MONITORING REPORT (MR)

CARBON OFFSET UNIT (CoU) PROJECT



Title: TEIL Biomass Grid Supply Power Project, Milaknarayanpur, Uttar Pradesh

UCR PROJECT ID: 298

MR Version 2.0
Date of MR: 10/10/2023

1st CoU Issuance Period: 09 years 0 months
1st Monitoring Period: 01/01/2013 to 31/12/2021 **(both days inclusive)**
1st Crediting Period: 01/01/2013 to 31/12/2021 **(both days inclusive)**

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

BASIC INFORMATION	
Title of the project activity	**TEIL Biomass Grid Supply Power Project, Milaknarayanpur, Uttar Pradesh**
Scale of the project activity	Small Scale
UCR PROJECT ID	298
Completion date of the MR	10/10/2023
Project participants	**Project Proponent:** Triveni Engineering and Industries Ltd (TEIL) **Aggregator:** Carbon Equalizers, KATNI UCR ID : 660687753
Host Party	India
Applied methodologies and standardized baselines	**CDM UNFCCC** **Small-scale Methodology** **AMS-ID**: Grid connected renewable electricity generation, Ver 18 UCR Standard for Baseline Grid Emission Factor
Sectoral scopes	01 Energy industries (Renewable/NonRenewable Sources)
Calculated amount of annual average GHG emission reductions YYYY: CoU (1 CoU= 1 tCO_2)	2013: 5386 CoUs
	2014: 6971 CoUs
	2015: 6756 CoUs
	2016: 8192 CoUs
	2017: 9108 CoUs
	2018: 10971 CoUs
	2019: 11032 CoUs
	2020: 11166 CoUs
	2021: 9468 CoUs
Calculated total GHG emission reductions this monitoring and crediting period	**79050 tCO_2 (79050 CoUs)**

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, Milaknarayanpur, Uttar Pradesh** is located at Post: Dadiyal, Village: Milaknarayanpur, Tehsil: Sawar, District: Rampur, State: Uttar Pradesh (UP), Country: India (Pin: 244925).

The details of the UCR project activity are as follows:

Purpose of the UCR 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 supplied an estimated net renewable electricity generation of i.e., **92480 MWh** to the Indian grid system over the current monitored 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 actual CO_{2e} emission reductions by the project activity during this monitored period is **79050 tCO2e.**

The project activity involves the commissioning of two biomass boilers (capacities 90TPH and 40 TPH) with two associated back pressure turbines (capacities **10MW and 3MW**). The first turbine (10MW) was commissioned on **19/02/2007**, which is the start date of this UCR project activity.

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 **13 MW** of power and supplies/exports approximately **5 MW** of this bagasse based (renewable) power to the grid. The project activity is hence 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 date of first grid synchronisation with the 33KV line is August/September 2012.

The power generation is 11 KV, stepped up to 33 KV, and synchronization is with the 132 KV substation of UPPCL (substation at Tanda, District: Rampur). 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.

A.2. Location of project activity >>

Country: India
Post: Dadiyal,
Village: Milaknarayanpur,
Tehsil: Sawar,
District: Rampur,
State: Uttar Pradesh (UP)
Latitude: 29° 1' 57.972" N
Longitude: 78° 59' 24.612" 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		
CAPACITY	40TPH	90 TPH
WORKING PRESSURE	21 KG/SQCM	45 KG/SQCM
TEMPERATURE	340 DEG C	440 "C
MAKE	Texmaco	IJT
TYPE	DUMPING GRATE	DUMPING GRATE
YEAR OF INSTALLATION	2007	2007

TG SET DETAIL		
TURBINE	3MW	10MW
STRAIGHT BACK PRESSURE		
PRESSURE	21 KG/SQCM	44 KG/SQCM
TEMPERATURE	335 DEG C	440 DEG C
EXT PRESSURE	1.2 ATA	1.5 ATA
RPM	8250	8303
MAKE	TRIVENI	TRIVENI
GEN VOLTAGE	0.4 KV	11 KV
TRANSFORMER	8 MVA, 11/33 KVA	

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.



