



# MONITORING REPORT

CARBON OFFSET UNIT (CoU) PROJECT



**Title: TEIL Biomass Grid Supply Power Project, Chandanpur, Uttar Pradesh**

**UCR PROJECT ID: 264**

**MR Version 2.0**

Date of MR: 31/07/2023

1<sup>st</sup> CoU Issuance Period: 10 years 0 months

1<sup>st</sup> Monitoring Period: 01/01/2013 to 31/12/2022 (**both days inclusive**)

1<sup>st</sup> Crediting Period: 01/01/2013 to 31/12/2022 (**both days inclusive**)



## Monitoring Report (MR) CARBON OFFSET UNIT (CoU) PROJECT

### BASIC INFORMATION

Title of the project activity	TEIL Biomass Grid Supply Power Project, Chandanpur, Uttar Pradesh
Scale of the project activity	Small Scale
UCR PROJECT ID	264
Completion date of the MR	31/07/2023
Project participants	<p><b><u>Project Proponent:</u></b> Triveni Engineering and Industries Ltd (TEIL)</p> <p><b><u>Aggregator:</u></b> Carbon Equalizers, KATNI</p> <p>UCR ID : 660687753</p>
Host Party	India
Applied methodologies and standardized baselines	<p><b>CDM UNFCCC</b>  <b>Small-scale Methodology</b>  <b>AMS-ID:</b> Grid connected renewable electricity generation, Ver 18</p> <p>UCR Standard for Baseline Grid Emission Factor</p>
Sectoral scopes	01 Energy industries (Renewable/NonRenewable Sources)
Calculated amount of annual average GHG emission reductions	2013: 6038 tCO <sub>2</sub> (6038 CoUs)
	2014: 8198 tCO <sub>2</sub> (8198 CoUs)
	2015: 7964 tCO <sub>2</sub> (7964 CoUs)
	2016: 7285 tCO <sub>2</sub> (7285 CoUs)
	2017: 2392 tCO <sub>2</sub> (2392 CoUs)
	2018: 10302 tCO <sub>2</sub> (10302 CoUs)
	2019: 12501 tCO <sub>2</sub> (12501 CoUs)
	2020: 4680 tCO <sub>2</sub> (4680 CoUs)
	2021: 5703 tCO <sub>2</sub> (5703 CoUs)
	2022: 6605 tCO <sub>2</sub> (6605 CoUs)
Calculated total GHG emission reductions this monitoring and crediting period	<b>68800 tCO<sub>2</sub> (68800 CoUs)</b>

## SECTION A. Description of project activity

### A Purpose and general description of Carbon offset Unit (CoU) project activity >>

The project **TEIL Biomass Grid Supply Power Project, Chandanpur, Uttar Pradesh** is located at Village: Chandanpur, Tehsil: Hasanpur, District: Amroha, State: Uttar Pradesh (UP), Country: India (Pin: 244241).

The details of the UCR project activity are as follows:

#### A.1 Purpose of the project activity:

The purpose of the project activity is to generate electricity using renewable biomass and thereby reduce GHG emissions by displacing the fossil fuel dominated grid based electricity with biomass based renewable electricity.

The electricity produced by the project is directly contributing to climate change mitigation by reducing the anthropogenic emissions of greenhouse gases (GHGs) into the atmosphere by displacing an equivalent amount of fossil power at grid.

The project activity has displaced **91363 MWh** from the Indian grid system during this monitoring period, which otherwise would have been generated by the operation of fossil fuel-based grid-connected power plants. The project activity doesn't involve any GHG emission sources. The estimated CO<sub>2</sub>e emission reductions by the project activity for this monitored period is **68800 tCO<sub>2</sub>e**.

As per the power purchase agreement (PPA) between the state electricity board (UPPCL) and project proponent, dated **25/06/2012**, the project activity generates a total of 10MW of power and supplies approximately 3 MW of this bagasse based power to the grid. The project activity is the construction and operation of a power plant/unit that uses renewable energy sources and supplies electricity to the grid. The implementation of the project does not result in an increase in the processing capacity of the raw input or any other changes in the sugar manufacturing process.

The power generation is 11 KV, stepped up to 33 KV and synchronization is with the 132 KV substation of UPPCL (substation at Saidnagli, Ujhari). All the biomass used at the site qualifies under the definition of biomass residues as outlined in the methodology, i.e. the biomass residue is a by-product of agricultural activities and no other types of biomass is used. In the case of the project activity, the biomass residue is bagasse, which is generated from the crushing of sugar cane. Hence, the project activity is a grid-connected biomass (bagasse based) cogeneration power plant with a high pressure steam-turbine configuration. The high pressure boilers are fired by bagasse, a biomass by product from the sugar manufacturing process, to generate steam which in turn is fed to the steam turbine to generate power. The overall business is integrated with alcohol distillation and power generation. The power co-generation units generate biomass based power for captive consumption of the sugar plant and the sale of surplus power to the state grid. The project plant exports power to the Uttar Pradesh Power Corporation Limited (UPPCL), in absence of the project activity, UPPCL would have withdrawn electricity from northern regional grid.



