



Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT



Title: 27 MW Bagasse based Co-generation by M/s Karmayogi Kundalikrao Ramrao Jagtap Patil Sahakari Sakhar Karkhana Pimpalgaon Vasa Tal- Shrigonda Dist – Ahamednagar.

Version 1.0

Date 14-04-2024

UCR ID : 409

First CoU Issuance Period: 05-12-2013 to 31-12-2022 (9 Years 26 days)

Crediting Period: 05-12-2013 to 31-12-2022 (9 Years 26 days)

1 st Monitoring Period: 05-12-2013 to 31-12-2022 (9 Years 26 days)



Monitoring Report

Title of the project activity	27 MW Bagasse based Co-generation by M/s Karmayogi Kundalikrao Ramrao Jagtap Patil Kukadi Sahakari Sakhar Karkhana – Pimpalgaon Vasa Tal- Shrigonda Dist- Ahmednagar.
UCR Project Registration Number	409
Version	1.0
Completion date of the MR	14-04-2024
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 01 Duration of this monitoring Period: 9 Year 26 Days (first and last days included (05/12/2013 to 31/12/2022))
Project participants	Project Proponent: M/s Karmayogi Kundalikrao Ramrao Jagtap Patil Kukadi Sahakari Sakhar Karkhana Aggregator: Climekare Sustainability Pvt ltd. UCR ID: 336812961
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: ACM0006: Electricity and heat generation from biomass (Ver. 16) & UCR Standard for Emission Factor
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Actual amount of GHG emission reductions for this monitoring period (2013-2022)	2013: 2,311 CoUs
	2014: 12,575 CoUs
	2015: 18,443 CoUs
	2016: 9,842 CoUs
	2017: 1,926 CoUs
	2018: 22,563 CoUs
	2019: 16,215 CoUs
	2020: 6,610 CoUs
	2021: 24,125 CoUs
	2022: 23,591 CoUs
	Total: 1,38,201 CoUs

SECTION A. Description of project activity

A Purpose and general description of project activity >>

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

The purpose of establishing a co-generation plant with the sugar plant is to maximize the productive utilization of by-product from the sugar manufacturing unit. When sugar cane is crushed and juiced, it leaves behind a semi-dry by-product called bagasse. This by-product, when dried and burnt in the boiler, can generate heat and/or power. The steam and power generated in the Co-gen power plant can be used in the sugar plant. The excess power may be exported to the state electricity grid and sold to end-users downstream.

The proposed project activity with title under UCR “27 MW Biomass based Grid-connected Bagasse Power Project of M/s Kukadi sahakari sakhar karkhana ltd, Maharashtra” implements a co-generation power project of 27 MW capacity. The project Net exported 1,71,400 MWh during the monitoring period of 05/12/2013 to 31/12/2022, the 100% electricity is sold to the state Discom i.e., MSEDCL. The power generation synchronization is with the 132kv/110V substation of MSEDCL (substation at Bhose). The project is commercially operation since 05-12-2013 with continuous reduction of GHG, currently being applied under “Universal Carbon Registry” (UCR).

Before 2019 this project name was Kukadi sahakari sakhar karkhana but according to section 15 of the Maharashtra Co-operative societies act, 1960 the name of the society has been amended as “Karmyogi kundalikrao ramrao jagrap patil kukadi sahakari sakhar karkhana ltd.

The kukadi sahakari sakhar karkhana ltd is registered under the Maharashtra state co-operative societies act 1960, under the registration No ANR/SGA/PRG/A/S-84 on the date of 01 august 1997. The factory obtained industrial licenses for capacity of 2500 TCD and successfully completed trail season in 2002-2003. Kukadi sugar factory is manufacturing white crystal sugar by double sulphitation process.

a) Purpose of the project activity and the measures taken for GHG emission reductions >>

The concept of only cane crushing and production of sugar will lead neither the industry nor farmer to a level of economic advantage. Therefore the promoters of this sugar factory have decided to adopt by products or co-generation such as co-generation of surplus power. The surplus power is generated by using steam at high pressure and using exhaust steam from TG set at required low pressure to sugar manufacturing.