Office of Executive Engineer
Electricity Distribution division
PASCHIMANCHAL VIDYUT VITRAN NIGAM LIMITED
Rampur (Uttar Pradesh)

Certificate of Commissioning

This is certify that M/s Triveni Engineering & Industries ltd unit-Milak Narayanpur Distt. Rampur (U.P) is having valid power purchase agreement with PVVNL.the commissioning detail of their baggage based co-generation unit as per PPA & our record are as follow-

Unit no. Capacity and date of commissioning detail		
Unit No.	Capacity	Date of Commissioning
1	10 MW	19/02/2007
2	3 MW	25/02/2007

UPPCL Nodal Officer
Executive Engineer (Distribution)
PVVNL EDD-II, RAMPUR

Commissioning Certificate

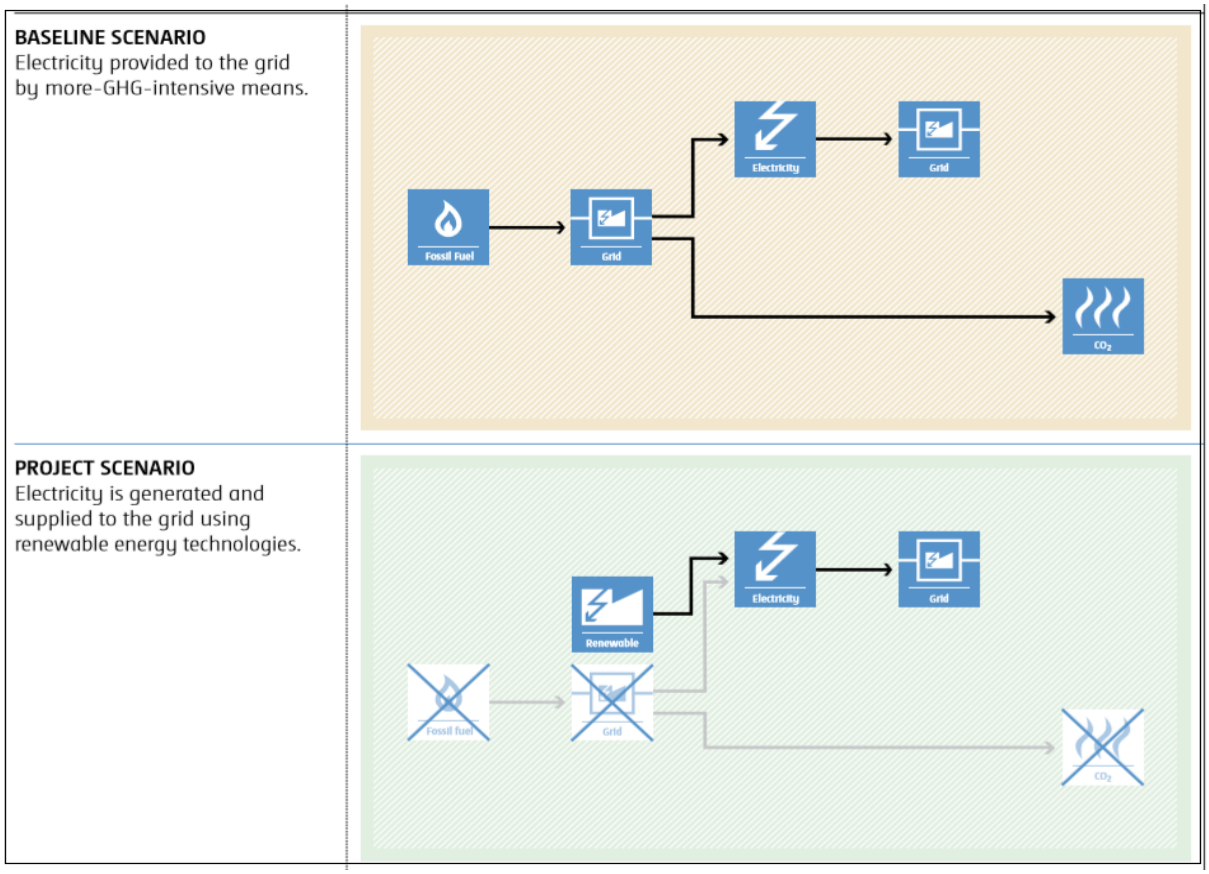
A.4. Parties and project participants >>

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

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

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_2 emission factor for grid connected power generation in year y calculated using UCR Standard emission factor is 0.9 tCO2/MWh for the period 2013-2021. Emission factor for the 2022 vintage is also conservative at 0.9 tCO2/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.*"

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Emission coefficient of fuel used in the baseline scenario

The CO_2 emission factor for grid connected power generation in year y calculated using UCR Standard emission factor is 0.9 tCO2/MWh.