## A.2. Location of project activity >>

Country: India

Village: Chandanpur,

Tehsil: Hasanpur,

District: Amroha,

State: Uttar Pradesh (UP),

Latitude: 28° 34' 20.496" N

Longitude: 78° 17' 25.512" E



### A.3. Technologies/measures >>

The UCR project activity is a grid-connected bagasse based cogeneration power plant with a high pressure steam-turbine configuration. The UCR project activity is the electricity generation capacity and the installation of facilities for allowing the export of electricity to the regional grid.

The project activity comprises of the following:

BOILER DETAIL		
1	CAPACITY	90 TPH
	WORKING PRESSURE	45 KG/SQCM
	TEMPERATURE	440 "C
	MAKE	IJT
	TYPE	DUMPING GRATE
	YEAR OF INSTALLATION	2006
2	CAPACITY	20TPH
	WORKING PRESSURE	10.5 KG/SQCM
	TEMPERATURE	180"C
	MAKE	THEMOFAB
	TYPE	DUMPING GRATE
	YEAR OF INSTALLATION	2017

TG SET DETAIL		
	TURBINE	10MW
	STRAIGHT BACK PRESSURE	
	PRESSURE	44KG/SQCM
	TEMPERATURE	440 "C
	EXT PRESSURE	2.5 ATA
	RPM	8303
	SR.NO.	TST-1100-27
	ALTERNATOR	12500KVA TYPE-TC145
	VOLT	11000 VOLT 3PHASE
	CURRENT	656 AMP
	FREQUENCY	50Z
	RPM	1500
	MAKE	TDPS

The plant is designed with all other auxiliary plant systems like  
Bagasse handling system with storage and processing arrangements,  
High pressure feed water heaters,  
Ash handling system,  
Water treatment plant,  
Compressed air system,  
Air conditioning system,  
Main steam, medium pressure and low pressure steam systems,

Fire protection system, water system which include raw water system, circulating water system, condensate system, De-Mineralised water system and service with potable water system and

The electrical system for its successful operation.

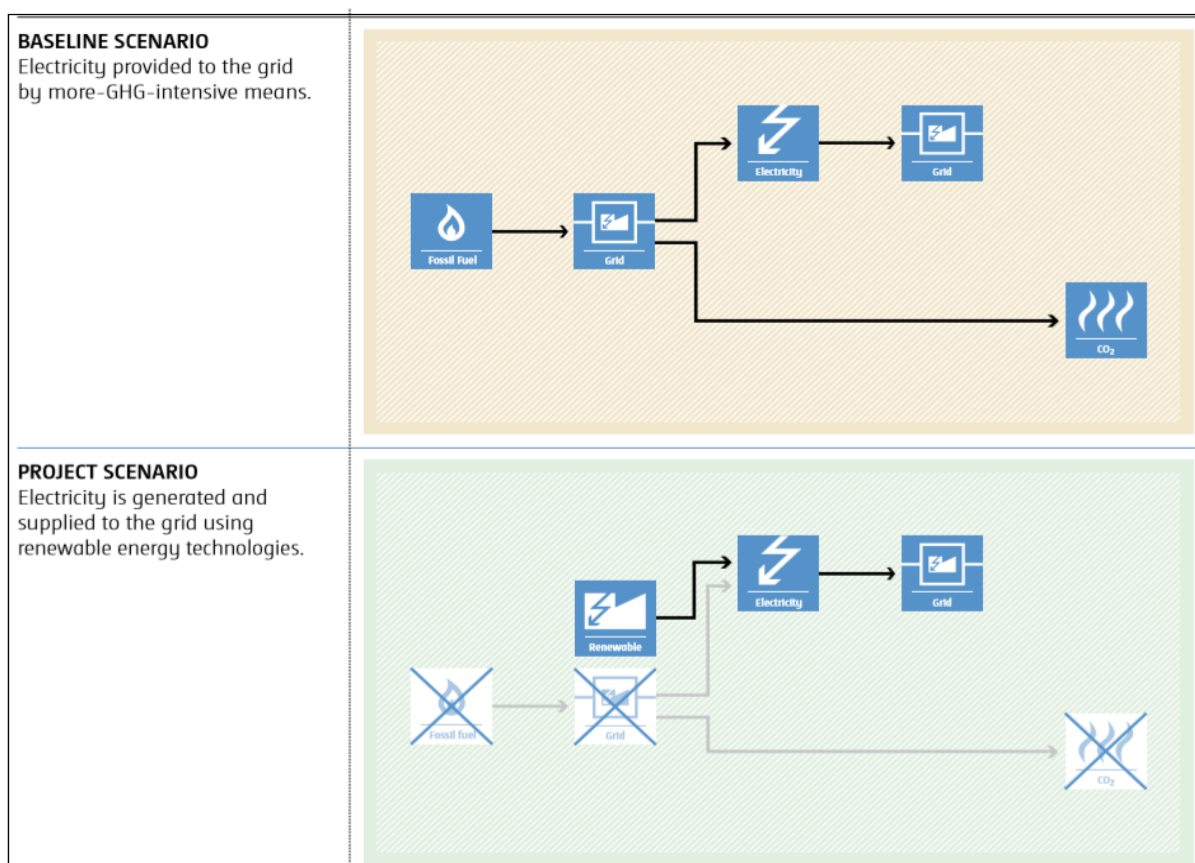
The technology of biomass residue based high steam pressure power generation itself is known and in use in India. The use of high pressure system allows for increased efficiency levels for electricity generation.

