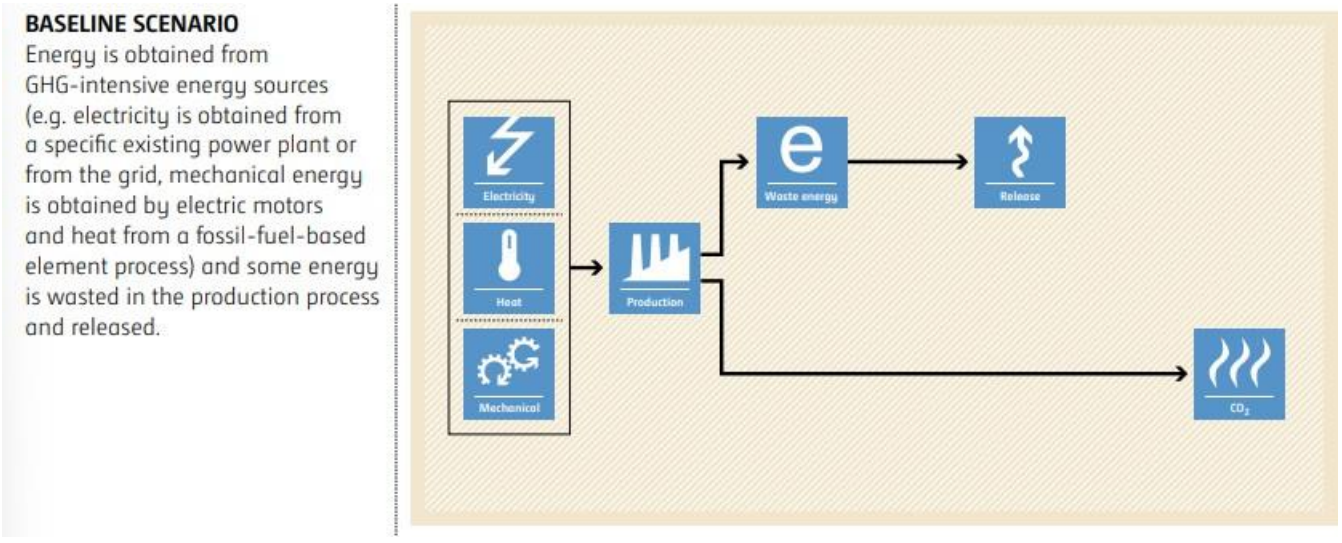
A.6 Baseline Emissions

The baseline scenario identified at the PCN stage of the project activity is:

AMS-III.Q. Waste energy recovery

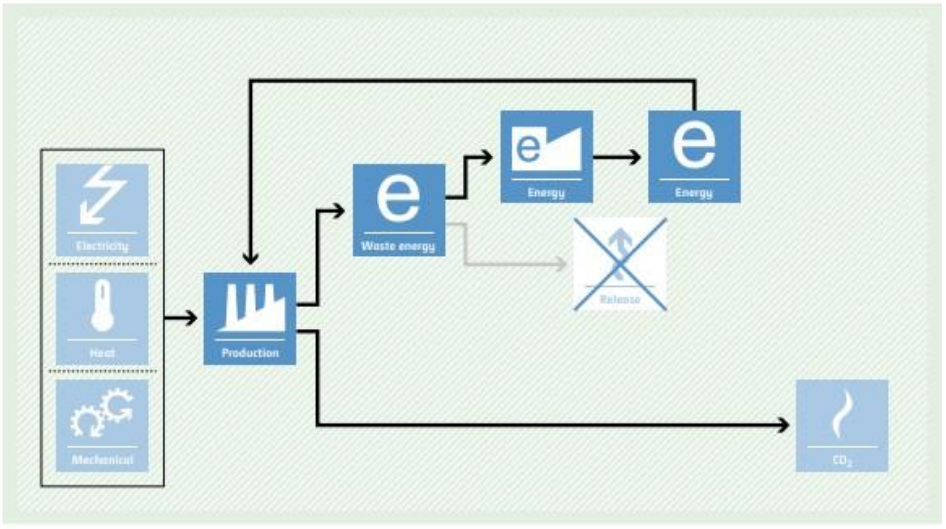
Schematic diagram showing the baseline scenario:

Baseline Scenario:



Project Scenario:

PROJECT SCENARIO
Waste energy is utilized to produce electrical/thermal/ mechanical energy to displace GHG-intensive energy sources.



A.7 De-bundling

This project activity is not a bundled component of a larger project activity.