The project activity is the construction and operation of a power plant/unit that uses renewable energy sources and supplies electricity to the grid as well as generate heat for the captive consumption at 5500 TCD sugar mill. At designed level, the project will generate clean energy and after meeting the captive requirement export the surplus energy to MSEDCL. The project activity is thus the displacement of electricity that would be provided to the grid by more-GHG-intensive means and provides long-term benefits to the mitigation of climate change. It is established that the project saves 1,38,201 tons of CO₂ being generated due to the consumption of electricity from the national grid. The electricity export to the MSEDCL grid will displace the fossil fuel-based electricity in the national grid system.

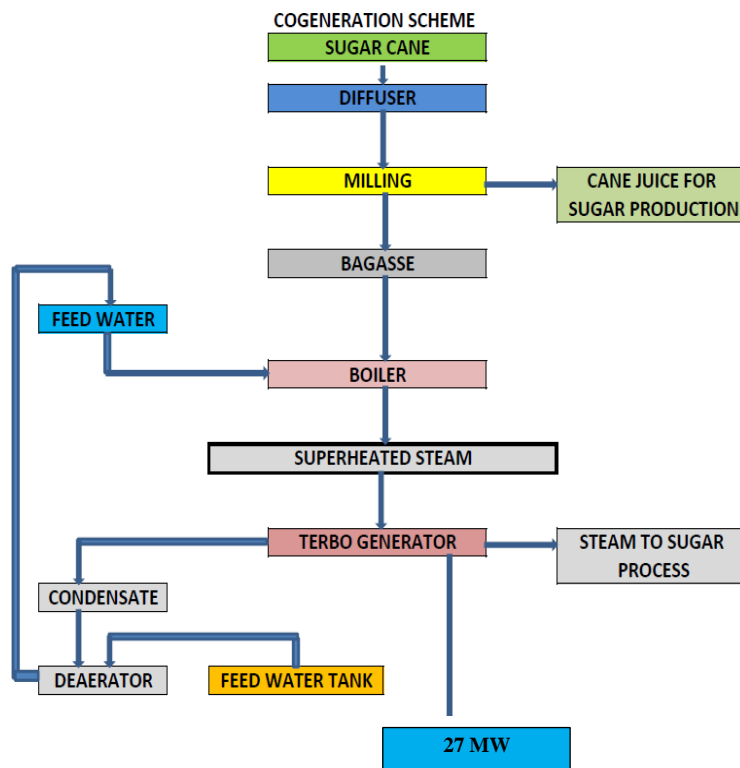
b) Brief description of the installed technology and equipment>>

The project activity employs 27 MW aggregated generators along with boilers, One 85 TPH boiler and two of 40 TPH boilers with high pressure and temperature configuration (45kg/cm², 490°C and 87 kg/cm², 515°C).



Figure 1 Project activity photographs

The Project activity in a process flow diagram is expressed below:



- Some of the salient features of the project equipment can be found in the below mentioned table:

Boiler	No. 1	No. 2	No. 3
Manufacturer	SS Engineers, MIDC, Bhosari, Pune	SS Engineers, MIDC, Bhosari, Pune	SS Engineers, MIDC, Bhosari, Pune
Capacity Kg/Hr.	40000 Kg/Hr	40000 Kg/Hr	85000 Kg/Hr
Heating Surface M2	2177	2177	4924
Type of Furnace	Dumping Grate	Dumping Grate	Chain Grate
Grate Area M2	22.8	22.8	1250
Super heater H.S. M2	270	270	Pri-572 & Sec-449
Air heater H.S. M2	1500	1500	4611
Degree of super heat °C	490	490	525

(Steam)			
Details of Soot blower	Two Nos Retractable type Remaining Rotary Type	Two Nos Retractable type Remaining Rotary Type	Four Nos Retractable type Remaining Rotary Type
Plain tube Economizer H.S. M2	450	450	1810