UCR Monitoring Period Number	01
Start Date	01/01/2013
End Date	31/12/2021
Total Emission Reductions over the monitoring period	**79050 tCO_2**

A.6. Debundling>>

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

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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 rated power capacity of project activity is 13 MW, of which 5MW 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

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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 is 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 form 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 units have unique IDs and energy meters, 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.10.). 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.

Details of Energy Check Meter as of November 2022			
Name of UPPTCL Sub Station	:	UPPCL,132 KV S/S Tanda	
		DISST. Rampur (U.P)	
Name Of Generating Mill	**:**	**M/s Triveni Engneering And Industries Ltd,**	
		Milak Narayanpur, PO. Dadiyal, Rampur(U.P)	
		PIN-244925	
C.T. Ratio Available / Connected	:	120/1 A	
P.T. Ratio Available / Connected	:	33 KV /110 V	
SCALE FACTOR IF ANY			
	:		**SEAL**
Multiplying Factor	:	36 FOR KWH	**OLD 006839 ETNCMBD**
			NEW 006874 ETNCMBD
Billing Meter Make	:	SECURE (APEX)	
Number		**UPP35523**	

Details of Energy Main Meter as of November 2022			
PLACE OF THE METER READING	:	UPPCL,132 KV S/S Tanda	
		DISST.- Rampur (U.P)	

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NAME OF THE GENERATING PLANT	:	**M/s Triveni Engneering and Industries Ltd,**	
		Milak Narayanpur, PO. Dadiyal, Rampur(U.P)	
		PIN - 244925	
C.T. Ratio Available / Connected	:	120/1 A	
P.T. Ratio Available / Connected	:	33 KV /110 V	
SCALE FACTOR IF ANY	:		
			SEAL
Multiplying Factor	:	36 FOR KWH	**OLD 006837 ETNCMBD**
			NEW 006872 ETNCMBD
Billing Meter Make	:	SECURE (APEX)	
Meter Number		**UPP35524**	

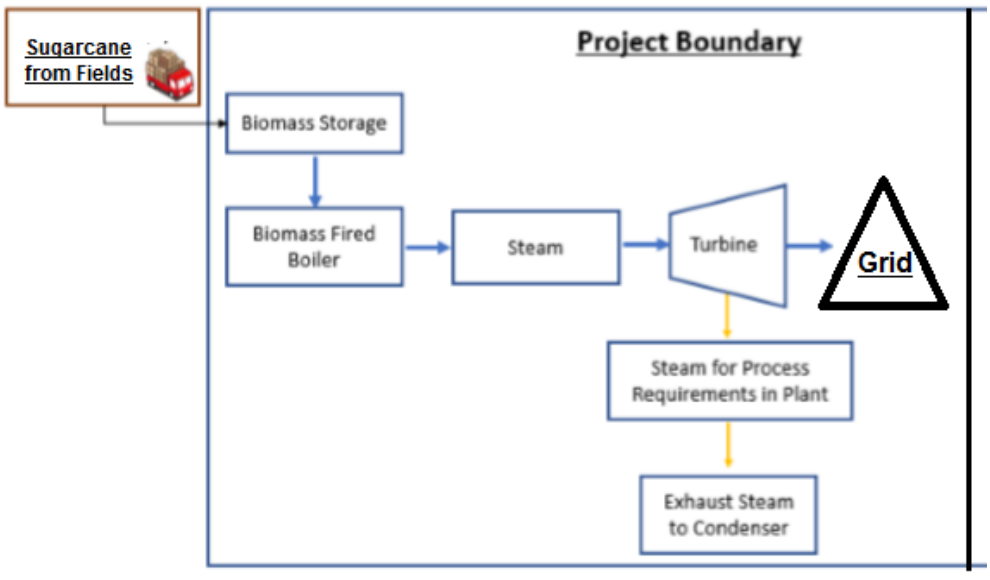
The biomass boilers and turbines are constructed by the project proponent within the project boundary. The biomass boilers, turbines and meters have unique IDs, which is visible on the units..

The 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:

Process flow chart:



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

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

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Leakage Emissions (LE_y)

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

Hence $\mathbf{LE_y} = 0$

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected fossil fuel-based 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 Biomass Power 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

Project Emissions (PEy)

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_2 emission factor for the electricity displaced due to the project activity during the year y in tons CO_2/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.