#### **A.4. Parties and project participants >>**

Project activity does not involve any public funding from Annex I Party, which leads to the diversion of the official development assistance.

Project activity does not involve any public funding from Annex I Party, which leads to the diversion of the official development assistance.

Party (Host)	Participants/Aggregator
India	<u>Project Owner:</u> Triveni Engineering & Industries Ltd (TEIL) Aggregator: Carbon Equalizers, KATNI <u>UCR ID : 660687753</u> <u>Contact: Mr Vikas Chamadia</u> <u>Email: vikaschamadia@rediffmail.com</u>



#### A.5. Baseline Emissions>>

The approved baseline methodology has been referred from the indicative simplified baseline and monitoring methodologies for selected small scale UNFCCC CDM project activities that involve generation and export of power to the local or national grid using biomass.

Typical activities, under AMS ID comprises of renewable energy generation units, such as renewable biomass, including:

- (a) Supplying electricity to a national or a regional grid; or are new plants, capacity expansions, energy efficiency improvements or fuel switch projects.

The applicable methodology and simplified modalities and procedures for small scale CDM project activities is “*the baseline scenario is displacement of more-GHG-intensive electricity generation in grid.*”

#### Emission coefficient of fuel used in the baseline scenario

The CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using UCR Standard emission factor is 0.9 tCO<sub>2</sub>/MWh for the period 2013-2022. Emission factor for the 2022 vintage is also conservative at 0.9 tCO<sub>2</sub>/MWh.

The applicable methodology and simplified modalities and procedures for small scale CDM project activities, states that “*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.*”

**Emission coefficient of fuel used in the baseline scenario**

The CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using UCR Standard emission factor is 0.9 tCO<sub>2</sub>/MWh.

UCR Monitoring Period Number	01
Start Date	01/01/2013
End Date	31/12/2022
Total Emission Reductions over the monitoring period	<b>68800 tCO<sub>2</sub></b>

**A.6. Debundling>>**

This project is not a debundled component of a larger registered carbon offset project activity.



## SECTION B. Application of methodologies and standardized baselines

### B.1. References to methodologies and standardized baselines >>

**SECTORAL SCOPE** - 01 Energy industries (Renewable/Non-renewable sources)

#### **TYPE I - Renewable Energy Projects (Small Scale)**

##### **UCR Positive List Environmental Additionality**

**SCALE** – Small Scale

#### **CATEGORY** *AMS I.D. Small Scale Consolidated Methodology*

##### **“Grid connected renewable electricity generation”, version 18**

This methodology is applicable to project activities that comprises renewable energy generation units, such as renewable biomass involving:

(a) *Supplying electricity to a national or a regional grid;*

UCR CoU Standard is used to determine the baseline grid emission factor for the 2013-2021 period.

### B.2. Applicability of methodologies and standardized baselines >>

The project activity is a power generation project using a biomass (bagasse) and displaces CO2 emissions from electricity generation in power plants that are displaced due to the project activity. Since the project activity utilises biomass (bagasse) for the generation of power and supplies it to the local grid, it displaces fossil fuel (coal), and hence it meets the primary applicability criteria of the methodology.
The project activity is included in the Positive List of UCR Approved Scope under the UCR CoU Standard.
The total installed capacity of project activity is 10 MW, of which 3MW is supplied to the grid, which is acceptable as per the applied small scale methodology, since the eligibility limit of 15 MW has been applied under this methodology.
The installation of a new biomass residue fired power generation unit, which replaces or is operated next to existing power generation capacity fired with either fossil fuels or the same type of biomass residue as in the project plant (power capacity expansion projects) is also included in this methodology.
The project activity is not a hydro power project. The project activity does not recover methane from landfill gas, waste gas, wastewater treatment and agro-industries.
For the purposes of this methodology, heat does not include waste heat, i.e. heat that is transferred to the environment without utilization, for example, heat in flue gas, heat transferred to cooling towers or any other heat losses.
The biomass used by the project plant is not stored for more than one year. The biomass used by the project plant is not processed chemically or biologically (e.g. through esterification, fermentation, hydrolysis, pyrolysis, bio- or chemical degradation, etc.) prior to combustion.
The Project Activity uses biomass residues from a production process (e.g. production of sugar), and the implementation of the project does not result in an increase of the processing capacity of (the industrial facility generating the residues) raw input (e.g. sugar) or in other substantial changes (e.g. product change) in this process