Turbine	No. 1	No. 2
Power Rated (KW)	12000	15000
Turbine Speed (RPM)	7018	6050
Gear Box Type	Double Helical	Double Helical
Steam Exhaust Pressure (Kg/cm ² g)	1.5	0.9468kg/cm ² g
Oil Cooler Type	Shell & Tube, Duplex	Shell & Tube

Table 1 Technical Specifications

c) Relevant dates for the project activity (e.g., construction, commissioning, continued operation periods, etc.)>>

The duration of the crediting period corresponding to the monitoring period is covered in this monitoring report.

UCR Project ID : 409
 Start Date of Crediting Period : 05/12/2013
 The project was commissioned on : 05/12/2013

d) Total GHG emission reductions achieved or net anthropogenic GHG removals by sinks achieved in this monitoring period>>

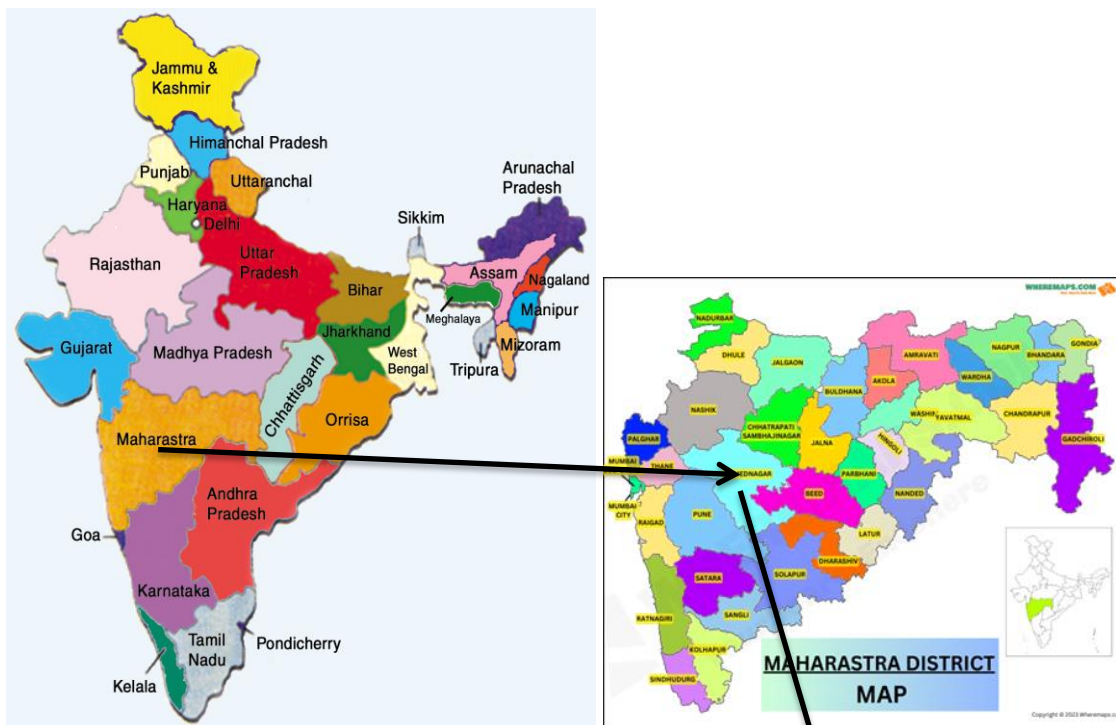
The total GHG emission reductions achieved in this monitoring period is as follows:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of this Monitoring Period	05/12/2013
Carbon credits claimed up to	31/12/2022
Total ERs generated (tCO _{2eq})	1,38,201 tCO _{2eq}

Table 2

A.1. Location of project activity>>

Country : India
Village : Pimpalgaon
District : Ahmednagar
State : Maharashtra
Latitude : 18°47'45"N
Longitude : 74°36'57"E