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Emission Reductions (ER_y) 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:

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

BE_y= Baseline emissions in year y (t CO_{2e})

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

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

Where:

EG $_{grid,y}$ = 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)

$EF_{grid,y}$ = The CO_2 emission factor for grid connected power generation in year y calculated using UCR Standard emission factor (0.9 tCO2/MWh).

PE_y = Project activity emissions is as per paragraph 31 under Section 5.2 of the given methodology, wherein the PP must "For microscale and small-scale project activities, apply a default emission factor of *0.0142 tCO2/tonne of biomass"* for conservativeness.

LE_y = 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)	Baseline Emissions (tCO2)	Emission Reductions (tCO2)
2013	284.6943	5671.199	5386
2014	368.4565	7339.475	6971
2015	357.10968	7113.4524	6756
2016	432.994533	8625.042	8192
2017	481.423297	9589.7196	9108
2018	579.908998	11551.5072	10971
2019	583.136064	11615.7888	11032
2020	590.206657	11756.6316	11166
2021	500.479904	9969.318	9468
		Total	79050

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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 >>

There are no changes to the start date of the crediting period in this MR
1st First UCR Issuance Period: 9 years, 0 months
1st UCR Crediting Period: 01/01/2013 to 31/12/2021

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
1st UCR Monitoring Period: 01/01/2013 to 31/12/2021
1st Monitoring Period Duration: 9 years, 0 months

B.10. 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.

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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 (provided in the ER)
$T_{steam,y}$	Temperature of steam at the recipient's end
$P_{steam,y}$	Pressure of steam
$E_{steam,y}$	Enthalpy of the saturated steam supplied to the recipient
$T_{Feedwater}$	Temperature of boiler feed water
$E_{Feedwater}$	Enthalpy of feed water
$EG_{thermal,y}$	Net quantity of thermal energy supplied by the project activity during the year y
$B_{Biomass,y}$	Net quantity of biomass consumed in year y (on dry basis)
$MC_{biomass}$	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-

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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.

PERFORMANCE TEST REPORT (AS PER ASME -PTC 4.0)
M/s. TRIVENI ENGINEERING AND INDUSATRIES LTD, RAMPUR.

V RESULTS

PARAMETER	UNITS	Gauranteed data	Achieved data
Steam flow at MCR *	TPH	90	76.16
Steam pressure at super heater outlet	kg/cm2(g)	45	46.0
Steam temperature at superheater outlet	Deg C	440 ± 5	445.25
Feed water temperature at economiser inlet	Deg C	105	99.75
Ambient temperature	Deg C	40.00	30.6
Efficiency at 100 % BMCR on GCV basis with Design fuel	%	69.00	71.0

* Steam flow is maintained as per the Process requirement, however the boiler is capable of generating the guranteed steam flow

Boiler Test Report

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

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J.M.R. - II

Check Meter Reading of Generating Mill

READING TO BE TAKEN ON THE 1ST WORKING DAY OF EVERY MONTH

For the Month of : **April-16**

Name of UPPTCL Sub Station : UPPCL,132 KV S/S Tanda
DISST. Rampur (U.P)

Name Of Generating Mill : M/s Triveni Engneering And Industries Ltd,
Milak Narayanpur, PO. Dadiyal, Rampur(U.P)
PIN-244925

C.T. Ratio Available / Connected : 120/1

P.T. Ratio Available / Connected : 33 KV /110 V

SCALE FACTOR IF ANY :

Multiplying Factor : 36 FOR KWH

SEAL	
OLD	MT4112533
NEW	MT4112748

Billing Meter Make : SECURE (APEX)
Number UPP35523

Reading Date 01.05.2016 Time 12:09 Hrs

DESCRIPTION		Date	EXPORT METER READING	IMPORT METER READING
Current Reading	12:09 Hrs	01.05.2016	52990	672135
Previous Reading	11:58 Hrs	01.04.2016	51268	672135
Difference			1722	0
Multiplying Factor			36	36
Total KWH=Difference X Multiplying Factor		KWH	61992	0

Executive Engineer
विद्युत वितरण खण्ड–द्वितीय
पश्चिमांचल विद्युत वितरण निगम लि०
UPPCL-RAMPUR
फोन 0595–2351608