SECTION - B - Application of methodologies and standardized baselines

B.1 Reference to methodologies and standardized baselines

Sectoral scope : 04, Manufacturing industries

Type : III- Waste energy recovery

Category : AMS. III.Q. (Title: "Waste energy recovery", version 6.1)

B.2 Applicability of methodologies and standardized baselines

The methodology is for project activities implemented in an existing or greenfield waste energy generation (WEG) facility converting waste energy carried in the identified waste energy carrying medium (WECM) stream(s) into useful energy (i.e. electricity, mechanical or thermal) that is consumed in an existing and/or greenfield recipient facility(ies). The WEG facility may be one of the recipient facilities. In the case of electricity generation, grid may be one of the recipient facilities

Applicability Criterion	Project Case
1. The methodology is for project activities implemented in an existing or greenfield waste energy generation (WEG) facility converting waste energy carried in the identified waste energy carrying medium (WECM) stream(s) into useful energy (i.e. electricity, mechanical or thermal) that is consumed in an existing and/or greenfield recipient facility(ies). The WEG facility may be one of the recipient facilities. In the case of electricity generation, grid may be one of the recipient facilities	The proposed project activity involves the utilization of heat content of flue gas at greenfield waste energy generation (WEG) facility and the existing WEG facility for the generation of electricity (Useful energy) through waste heat recovery technology implementation. The WEG facility is the recipient facility as well for the generated electricity for this project activity instance. Therefore, the project activity meets this applicability criterion
2. The useful energy generated from the utilization of waste energy carried in the WECM stream(s) may be one or a combination of the below: (a) Cogeneration; (b) Generation of electricity; (c) Direct use as process heat; (d) Generation of heat in an element process; or (e) Generation of mechanical energy	The project activity meets this applicability criterion option (b).

3. The methodology is applicable under the following conditions: (a) The recovery of waste energy shall be a new initiative (i.e. WECM was flared, vented or released into the atmosphere in the absence of the project activity). The DOEs during on-site visit as part of their validation activities shall confirm that no equipment for waste energy recovery and utilization had been installed on the specific WECM stream(s) (that is recovered under the project activity) prior to the implementation of the project activity by using one of the following options: i) By direct measurements of energy content and amount of the waste energy for at least three years prior to the start of the project activity; ii) Energy balance of relevant sections of the plant to prove that the waste energy was not a source of energy before the implementation of the project activity. For the energy balance representative process parameters are required. The energy balance shall demonstrate that the waste energy was not used and also provide conservative estimations of the energy content and amount of waste energy released; iii) Energy bills (electricity, fossil fuel) to demonstrate that all the energy required for the process (e.g. based on specific energy consumption specified by the manufacturer) has been procured commercially. Project participants are required to demonstrate through the financial documents (e.g. balance sheets, profit and loss statement) that no energy was generated by waste energy and sold to other facilities and/or the grid. The bills and financial statements should be audited by competent authorities; iv) Process plant manufacturer's original specification/information, schemes and diagrams from the construction of the facility could be used as an estimate of quantity and energy content of waste energy produced for rated plant capacity per unit of product produced.	The proposed project activity involves the utilization of heat content of flue gas at waste energy generation (WEG) facility and Flue gas was flared into the atmosphere in the absence of the project activity. So, the recovery of waste energy is a greenfield initiative.

(b) Regulations do not require the WEG facility to recover and/or utilize the waste energy prior to the implementation of the project activity.	There is no such regulation for WEG facility to recover and /or utilize waste energy. Hence, the project activity meets this applicability criterion.
(c) A WECM stream that is released under abnormal operations (for example: emergencies, shutdown etc.) of the WEG facility shall not be included in the emission reduction calculations;	The waste gas released under abnormal operation of the WEG facility will not be included in the emission reduction calculation. Hence, the project activity meets this applicability criterion.
(d) Energy (i.e. electricity or thermal heat) produced in the project activity may be exported to a grid or other industrial facilities (included in the project boundary), a contractual agreement exists between the owners of the WEG facility and the recipient facility(ies) to avoid the potential double counting of emission reductions. These procedures shall be described in the CDM Project Design Document;	This criterion is not applicable as the electricity generated from the project activity is used for captive power purpose only.
(e) For project activities that use waste pressure to generate electricity the electricity generated from waste pressure shall be measurable.	This criterion is not applicable to the project activity.
4. The methodology is not applicable to project activities implemented in a single-cycle power plant (e.g. gas turbine or diesel generator) where waste energy generated on-site is not utilizable for any other purposes on-site except to generate electricity. Such project activities shall consider "AMS-III.AL.: Conversion from single cycle to combined cycle power generation". However, project activities recovering waste energy from such power plants for the purpose of generation of heat can apply this methodology	Project activity is using WHR boiler to generate steam and generated steam would be used in turbine for electricity generation. Hence, this criterion is not applicable to the project activity.
5. For a project activity that recovers waste energy for power generation from multiple sources (e.g. a kiln and a single-cycle power plant), this methodology should be used in combination with AMS-III.AL. provided that:	This criterion is not applicable to the project activity as the project activity is not recovering waste energy for power generation from multiple sources. The entire waste gas would be