A.2. Parties and project participants >>

Party (Host)	Participants
India	Project Owner: M/s. Karmayogi Kundalikrao Ramrao Jagtap Patil Kukadi Sahakari Sakhar Karkhana Pimpalgaon Pisa, Tal– Shrigonda Dist– Ahmednagar. Project Aggregator: Climekare sustainability Pvt. Ltd. UCR ID: 336812961

Table 3

A.3. References to methodologies and standardized baselines >>

TYPE - Renewable Energy Projects

SECTORAL SCOPE - 01 Energy industries (Renewable/Non-Renewable Sources)

CATEGORY - ACM0006: “Electricity and heat generation from biomass” Version 16.0

A.4. Crediting period of project activity >>

Start date : 05/12/2013
Crediting period corresponding to this monitoring period : 09 Year 26 Days.
05/12/2013 to 31/12/2022 (Both the dates are inclusive)

A.5. Contact information of responsible persons/entities >>

Consultant: Climekare Sustainability Pvt. Ltd.

Email: sustainability@climekare.com

Phone: 9811752560

UCR ID: 336812961

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity >>

a) Provide information on the implementation status of the project activity during this monitoring period in accordance with UCR PCN>>

The total Co-gen power project of 27 MW capacity operates on bagasse for around 160-180 season days of the sugar mill operation.

Sr. No.	Sugarcane Crushing Season	Gross Days	Sugarcane Crushing MT	Date of Monitoring	Date of Closure season
1	2013-14	85	416006.018	05/12/2013	2/28/2014
2	2014-15	151	603520.199	11/9/2014	4/8/2015
3	2015-16	128	518845.784	11/1/2015	3/7/2016
4	2016-17	49	104937.221	11/10/2016	12/28/2016
5	2017-18	145	640153.196	11/20/2017	3/26/2018
6	2018-19	150	693263.497	10/28/2018	3/26/2019
7	2019-20	Sugar Factory was closed due to unavailability of sugarcane.			
8	2020-21	171	705705.91	10/25/2020	4/13/2021
9	2021-22	186	798007.52	11/2/2021	5/6/2022
10	2022	64	493684.471	10/29/2022	31/12/2022

b) For the description of the installed technology, technical process and equipment, include diagrams, where appropriate>>

All the steam and power requirements of the sugar mill and Co-gen power plant will be met internally from the project itself. The excess electricity generated is exported to the grid. The project activity employs three (3) boilers and two (2) turbo-generators. The technical details of the project activity can be found out in **section A. (b)** of the document.

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

Indian economy is highly dependent on “Coal” as fuel to generate energy and for production processes. Thermal power plants are the major consumers of coal in India and yet the basic electricity needs of a large section of population are not being met. This results in excessive demands for electricity and places immense stress on the environment.

Changing coal consumption patterns will require a multi-pronged strategy focusing on demand, reducing wastage of energy and the optimum use of renewable energy (RE) sources. This project is a Greenfield activity where grid power is the baseline. The renewable power generation is gradually contributing to the share of clean & green power in the grid; however, grid emission factor is still on higher side which defines grid as distinct baseline.

The Government of India has stipulated following indicators for sustainable development in the interim approval guide lines for such projects which are contributing to GHG mitigations. The Ministry of Environment, Forests & Climate Change, has stipulated economic, social, environment 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: Sugar factory require a diverse workforce, including engineers, technicians, laborers, and administrative staff. The project has created numerous job opportunities for local residents, reducing unemployment rates and improving the economic stability of the community.

Due to this project activity the necessitate improvements in local infrastructure, such as roads, transportation networks, and utilities. These enhancements can benefit not only the factory but also the entire community by facilitating easier access to markets, healthcare facilities, and educational institutions.

The project would help in generating direct and indirect employment benefits accruing out of ancillary units for implementation of the cogeneration power plant and for maintenance during operation of the project activity. It will lead to development of infrastructure around the project area in terms of improved road network etc. and will also directly contribute to the development of renewable infrastructure in the region.