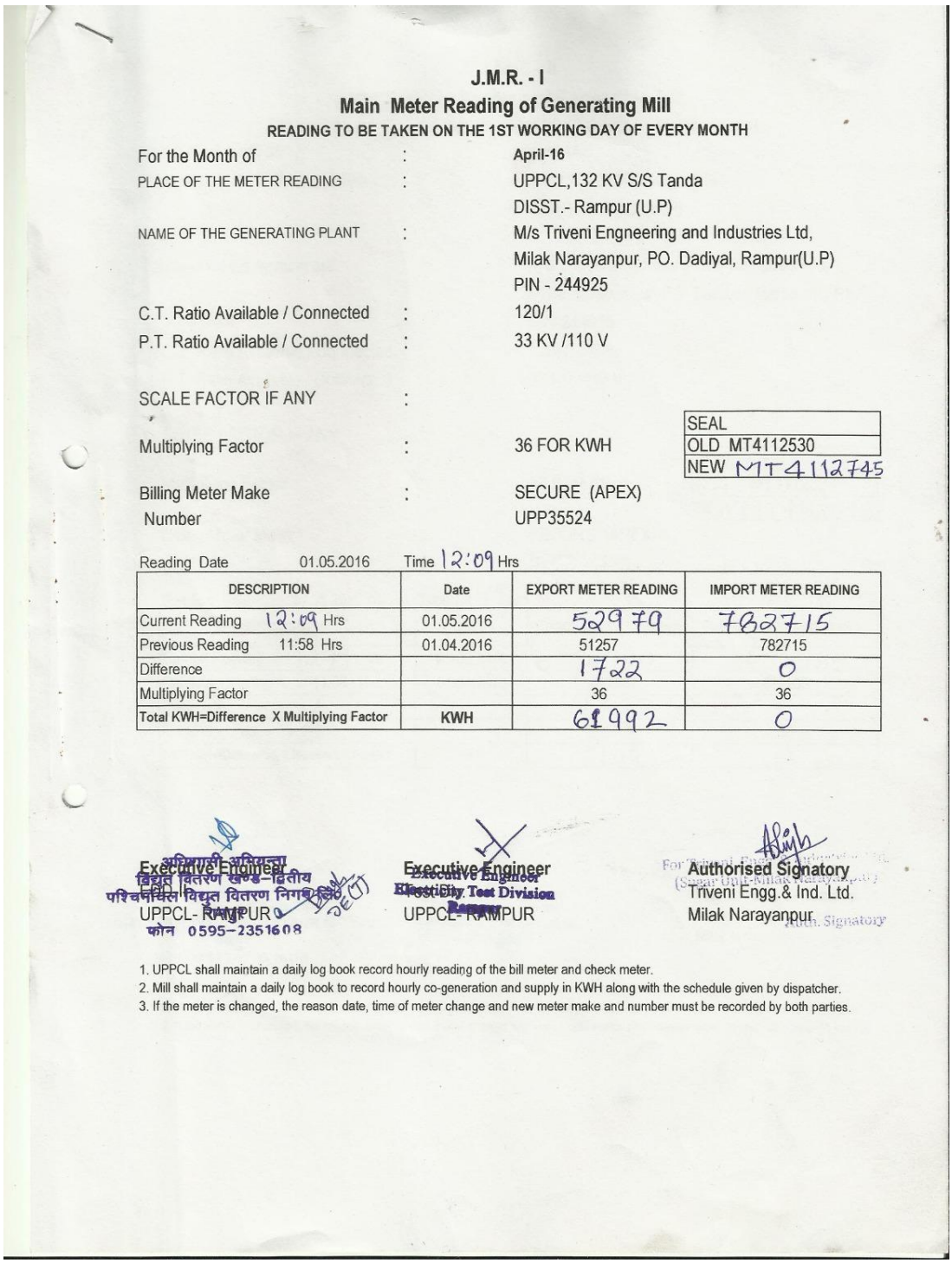
Executive Engineer
Test Div.
Electricity Test Division
UPPCL-RAMPUR

For Triveni Engineering & Industries Ltd.
(Sugar Unit)
Authorised Signatory
Triveni Engg.& Ind. Ltd.
Milak Narayanpur

1. UPPCL shall maintain a daily log book record hourly reading of the bill meter and check meter.
2. Mill shall maintain a daily log book to record hourly co-generation and supply in KWH along with the schedule given by dispatcher.
3. If the meter is changed, the reason date, time of meter change and new meter make and number must be recorded by both parties.