The project activity unit does not co-fire fossil fuel and/or does not exceed the limit of 25% co-firing fossil fuel criteria as per the UCR Protocol for such projects.
Biomass generated power is used for direct grid supply and for meeting the captive needs at the facility. The project activity involves the grid-connected bagasse based electricity generation capacity involving the installation of facilities for allowing the export of electricity to the regional grid
Biomass is not sourced from dedicated plantations. The existing installed boilers are fired by bagasse, a byproduct of the sugarcane processing and a biomass residue.
Bagasse is burnt in boilers as generated from the sugar mill and does not require any specific technology for its preparation before combustion. No fuel preparation equipment has been installed at site for preparation of bagasse. Hence no significant energy quantities are required to prepare the biomass residues for fuel combustion.
The project activity also does not include any GHG emissions related to the decomposition or burning of biomass. The baseline heat emissions for the project activity are not included in the project boundary nor does it claim for emission reductions from heat.

### **B.3. Applicability of double counting emission reductions >>**

The biomass boiler and condensing turbo-generator unit have unique IDs, which are visible on the unit. The calibration of Meters & Metering for electricity exported to the grid is implemented according to national standards and rules (details provided in Section B.8.). All the records are documented and maintained by the project proponent. The details of the same are provided to the UCR verifier during the verification process.

The biomass boilers and turbines are constructed by the project proponent within the project boundary. The biomass boilers, turbines and meters have unique IDs, which is visible on the units. The Monitoring Report has the details of the same and will be provided to the UCR verifier during the verification process.

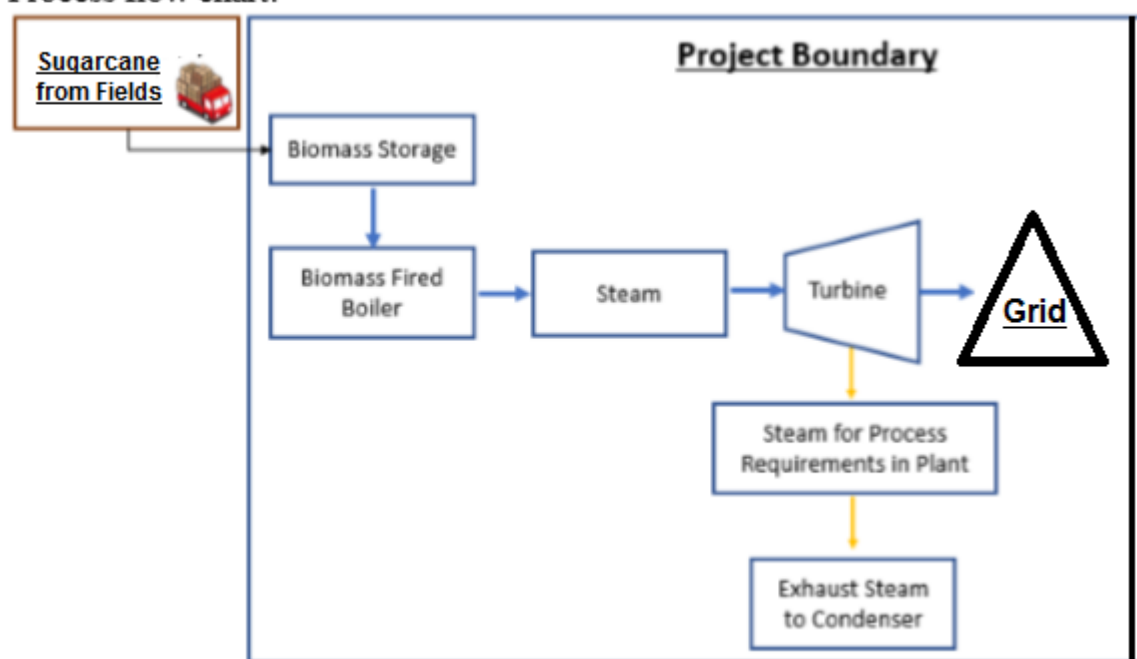
The UCR project activity has never been issued voluntary carbon credits for the current 2013-2021 vintage years and there is no double counting of the credits. Additionally, the same has been stated in the undertaking provided in the Double Counting Avoidance Assurance Document (DAA) by PP.

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

The project boundary includes the physical, geographical site(s) of:

(a) the project power plant and all power plants connected physically to the electricity system that the project activity is connected to.

Process flow chart:



Thus, the project boundary includes the biomass-based steam generator, steam turbine generators and the Indian grid system.