Sugar factories often source their raw materials, such as sugarcane from local farmers. By providing a stable market for agricultural produce, the factory can support farmers' livelihoods and encourage investment in agricultural activities. This support can help enhance food security and promote sustainable farming practices in the region.

Environmental well-being: The project utilizes biomass energy for generating electricity which is a clean source of energy. The project activity will not generate any air pollution, water pollution or solid waste to the environment which otherwise would have been generated through fossil fuels. Also, it will contribute to reduction GHG emissions. Thus, the project causes no negative impact on the surrounding environment contributing to environmental well-being.

Many of the farmers are increasingly adopting sustainable practices throughout their operations, including energy efficiency improvements, waste minimization, and environmental monitoring.

Economic well-being: Being a renewable resource, using biomass energy to generate electricity contributes to conservation precious natural resources. The project contributes to the economic sustainability through promotion of decentralization of economic power, leading to diversification of the national energy supply, which is dominated by conventional fuel based generating units.

Locally, improvement in infrastructure 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 project activity leads to the promotion of cogeneration power plant into the region and will promote practice for small scale industries to reduce the dependence on carbon intensive grid supply to meet the captive requirement of electrical

energy and also increasing energy availability and improving quality of power under the service area. Hence, the project leads to technological well-being.

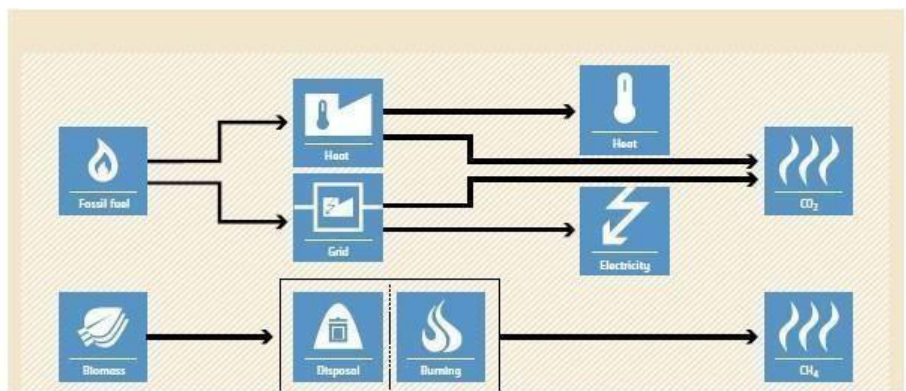
B.3. Baseline Emissions>>

In the absence of the project activity, the equivalent amount of electricity would have been imported from the regional grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to predominantly sourced from fossil fuel-based power plants.

Baseline Scenario:

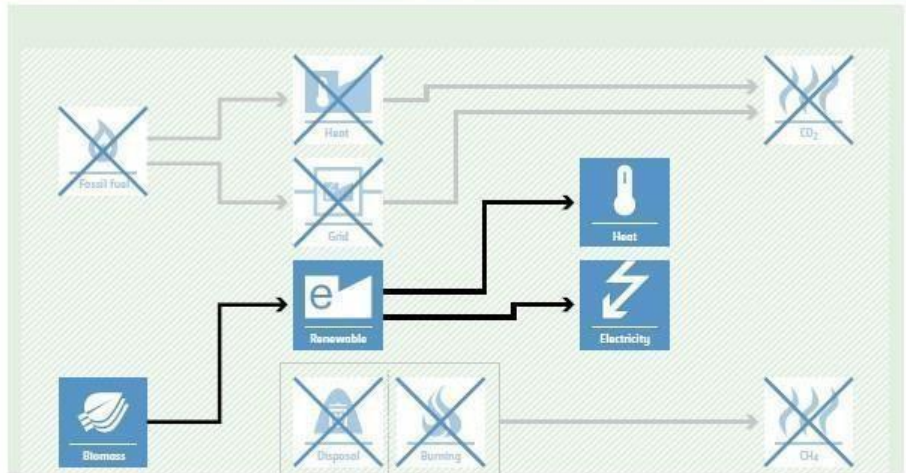
BASELINE SCENARIO

Electricity and heat would be produced by more-carbon-intensive technologies based on fossil fuel or less-efficient biomass power and heat plants. Biomass could partly decay under anaerobic conditions, bringing about methane emissions.