(a) It is possible to distinguish two distinct waste energy sources within the project activity such that: (i) Waste energy source-I (e.g. the kiln) belongs to waste heat sources which are eligible under AMS-III.Q.; (ii) Waste energy source-II (e.g. the single-cycle power unit) belongs to waste heat sources which are eligible under AMS-III.AL.; (b) For waste energy source-II eligible under AMS.III.AL., all requirements under "AMS-III.AL.: Conversion from single cycle to combined cycle power generation" that relate to baseline, project emissions and monitoring shall apply; (c) It is possible to determine the baseline for each waste energy source, according to the specific methodology being used; (d) It is possible to objectively allocate the electricity produced in the project activity to each waste energy source, by means of one of the following methods: (i) Through separate measurements of the electricity produced by utilizing waste energy from each waste energy source; or (ii) Through separate measurements of the energy content of the WECM streams used for electricity production; or (iii) Through separate measurements of the energy content of the WECM streams that are associated with each waste energy source and used for electricity production or for the WECM generation in a common waste heat recovery system (e.g. if steam is generated by waste heat from a kiln and waste heat from an internal combustion engine in a common waste heat recovery boiler).	used for power generation and it does not have any other source.
6. Emission reductions cannot be claimed at and beyond the end of the lifetime of the waste energy generation equipment at the WEG facility or on-site captive unit at the recipient facility. The end of the lifetime of the equipment shall be determined as per the requirements mentioned in "Tool to determine	The PP will not claim emission reduction beyond the end of the lifetime of the waste energy generation equipment at the WEG facility.

remaining lifetime of equipment".	
7. The project activity shall result in emission reductions less than or equal to 60 kt CO2 equivalent annually.	The emission reduction will be less than 60 ktCO2e annually. Hence, project activity meets this applicability criterion.

B.3 Applicability of double counting emission reductions

There is no double accounting of emission reductions in the project activity due to the following reasons:

- Project is uniquely identifiable based on its location coordinates,
- Project has a dedicated commissioning certificate and connection point,
- Project is associated with energy meters which are dedicated to the consumption point for the project developer.

B.4 Project boundary, sources, and greenhouse gases (GHGs)

As per applicable methodology AMS-III.Q. Version 06.1, "The spatial extent of the project boundary encompasses rotary kiln, where the waste gas is generated, waste heat recovery boiler and other related accessories, captive power generating equipment such as turbine, generator etc., auxiliary equipment, power synchronizing system, steam flow piping, fluegas ducts, etc. and the unit where generated electricity will be consumed."

Thus, the project boundary includes the waste heat recovery power plant and the Indian grid system.

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
		Other	No	No other GHG emissions were emitted from the project
Project	Greenfield waste heat recovery power generation project activity	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Other	No	No other emissions are emitted from the project

B.5 Establishment and description of the baseline scenario

As per the approved consolidated methodology AMS-III.Q. Version 6.1, if the project activity is the installation of waste heat recovery boiler, the baseline scenario is the following:

"The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid".

The project activity involves setting up waste heat recovery plant and to use for captive purpose. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel-fired plants. Hence, the baseline for the project activity is the equivalent amount of power produced at the Indian grid.

A "grid emission factor" refers to a CO_2 emission factor (tCO_2/MWh) that will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2013 - 2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021-2022, the combined margin emission factor calculated from the CEA database in India results in higher emissions than the default value. Hence, the same emission factor has been considered to calculate the emission reduction under a conservative approach.

B.5.1 Net GHG Emission Reductions and Removals

Thus, $ER_y = BE_y - PE_y - LE_y$

Where:

ER_y = Emission reductions in year y (tCO_{2e}/y)

BE_y = Baseline Emissions in year y (tCO_{2e}/y)

PE_y = Project emissions in year y (tCO_{2e}/y)

LE_y = Leakage emissions in year y (tCO_{2e}/y)

- ***Baseline Emissions***

Baseline emissions include only CO_2 emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

$$BE_{elec,y} = f_{cap} \times f_{wcm} \times \sum_{j} \sum_{i} (EG_{i,j,y} \times EF_{Elec,i,j,y})$$

$BE_{elec,y}$ = Baseline emissions due to displacement of electricity during the year *y* in tons of CO_2

f_{cap} = The ratio of waste energy generated at a historical level, expressed as a fraction of the total waste energy used in the project activity for producing useful energy in year *y*. The ratio is 1 if the waste energy generated in project year *y* is the same or less than that generated at a historical level.
Capping factor is to exclude increased waste energy utilization in the project year *y* due to increased level of activity of the plant, relative to the level of activity in the base years before project start.