### Leakage Emissions ( $LE_y$ )

Leakage emissions is not applicable as the project activity does not use technology or equipment transferred from another activity.

Hence  $LE_y = 0$

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected fossil fuel-based electricity generation	CO <sub>2</sub>	Yes	Main emission source
		CH <sub>4</sub>	No	Minor emission source
		N <sub>2</sub> O	No	Minor emission source
		Other	No	No other GHG emissions were emitted from the project
Project	Greenfield Biomass Power Project Activity	CO <sub>2</sub>	No	No CO <sub>2</sub> emissions are emitted from the project
		CH <sub>4</sub>	No	Project activity does not emit CH <sub>4</sub>
		N <sub>2</sub> O	No	Project activity does not emit N <sub>2</sub> O
		Other	No	No other emissions are emitted from the project

### Project Emissions ( $PE_y$ )

The project activity has not considered and never used any fossil fuel (as can be verified from the given data during verification) and to meet any requirement in the project activity; hence there is no emissions due to usage of fossil fuel.

Based on the biomass availability, there is sufficient biomass available in the region in less than

50 km surrounding the site of the project activity. It confirms that there is no such leakage anticipated. There is no other relevant source of leakage emission applicable to the project activity. Accordingly, the project activity does not result in any leakage emission.

## B.5. Establishment and description of baseline scenario >>

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

Renewable energy technologies that displace technologies using fossil fuels, wherein the simplified baseline is the *fuel consumption of the technologies that would have been used in the absence of the project activity, times an emission factor for the fossil fuel displaced.*

The baseline emissions due to displacement of electricity are determined by net quantity of electricity generation as a result of the project activity (incremental to baseline generation) during the year y in MWh times the CO<sub>2</sub> emission factor for the electricity displaced due to the project activity during the year y in tons CO<sub>2</sub>/MWh

Given that steam and electric power generation for internal consumption is part of the present project activity, emission reductions are only claimed from on-site incremental power generation that is injected to the grid. Therefore, the baseline scenario is the emission of GHG from the present electricity generation mix of the UPPCL grid in the northern region.

**Emission Reductions (ER<sub>y</sub>)** The emission reduction due to the project activity is calculated as the difference between the baseline emissions and the sum of the project emissions and the leakage:

$$ER_y = BE_y - (PE_y + LE_y)$$

**BE<sub>y</sub>** = Baseline emissions in year y (t CO<sub>2e</sub>)

*As mentioned in the methodology the baseline emissions are calculated as follows:*

$$BE_y = EG_{pj,y} * EF_{grid,y}$$

Where:

**EG<sub>grid,y</sub>** = Quantity of net electricity generation that is fed into the local grid as a result of the implementation of the project activity in year y (MWh)

**EF<sub>grid,y</sub>** = The CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using UCR Standard emission factor (0.9 tCO<sub>2</sub>/MWh).

**PE<sub>y</sub>** = Project activity emissions = 0

However, as per paragraph 31 under Section 5.2 of the given methodology, the PP must “*For microscale and small-scale project activities, apply a default emission factor of 0.0142 tCO<sub>2</sub>/tonne of biomass*”

**LE<sub>y</sub>** = Leakage emissions = 0

For this methodology, it is assumed that transmission and distribution losses in the electricity grid are not influenced significantly by the project activity and are therefore not accounted for since the UCR emission factor is itself conservative.

Year	Project Emissions (tCO2)	B.E (tCO2)	E.R (tCO2)
2013	1298	7336	6038
2014	1467	9665	8198
2015	1542	9506	7964
2016	2112	9397	7285
2017	2967	5359	2392
2018	2795	13097	10302
2019	2868	12501	9633
2020	2534	7214	4680
2021	2445	8148	5703
2022	2603	9208	6605
		Total	68800

#### **B.6. Prior History>>**

The project activity has not been registered or issued carbon credits and has not applied to any other GHG program for generation or issuance of carbon offsets or credits for the current crediting period on UCR.

#### **B.7. Changes to start date of crediting period >>**

The crediting period as per the registered PCN **has been changed** from:

- 1<sup>st</sup> First UCR Issuance Period: 9 years, 0 months
- 1<sup>st</sup> UCR Crediting Period: 01/01/2013 to 31/12/2021

*To*

- 1<sup>st</sup> First UCR Issuance Period: 10 years, 0 months
- 1<sup>st</sup> UCR Crediting Period: 01/01/2013 to 31/12/2022

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

There are no permanent changes from registered PCN monitoring plan and applied methodology

#### **B.9. Monitoring period number and duration>>**

Monitoring Period: 01

1<sup>st</sup> UCR Monitoring Period: 01/01/2013 to 31/12/2022

**1<sup>st</sup> Monitoring Period Duration:** 01/01/2013 to 31/12/2022 (both days inclusive)



## **B.8. Monitoring plan>>**

The monitoring of electricity consists power generation from the turbine generators and the auxiliary consumption of power plants. All auxiliary units at the power plant are metered and there is also a main meters attached to each turbine generator to determine their total generation. The total amount of bagasse generated by the sugar plant is calculated from the amount of cane crushed in the season (monitored value), which is obtained from the RT8C records.