PROJECT SCENARIO

Use of biomass for power and heat generation instead of fossil fuel or increase of the efficiency of biomass-fuelled power and heat plants. Biomass is used as fuel and decay of biomass is avoided.



Thus, this project activity was a voluntary investment which replaced equivalent amount of electricity from the Indian grid. The continued operation of the project activity would continue to replace fossil fuel-based power plants and fight against the impacts of Climate change.

B.4. De-bundling>>

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

SECTION-C: Application of methodologies and standardized baselines

C.1. References to methodologies and standardized baselines >>

Sectoral Scope: 01 Energy industries (Renewable/Non-Renewable Sources).

TYPE I – Renewable Energy Projects.

Applied Baseline Methodology: ACM0006: “Electricity and heat generation from biomass”
Version 16.0

C.2. Applicability of methodologies and standardized baselines >>

The project activity involves generation of grid connected electricity from the construction and operation of a cogeneration power-based project and selling the additional generation to the national grid. The project activity has installed capacity of 27 MW which will qualify for a large-scale project activity under Type-I of the Large-Scale methodology. The project status is corresponding to the methodology ACM0006, Version 16 and applicability of methodology is discussed below:

Applicability Criteria	Project Condition
<p>1. The methodology is applicable under the following conditions:</p> <ul style="list-style-type: none">(a) Biomass used by the project plant is limited to biomass residues, biogas, RDF2 and/or biomass from dedicated plantations;(b) Fossil fuels may be co-fired in the project plant. However, the amount of fossil fuels co-fired does not exceed 25% of the total fuel fired on energy basis.(c) For projects that use biomass residues from a production process (e.g., production of sugar or wood panel boards), 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, rice, logs, etc.) or in other substantial changes (e.g., product change) in this process;(d) The biomass used by the project plant is not stored for more than one year;(e) The biomass used by the project plant is not processed chemically or biologically (e.g., through esterification, fermentation,	<p>1. The project is implemented to use 100% of the bagasse in the crushing season, the criteria points (b) (c), (d) and (e) are applicable.</p>

<p>hydrolysis, pyrolysis, bio- or chemical-degradation, etc.) prior to combustion. Drying and mechanical processing, such as shredding and palletization, are allowed</p>	
<p>2. In the case of fuel switch project activities, the use of biomass or the increase in the use of biomass as compared to the baseline scenario is technically not possible at the project site without a capital investment in:</p> <ul style="list-style-type: none"> (a) The retrofit or replacement of existing heat generators/boilers; or (b) The installation of new heat generators/boilers; or (c) A new dedicated supply chain of biomass established for the purpose of the project (e.g., collecting and cleaning contaminated new sources of biomass residues that could otherwise not be used for energy purposes); or (d) Equipment for preparation and feeding of biomass. 	<p>2. The project is a new greenfield project and hence this criterion is not applicable.</p>
<p>3. If biogas is used for power and heat generation, the biogas must be generated by anaerobic digestion of wastewater, and:</p> <ul style="list-style-type: none"> (a) If the wastewater generation source is registered as a CDM project activity, the details of the wastewater project shall be included in the PDD, and emission reductions from biogas energy generation are claimed using this methodology; (b) If the wastewater source is not a CDM project, the amount of biogas does not exceed 50% of the total fuel fired on energy basis. 	<p>3. There is no production of biogas and hence this criterion is not applicable.</p>
<p>4. In the case biomass from dedicated plantations is used, the “TOOL16: Project and leakage emissions from biomass” shall apply to determine the relevant project and leakage emissions from cultivation of biomass and from the utilization of biomass residues.</p>	<p>4. The bagasse produced as a waste of the sugar mill is being used for the generation of steam, and during. and hence this criterion is also not applicable.</p>

C.3 Applicability of double counting emission reductions >>

The project was not applied under any other GHG mechanism. Hence project will not cause double accounting of carbon credits (i.e., COUs).