Check Meter Report

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J.M.R. - I

Main Meter Reading of Generating Mill

READING TO BE TAKEN ON THE 1ST WORKING DAY OF EVERY MONTH

For the Month of : **April-16**

PLACE OF THE METER READING : UPPCL,132 KV S/S Tanda
DISST.- Rampur (U.P)

NAME OF THE GENERATING PLANT : M/s Triveni Engneering and Industries Ltd,
Milak Narayanpur, PO. Dadiyal, Rampur(U.P)
PIN - 244925

C.T. Ratio Available / Connected : 120/1

P.T. Ratio Available / Connected : 33 KV /110 V

SCALE FACTOR IF ANY :

Multiplying Factor : 36 FOR KWH

SEAL
OLD MT4112530
NEW MT4112745

Billing Meter Make : SECURE (APEX)
Number : UPP35524

Reading Date 01.05.2016 Time 12:09 Hrs

DESCRIPTION	Date	EXPORT METER READING	IMPORT METER READING
Current Reading 12:09 Hrs	01.05.2016	52979	782715
Previous Reading 11:58 Hrs	01.04.2016	51257	782715
Difference		1722	0
Multiplying Factor		36	36
Total KWH=Difference X Multiplying Factor	KWH	61992	0

Executive Engineer
विद्युत वितरण खण्ड-द्वितीय
पश्चिमांचल विद्युत वितरण निगम लि.
UPPCL- RAMPUR
फोन 0595-2351608

Executive Engineer
Testing Test Division
UPPCL- RAMPUR

Authorised Signatory
Triveni Engg.& Ind. Ltd.
Milak Narayanpur

1. UPPCL shall maintain a daily log book record hourly reading of the bill meter and check meter.
2. Mill shall maintain a daily log book to record hourly co-generation and supply in KWH along with the schedule given by dispatcher.
3. If the meter is changed, the reason date, time of meter change and new meter make and number must be recorded by both parties.

Main Meter 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	

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	<table><tr><th>Year</th><th>TOTAL POWER GENERATION (MWH)</th><th>TOTAL POWER EXPORT(MWH)</th></tr><tr><td>2013</td><td>20993.46.3</td><td>6301.33</td></tr><tr><td>2014</td><td>20977.97</td><td>8154.97</td></tr><tr><td>2015</td><td>22878.124</td><td>7903.84</td></tr><tr><td>2016</td><td>22359.258</td><td>9583.38</td></tr><tr><td>2017</td><td>27154.188</td><td>10655.24</td></tr><tr><td>2018</td><td>36577.1</td><td>12835.01</td></tr><tr><td>2019</td><td>36579.98</td><td>12906.43</td></tr><tr><td>2020</td><td>36938.8</td><td>13062.92</td></tr><tr><td>2021</td><td>34553.85</td><td>11077.02</td></tr></table>
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.

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MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)
Mobile : 9212566694, E-mail : microcallab@gmail.com

CC-2981

Calibration Certificate

Certificate/ULR No.: ULR-CC266122000001263F

1.	Customer Name and Address	:-	M/s. Triveni Engineering & Industries Ltd., Sugar Unit:- Milak Narayanpur, P.O. Gadiyal, Tehsil Sawar, Distt. Rampur- 244925 (U.P.)			
2.	Reference					
	Service request no. & Date	:-	2022/158 & 1-Sep-2022			
	Date of receipt of UUC	:-	1-Sep-2022			
	Condition of UUC on receipt	:-	Satisfactory			
3.	Location of Calibration	:-	132kV Sub-Station Tanda, District- Rampur			
4.	Calibration Details					
	Date of issue	:-	3-Sep-2022			
	Date of Calibration	:-	1-Sep-2022			
	Due Date of Calibration	:-	31-Aug-2023			
5.	Description of Unit Under Calibration					
	Name	:-	Three Phase Energy Meter			
	Make	:-	Secure Meters Limited			
	Serial Number	:-	UPT35524			
	Rack No.	:-	UPT35531			
	Model	:-	APEX			
	Type	:-	R3M221-436, 3Ph, 4Wire			
	Voltage (p-n)	:-	3x63.5 V			
	Current	:-	Ib: 1A Imax: 12A			
	Voltage Ratio	:-	-/110/V3			
	Current Ratio	:-	-/1A			
	Class	:-	0.2S For Active and Reactive			
	Meter constant	:-	160 Pulses/Unit			
	Unit	:-	Wh, VAh			
	Frequency	:-	50 Hz			
	Meter Energy	:-	Before Calibration		After Calibration	
			Import	Export	Import	Export
		Wh	711375	169202	711432	169224
		VAh	722675	175403	722750	175437
6.	Environmental conditions					
	Temperature	:-	31.2-32.2°C			
	Relative Humidity	:-	60-63%			
	Weather	:-	Clear			
7.	Witnessed by					
i)	Er. Indresh Kumar (AE) T&C, Rampur	:-				
ii)	Er. Rajeev Kumar (JE) T&C, Rampur	:-				
iii)	Er. Yashvir Singh (JE) Transmission, Rampur	:-				
iv)	Mr. A. K. Chauhan (DGM Electrical) Triveni Engineering & Industries Ltd., MNP	:-				