Bagasse has been calculated using the formula:

Bagasse = Cane + Added water – Juice

This is cross checked using an annual energy balance using the monitored steam values. The total heat generated as well as the heat generated by the project activity is monitored using the temperature and pressure values and calculating the enthalpies of the steam generated and the feed water using standard steam charts/tables.

The project activity has ISO 9001:2008/20 and ISO 14001:2004 quality assurance and environmental management system implemented, therefore the management system of the UCR project activity is in place with the responsibilities properly identified and in place. In order to verify quality, the project activity works in accordance with a quality assurance procedure that are embedded in their management system, which establishes that the operational and management structure is implemented. An internal audit for the data pertaining to the project activity can be checked on site to confirm the effectiveness of the management system.

Monitoring shall consist of metering the electricity generated by the renewable technology. For projects where only biomass or biomass and fossil fuel are used the amount of biomass and fossil fuel input shall be monitored.

For projects consuming biomass a specific fuel consumption of each type of fuel (biomass or fossil) to be used should be specified ex-ante. The consumption of each type of fuel shall be monitored.

**As fossil fuel is not used for the generation of electricity**, the electricity metered need not be adjusted to deduct electricity generation from fossil fuels using the specific fuel consumption and the quantity of fuel consumed.

The PP has the responsibility of the monitoring plan implementation. In this MR, emission factor of the project activity is determined as per the UCR CoU guidelines. Therefore the electricity supplied to the grid by the project activity is defined as the key data to be monitored. The monitoring plan is designed first of all to focus on monitoring of the electricity output of the project activity. The second critical data to be monitored is coal consumption (which in this case is nil). Therefore the second focus of the monitoring plan is ignored (i.e. coal consumption data). The other elements following the monitoring methodology concern the comparison of values using two different approaches, and choosing the more conservative of two values.

Emergency preparedness plans have been laid out to meet with situations leading to unintended emissions. These emergency situations have been identified as:

Fire in the fuel yard

Fuel spoilage due to water. These emergency situations haven been taken care by putting up a fire safety system and a water drainage system in the fuel yard. T

Parameters	Description
$Q_{S,y}$	Quantity of steam supplied per year measured at recipient's end
$T_{\text{steam},y}$	Temperature of steam at the recipient's end
$P_{\text{steam},y}$	Pressure of steam
$E_{\text{steam},y}$	Enthalpy of the saturated steam supplied to the recipient
$T_{\text{Feedwater}}$	Temperature of boiler feed water
$E_{\text{Feedwater}}$	Enthalpy of feed water
$EG_{\text{thermal},y}$	Net quantity of thermal energy supplied by the project activity during the year y
$B_{\text{Biomass},y}$	Net quantity of biomass consumed in year y (on dry basis)
$MC_{\text{biomass}}$	Moisture content of the biomass

Monthly joint meter reading of main meters installed at interconnection points are taken and signed by authorised officials of TEIL and UPPCL on the first day of every month. Records of this joint meter reading are maintained by TEIL and UPPCL. Daily and monthly reports stating the net power export is prepared by the shift in-charge and verified by the plant manager. Power Purchase Agreement (PPA) with UPPCL has been signed.

Reliability of energy data is maintained as per PPA. TEIL archives and preserves all the monthly invoices raised against net saleable energy and also archives the complete metering data at generation electronically. All the records are maintained at site. Uttar Pradesh Pollution Control Board (UPPCB) and Environment Department of Uttar Pradesh have prescribed standards of environmental compliance and monitor the adherence to the standards.

TEIL has received the 'Consent to Operate' the plant. State's regulatory body of power is Uttar Pradesh Electricity Commission (UPERC) and they have issued consent for the installation of co-generation power plant of 10 MW capacity. As a buyer of the power, the UPPCL is a major stakeholder in the project and hold the key to the commercial success of the project.

Data and parameters measured ex post or during the monitoring period:

**ELECTRICAL TES DIVISION  
PVVNL – AMROHA  
METER TEST REPORT**

BOOK NO .....

SL NO .....

Comparison of Consumption of M/s Triveni Engineering & Industries Ltd. Sugar Unit – Chandanpur, Amroha  
132 KV Sub – Station – Saidnagli, Ujhari.

SC No.