The value of f_{cap} shall be estimated using one of the applicable methods that applies to the situation of the project activity prescribed in the most recent version of "ACM0012: Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects". Where the method requires historical data, the project proponents shall follow the requirement stipulated in paragraph 23 above

f_{wcm} = Fraction of total electricity generated by the project activity using waste energy. This fraction is 1 if the electricity generation is purely from use of waste energy. The value of f_{wcm} shall be estimated using applicable procedures that apply to the situation of the project activity prescribed in the most recent version of "ACM0012: Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects". Where the method requires historical information, the project proponents shall follow the requirement stipulated in paragraph 23 above.
In cases where auxiliary fossil fuel is used to supplement the waste energy directly in the waste heat recovery combustion systems and the energy output cannot be demonstrably apportioned due to technical constraints (e.g. waste gas measurement and its quality) between fossil fuels and the waste energy, a value of 1 for fwcm can be used and consider the emissions resulting from the combustion of fossil fuel as project emissions using "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion".
Note: for a project activity using waste energy to generate electricity this fraction is 1

$EG_{i,j,y}$ = The quantity of electricity supplied to the recipient *j* by generator, that in the absence of the project activity would have been sourced from i^{th} source (*i* can be either grid or identified existing source) during the year *y* in MWh.

$EF_{Elec,i,j,y}$ = The CO_2 emission factor for the electricity source *i* (grid or identified existing source), displaced due to the project activity, during the year *y* in tons CO_2/MWh.

- ***Project Emissions***

As per para 38, page no. 15 of AMS-III.Q., version 06.1

Project emissions due to the project activity (PE_y) include emissions due to: (i) combustion of auxiliary fuel to supplement waste gas/heat ($PE_{AF,y}$); and (ii) emissions due to consumption of electricity for cleaning of gas before being used for generation of electricity or other supplementary electricity consumption by the project activity ($PE_{EL,y}$).

Since no auxiliary fuels will be fired in the proposed project activity, project activity emissions are not applicable. Also, there is no additional cleaning of gas for the project activity.

Thus, PE = 0

- ***Leakage Emission***

No leakage is applicable under this methodology.

Hence, LE = 0

The actual emission reduction achieved during the first CoU period shall be submitted as a part of the first monitoring and verification. However, for the purpose of an ex-ante estimation, the following calculation has been submitted:

Hence Net GHG emission reduction, = 32226-0-0 = 32226 tCO_{2e}/year (i.e., 32226 CoUs/year)

B.6 Prior History

The project activity is a small-scale waste heat recovery boiler and was not applied under any other GHG mechanism prior to this registration with UCR. Also, the project has not been applied for any other environmental crediting or certification mechanism. Hence the project will not cause double accounting of carbon credits (i.e., CoUs).

B.7 Changes to the start date of crediting

The crediting period under UCR has been considered from the date of the commissioning of the project. There is no change in the start date of crediting period.

B.8 Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline

Not applicable.

B.9 Monitoring period number and duration

Total Monitoring Period: 13 years 04 Months

Date: 01/09/2022 to 31/12/2035 (inclusive of both dates).

B.10 Monitoring Plan

Data and Parameters available (ex-ante values):

Data / Parameter	UCR recommended emission factor
Data unit	tCO_2 /MWh
Description	A "grid emission factor" refers to a CO_2 emission factor (tCO_2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2013 - 2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.

Source of data	https://cea.nic.in/wp-content/uploads/baseline/2024/01/User_Guide___Version_19.0.pdf
Value applied	0.9
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of Data	For the calculation of Emission Factor of the grid
Additional Comment	The combined margin emission factor as per the CEA database (current version 19, December 2023) results into a higher emission factor. Hence for 2022 vintage UCR default emission factor remains conservative.

Data and Parameters to be monitored (ex-ante values):

Data / Parameter	$EG_{i,j,y}$
Data unit	MWh
Description	Quantity of electricity supplied to the recipient *j* by the generator, which in the absence of the project activity would have sourced from i^{th} source (*i* can be either grid or identified source) during the year *y*
Source of data	Recipient facility(ies) and generation plant measurement records
Measurement procedures (if any):	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually Archiving Policy: Paper & Electronic Calibration frequency: 5 years (as per CEA provision)
Measurement Frequency:	Monthly
Value applied:	
QA/QC procedures applied:	Calibration of the Main meters will be carried out once in five (5) years as per National Standards (as per the provision of CEA, India) and faulty meters will be duly replaced immediately as per the provision of power purchase agreement.
Purpose of data:	The Data/Parameter is required to calculate the baseline emission.
Any comment:	Data will be archived electronically for a period of 36 months beyond the end of crediting period.