Calibrated by
Calibration Engineer
Manveer Kasana

Approved by
Technical Manager
Shashi Kumar

Calibration Test Report

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MICRO CALIBRATION LAB

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Mobile : 9212566694, E-mail : microcallab@gmail.com

CC-2981

Calibration Certificate

Certificate/ULR No.: ULR-CC268122000001262F Page 1 of 4

1.	Customer Name and Address	:-	M/s. Triveni Engineering & Industries Ltd., Sugar Unit:- Milak Narayanpur, P.O. Dadiyal, Tehsil Sawar, Distt. Rampur- 244925 (U.P.)			
2.	Reference					
	Service request no. & Date	:-	2022/158 & 1-Sep-2022			
	Date of receipt of UUC	:-	1-Sep-2022			
	Condition of UUC on receipt	:-	Satisfactory			
3.	Location of Calibration	:-	132kV Sub-Station Tanda, District- Rampur			
4.	Calibration Details					
	Date of issue	:-	3-Sep-2022			
	Date of Calibration	:-	1-Sep-2022			
	Due Date of Calibration	:-	31-Aug-2023			
5.	Description of Unit Under Calibration					
	Name	:-	Three Phase Energy Meter			
	Make	:-	Secure Meters Limited			
	Serial Number	:-	UPP35523			
	Rack No.	:-	UPP36829			
	Model	:-	APEX			
	Type	:-	RSM021-436, 3Ph, 4Wire			
	Voltage (p-n)	:-	3x63.5 V			
	Current	:-	Ib: 1A Imax: 1.2A			
	Voltage Ratio	:-	-/110/V3			
	Current Ratio	:-	-/1A			
	Class	:-	0.2S For Active and Reactive			
	Meter constant	:-	160 Pulses/Unit			
	Unit	:-	Wh, VArh			
	Frequency	:-	50 Hz			
	Meter Energy	:-	Before Calibration		After Calibration	
			Import	Export	Import	Export
		Wh	600911	169194	600968	169216
		VArh	611043	175374	611119	175409
6.	Environmental conditions					
	Temperature	:-	31.2-32.2°C			
	Relative Humidity	:-	60-65%			
	Weather	:-	Clear			
7.	Witnessed by					
i)	Er. Indresh Kumar (AE) T&C, Rampur	:-				
ii)	Er. Rajeev Kumar (JE) T&C, Rampur	:-				
iii)	Er. Yashvir Singh (JE) Transmission, Rampur	:-				
iv)	Mr. A. K. Chauhan (DGM Electrical) Triveni Engineering & Industries Ltd., MNP	:-				

Calibrated by
Calibration Engineer
Manveer Kasana

MICRO CALIBRATION LAB FARIDABAD

Approved by
Technical Manager
Shashi Kumar

Calibration Test Report

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MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)
Mobile : 9212566694, E-mail : microcallab@gmail.com