Sanction load

Metering Voltage: 33 KV

Process: Cogeneration (वीवी मिल सहविद्युत उत्पादन)

Date of Present Reading: 01/11/2019

Name of Division: EDD-II, Gairoula

Date of Previous Reading:

Consumption Days:

Date: 01/11/2019

Reading	Main Meter CTR/MF - 200/1 MF-60			Check Meter CTR/MF - 200/1 MF-60		
Meter Nos	APEX UPP 35479			APEX UPP 35480		
WH	Import 154890 / Export 83980			Import 154665 / Export 84132		
VAH	Import 176687 / Export 92031			Import 176409 / Export 92187		
KVARH LAG	0.00043312			0.00043089		
KVARH LEAD	0.00			0.00		
UC KVA						
UHI KVA						
COUNT						
AII VOLTAGE	R - Phase	Y - Phase	B - Phase	R - Phase	Y - Phase	B - Phase
	62.52 V	62.42 V	63.04 V	62.27 V	62.17 V	62.80 V
AII CURRENT	0.18 A	0.20 A	0.18 V	0.17 A	0.19 A	0.18 A

CTR

Primary 200 A - Secondary 1 A  
found ok

	Bill Meter	check meter	% diff
KWh	0.00289330	0.00289403	0.000001
KVAH	0.00289374	0.00289460	0.000001

PT

Primary 33000 / 110 volt  
found ok

CTRS calibration test duration 05 min at 50c

Seal	Old Seals			New Seals		
Meter Body Seal	U	N	C	H	A	N - G - E - D
T.P. Cover	N/A			N/A		
C.T. Chamber						
Meter Box	ET&CD MBD 1073			ET&CD MBD 1097		
Meter Windows	ET&CD MBD 1094			ET&CD MBD 1098		
Others	PT chamber ET&CD MBD 1060			New seal ET&CD MBD 1099		

REMARKS: अधिक. अधिक. विद्युत आपात एवं निरीक्षण एवं शुभानुमोदन, शक्ति मन्त्र, लखनऊ के कार्य 33KV line CT एवं PT ratios को परीक्षण किया गया। सभी देख परिणाम सामान्य पाये गये बिना एवं चेक मीटर का MRS द्वारा केलीब्रेशन चेक किया गया। सुलनाला प्रविष्टि अन्तः सामान्य प्राप्त हुआ।  
मिल एवं चेक मीटर की MRS द्वारा रीडिंग प्राप्त की गई।

JE (T&C)

EE (T&C)  
Executive Engineer  
Electy. T & C Division  
Mayapala, Meerut district

EE (Trans.)  
Executive Engineer  
Electy. Transmission Division  
AMROHA

EE (Distr.)  
Executive Engineer  
Consumerised Division  
For Triveni Engg. & Industries Ltd  
(Sugar Unit Chandanpur)

**Meter Test Report**

Data/Parameter	MWh/annum																																						
Data unit	MWh																																						
Description	Total export to UPPCL in MWh – monthly joint meter reading (JMR) statement; summed for annual figure in MWh																																						
Source of data Value(s) applied	<table><tr><th>Year</th><th>TOTAL POWER GENERATION (MWH)</th><th>TOTAL POWER EXPORT(MWH)</th></tr><tr><td>2013</td><td>24480.7</td><td>8151.162</td></tr><tr><td>2014</td><td>28115.54</td><td>10739.875</td></tr><tr><td>2015</td><td>29809.38</td><td>10562.53</td></tr><tr><td>2016</td><td>31506.56</td><td>10441.298</td></tr><tr><td>2017</td><td>32103.34</td><td>5955.218</td></tr><tr><td>2018</td><td>43808.29</td><td>14552.725</td></tr><tr><td>2019</td><td>43020.562</td><td>13890.885</td></tr><tr><td>2020</td><td>39669.386</td><td>8016.187</td></tr><tr><td>2021</td><td>31225.44</td><td>9053.885</td></tr><tr><td>2022</td><td>39914.48</td><td>10231.182</td></tr><tr><td>Total</td><td>303739.198</td><td>91363.765</td></tr></table>			Year	TOTAL POWER GENERATION (MWH)	TOTAL POWER EXPORT(MWH)	2013	24480.7	8151.162	2014	28115.54	10739.875	2015	29809.38	10562.53	2016	31506.56	10441.298	2017	32103.34	5955.218	2018	43808.29	14552.725	2019	43020.562	13890.885	2020	39669.386	8016.187	2021	31225.44	9053.885	2022	39914.48	10231.182	Total	303739.198	91363.765
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Measurement methods and procedures	JMR																																						
Monitoring frequency	Meter readings are daily, while the billing is monthly																																						
Purpose of data	Baseline Emissions. The net quantity of electricity generated in the project plant during the year y can be compared with the monthly sales to the connected grid and actual supplied electricity can be verified.																																						

<b>Data / Parameter:</b>	<b>Tonnes/annum</b>				
Data unit:	Tonnes coal				
Description:	Total used – computerised daily feed values				
Value(s) applied	<table> <tr> <th>Year</th><th>Tonnes</th></tr> <tr> <td>2013-2022</td><td>0</td></tr> </table>	Year	Tonnes	2013-2022	0
Year	Tonnes				
2013-2022	0				
Measurement procedures (if any):	-				
Monitoring frequency:	Monitored continuously.				
Any comment:	Electronic data sheets and invoices maintained-				