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

The spatial extent of the project boundary encompasses:

1. All plants generating power and/or heat located at the project site, whether fired with biomass, fossil fuels or a combination of both.
2. All power plants connected physically to the electricity system (grid).

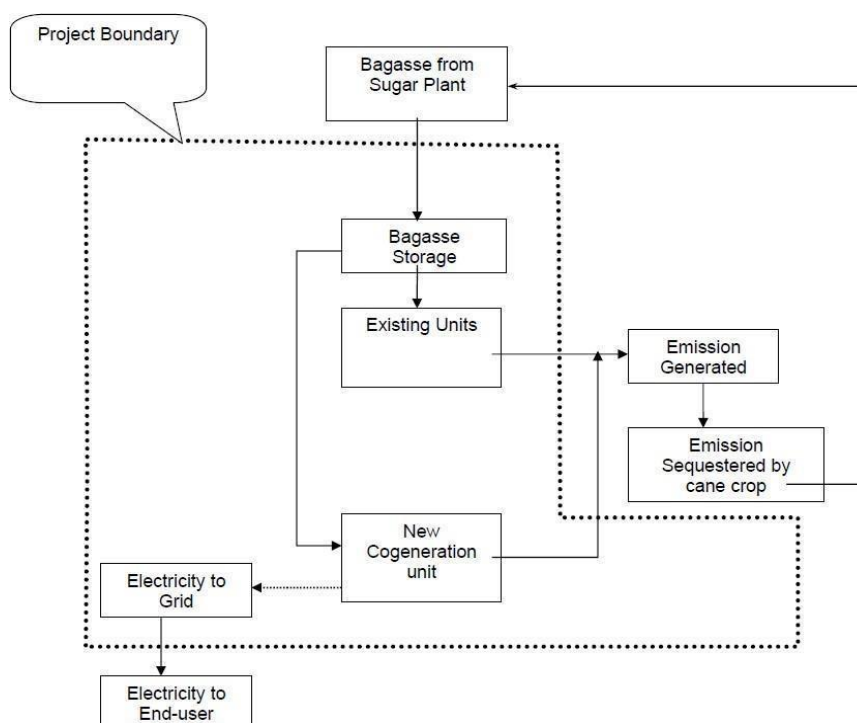


Figure 5

By using GHG-neutral biomass (Bagasse), the PP is successfully able to avoid the fossil fuel emissions and thereby GHG emissions due to in-house cogeneration energy requirements and also vehicular emissions avoiding sourcing of biomass fuel from a large distance.

	Source	GHG	Included?	Justification/Explanation
Baseline	CO2 Emissions from burning of fossil fuels in boilers	CO2	Included	Major source of GHG emissions
		CH4	Excluded	Excluded for simplification.
		N2O	Excluded	Excluded for simplification.
Project Activity	Emissions from Biomass Project Activity	CO2	Excluded	Excluded for simplification.
		CH4	Excluded	Excluded for simplification.
		N2O	Excluded	Excluded for simplification.

Figure 6

C.5. Establishment and description of baseline scenario (UCR Protocol) >>

As per para 20 of the approved consolidated methodology ACM0006 Version 16, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

“All plants generating power and/or heat located at the project site, whether fired with biomass, fossil fuels or a combination of both”.