CC-2661

Calibration Certificate

Certificate/ULR No.: ULR-CC266122000001264F Page 1 of 4

1.	Customer Name and Address	:-	M/s. Triveni Engineering & Industries Ltd., Sugar Unit;- Milak Narayanpur, P.O. Dadiyal, Tehsil Sawar, Distt. Rampur- 244925 (U.P.)
2.	Reference		
	Service request no. & Date	:-	2022/158 & 1-Sep-2022
	Date of receipt of UUC	:-	1-Sep-2022
	Condition of UUC on receipt	:-	Satisfactory
3.	Location of Calibration	:-	Switchyard M/s. Triveni Engineering & Industries Ltd., Sugar Unit;- Milak Narayanpur, P.O. Dadiyal, Tehsil Sawar, Distt. Rampur- 244925 (U.P.)
4.	Calibration Details		
	Date of issue	:-	3-Sep-2022
	Date of Calibration	:-	1-Sep-2022
	Due Date of Calibration	:-	31-Aug-2023
5.	Description of Unit Under Calibration		
	Name	:-	Three Phase Energy Meter
	Make	:-	Secure Meters Limited
	Serial Number	:-	UPP35214
	Model	:-	Premier
	Type	:-	E3M021, 3Ph, 4Wire
	Voltage (p-n)	:-	3x63.5 V
	Current	:-	Ib: 1A Imax: 2A
	Voltage Ratio	:-	-/110V/√3
	Current Ratio	:-	-/1A
	Class	:-	0.2S For Active and Reactive
	Meter constant	:-	160 Pulses/Unit
	Unit	:-	Wh, VArh, VAh, W, VA
	Frequency	:-	50 Hz
6.	Environmental conditions		
	Temperature	:-	31.2-32.2°C
	Relative Humidity	:-	60-65%
	Weather	:-	Clear
7.	Witnessed by		
i)	Er. Indresh Kumar (AE) T&C, Rampur	:-	
ii)	Er. Rajeev Kumar (JE) T&C, Rampur	:-	
iii)	Er. Yashvir Singh (JE) Transmission, Rampur	:-	
iv)	Mr. A. K. Chauhan (DGM Electrical) Triveni Engineering & Industries Ltd., MNP	:-	

Calibrated by
Calibration Engineer
Manveer Kasana

MICRO CALIBRATION LAB FARIDABAD

Approved by
Technical Manager
Shashi Kumar

Calibration Test Report

Data / Parameter:	**Tonnes/annum**
Data unit:	Tonnes coal
Description:	Total used – computerised daily feed values
Value(s) applied	Year: 2013-2021 — Tonnes: 0
Measurement procedures (if any):	-
Monitoring frequency:	Monitored continuously.
Any comment:	Electronic data sheets and invoices maintained-

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<table>
<tr><td>Data / Parameter:</td><td>Tonnes/year</td></tr>
<tr><td>Data unit:</td><td>Tonnes Biomass</td></tr>
<tr><td>Description:</td><td>Total used – computerised daily feed values</td></tr>
<tr><td>Measurement procedures (if any):</td><td>Belt weigher -</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Year</th><th>Biomass Quantity Consumed (Tonnes)</th></tr>
<tr><td>2013</td><td>20048.89</td></tr>
<tr><td>2014</td><td>25947.64</td></tr>
<tr><td>2015</td><td>25148.57</td></tr>
<tr><td>2016</td><td>30492.57</td></tr>
<tr><td>2017</td><td>33903.05</td></tr>
<tr><td>2018</td><td>40838.66</td></tr>
<tr><td>2019</td><td>41065.92</td></tr>
<tr><td>2020</td><td>41563.85</td></tr>
<tr><td>2021</td><td>35245.06</td></tr>
</table>
</td></tr>
<tr><td>Monitoring frequency:</td><td>-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</td></tr>
<tr><td>QA/QC procedures:</td><td>-The values can be cross checked against the daily purchase records and stocks records. RT8 (C) form (Final manufacturing report) for sugar season 2013-2021 submitted to Central Excise Department for taxation purposes.</td></tr>
<tr><td>Any comment:</td><td>-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).</td></tr>
</table>

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Data/Parameter	GCV_k
Data unit	GJ/t
Description	Gross Calorific Value of Biomass Residue Type *K*
Source of data	Measurements will be carried out by reputed labs and reported in dry biomass basis.
Value(s) applied	2100.26 Kcal/Kg
Measurement methods and procedures	On site and in labs
Monitoring frequency	Every 6 months
Purpose of data	Quality control

Performance test fuel analysis (Ultimate) as per lab report :-

	Units	As per lab analysis
Carbon	%	26.82
Hydrogen	%	3.12
Oxygen	%	22.09
Sulphur	%	0.09
Nitrogen	%	0.14
Moisture	%	45.34
Ash	%	2.40
Total	%	100.00
Gross calorific value - GCV	kcal/kg	2296.00

Lab Analysis of Bagasse

Data / Parameter:	**Fixed**
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 -

Data / Parameter:	Moisture content of biomass residues
Data unit:	% water content
Description	Moisture content of each biomass residue k
Measured /Calculated /Default:	Measured/Lab Analysis
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:	45.34

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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

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