<b>Data / Parameter:</b>	<b>Tonnes/year</b>		
Data unit:	Tonnes Biomass consumed for net electricity supplied to grid		
Description:	Total used – computerised daily feed values		
Measurement procedures (if any): Value(s) applied	Belt weigher - <table> <tr> <th>Year</th><th>Biomass Quantity Consumed (Tonnes)</th></tr> </table>	Year	Biomass Quantity Consumed (Tonnes)
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	<table> <tr><td>2013</td><td>91378.2</td></tr> <tr><td>2014</td><td>103269.68</td></tr> <tr><td>2015</td><td>108558.68</td></tr> <tr><td>2016</td><td>148668.3</td></tr> <tr><td>2017</td><td>208898.06</td></tr> <tr><td>2018</td><td>196771.98</td></tr> <tr><td>2019</td><td>201945.17</td></tr> <tr><td>2020</td><td>178402.14</td></tr> <tr><td>2021</td><td>172164.13</td></tr> <tr><td>2022</td><td>183279.6</td></tr> <tr><td>Total</td><td>1593335.94</td></tr> </table>	2013	91378.2	2014	103269.68	2015	108558.68	2016	148668.3	2017	208898.06	2018	196771.98	2019	201945.17	2020	178402.14	2021	172164.13	2022	183279.6	Total	1593335.94
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Monitoring frequency:	-Monitored continuously by PP. The quantity of bagasse is being measured daily through the belt weigher system installed at the project activity and stock changes in the yard. The daily records are aggregated monthly and reported in the monitoring report after adjusting it for the moisture content. The monitoring approach has been found consistent with the accepted revised monitoring plan which requires monthly reporting																						
QA/QC procedures:	-The values can be cross checked against the daily purchase records and stocks records. RT8 (C) form (Final manufacturing report) for sugar season 2013-2022 submitted to Central Excise Department for taxation purposes.																						
Any comment:	-Baseline emission calculation.. The entire quantity of biomass residue (bagasse) combusted in the project activity is generated in the crushing process of the cane in the sugar industry where the project activity is located. The reported consumption of bagasse can be crosschecked with the plant logbooks. It is noteworthy to mention here this parameter is not used in the determination of emission reductions but as a crosscheck for EG project plant, y, EG total,y, Q project plant,y and Q total,y. It is also confirmed that it is industrial practice to keep a small amount of bagasse for the commencement of boiler operation in next season, which usually has a gap of 6/7 months (due to cropping season of cane) and therefore does not exceed one year in any case. The quantity of bagasse combusted in the project activity serves the purpose of cross check to assess the electrical efficiency of plant and in no manner used in the emission reduction. Further it is confirmed that the entire quantity of biomass residue (bagasse) is generated in house and therefore does not create project emissions (on account of transportation or leakage).																						

Data/Parameter	GCV <sub>k</sub>
Data unit	GJ/t
Description	Gross Calorific Value of Biomass Residue Type <i>K</i>
Source of data	Measurements will be carried out by reputed labs and reported in dry biomass basis.
Value(s) applied	3000 Kcal/Kg



Measurement methods and procedures	On site and in labs
Monitoring frequency	Every 6 months
Purpose of data	Quality control

<b>Data / Parameter:</b>	<b>Fixed</b>
Data unit:	Kg Biomass/kWh
Description:	Specific Biomass consumption
Measurement procedures (if any):	Calculated from TEIL computer data. These results are obtained from external lab and therefore do not have any measurement equipment under the scope of calibration by the PP
Value(s) applied	1.13 kg/kWh
Monitoring frequency:	Default
Comment:	Baseline emission calculation -

<b>Data / Parameter:</b>	<b>Fixed</b>
Data unit:	Kg coal/kWh
Description:	Specific Coal consumption
Source of data:	Calculated from TEIL computer data
Value(s) applied	1.19 kg/kWh
Measurement procedures (if any):	<i>Default</i>
Monitoring frequency:	-
QA/QC procedures:	-
Any comment:	Fossil fuel electricity generation from total grid supply calculations.

Data / Parameter:	Moisture content of biomass residues
Data unit:	% water content
Description	Moisture content of each biomass residue k
Measured /Calculated /Default:	Measured
Source of data:	On-site measurements. The moisture content is measured daily and based on the analysis conducted at laboratory in house. The daily results are determined by science graduates who are trained and follow procedure as defined in the approved revised monitoring plan and internal SOPs part of management system. The monthly average values were used for reporting purpose in the monitoring report.
Value(s) of monitored parameter:	50.89
Indicate what the data are used for	Baseline emissions
Monitoring equipment (type, Calibration frequency, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Type: Weighing balance, Calibration frequency: Annually  The weighing balance used for the measurement calibrated in line with the national standards