Net GHG Emission Reductions and Removals

- ❖ Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (\text{Eq. 1})$$

Where,

ER_y = Emissions reductions in year y (t CO₂)

BE_y = Baseline emissions in year y (t CO₂)

PE_y = Project emissions in year y (t CO₂)

LE_y = Leakage emissions in year y (t CO₂)

- ❖ The Baseline emissions in year y can be calculated as follows:

$$BE_y = EL_{MWh_y} \times EF_{Grid_y} \quad (\text{Eq. 2})$$

Where,

EL_{MWh_y} = Quantity of net electricity supplied to the grid as a result of the

implementation of the project activity in year y (MWh)

EF_{Gridy} = Grid emission factor in year y (tCO₂/MWh)

BE_y = 171,400 * 0.9 = 154,257

- ❖ Since this is a biomass fired cogeneration project, emission reduction is calculated for the net electricity imported to the grid. This amount will be deducted from the total value of emission reduction post-ante.
- ❖ For large-scale project activities, a net-to-gross adjustment of 10%, i.e. the emission reductions determined based on the applied methodology by 0.9 to determine the final amount of emission reductions that can be claimed per vintage.

$$PET = (154,257 * 10\%) = 15,420 \text{ (Round down)} \quad (\text{Eq. 3})$$

- ❖ CO₂ emissions from fossil fuel combustion in process j are calculated based on the quantity of fuels combusted and the CO₂ emission coefficient of those fuels, as follows:

$$PEFC_{j,y} = \sum FCI_{j,y} \times COEF_{i,y}$$

Where:

$PEFC_{j,y}$ = Are the CO₂ emissions from fossil fuel combustion in process j during the year y (tCO₂/yr)

$FCI_{j,y}$ = Is the quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr)

$COEF_{i,y}$ = Is the CO₂ emission coefficient of fuel type i in year y (tCO₂/mass or volume unit)

i = Are the fuel types combusted in process j during the year y

$$COEF_{i,y} = NCV_{i,y} \times EFCO2_{i,y}$$

Where:

$COEF_{i,y}$ = Is the CO₂ emission coefficient of fuel type i in year y (tCO₂/mass or volume unit)

$NCV_{i,y}$ = Is the weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)

$$= \text{NCV of wood is } 15.5 \text{ TJ/kg (15.5 GJ/tCO}_2\text{)}$$

$EFCO2_{i,y}$ = Is the weighted average CO₂ emission factor of fuel type i in year y (tCO₂/GJ)

= Co₂ emission coefficient For wood is 100500 kg/TJ (0.1005 tCO₂/GJ)
(Confirmed from IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG)

i = Are the fuel types combusted in process j during the year y

= fuel type combusted in process is wood.

$$COEF_i = NCV_i \times EFCO_2,$$

$$= 0.1005 \times 15.5$$

$$= 1.557$$

- ❖ It is an integrated Co-gen plant. The biomass is the output of the sugar mill and which is being consumed hence there is no leakage emissions being generated.

$$LE_y = 0 \quad (\text{Eq. 4})$$

Total Emission reduction by the project for the current monitoring period is calculated as below:

Year	Electricity supplied to grid (mw)	Baseline Emission	PET	PE (FC)	ER
2013	2894.895	2605	260	34	2311
2014	15584.51	14026	1402	49	12575
2015	22829.37	20546	2054	49	18443
2016	12204.6	10984	1098	44	9842
2017	2429.642	2186	218	42	1926
2018	27855.27	25069	2506	00	22563
2019	20018.28	18016	1801	00	16215
2020	8485.8	7637	763	264	6610
2021	29878.92	26891	2689	77	24125
2022	29219.52	26297	2629	77	23591
Total	171400.80	154257	15420	636	138201

Figure 7

C.6. Prior History>>

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

C.7. Monitoring period number and duration>>

First Monitoring Period : 9 Year 26 Days

05/12/2013 to 31/12/2022 (inclusive of both dates)

C.8. Changes to start date of crediting period >>

There is no change in crediting date as mentioned in the PCN, i.e., crediting period start date is 05/12/2013.

C.9. Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline >>

No permanent changes in monitoring plan and applied methodology.

C.10. Monitoring plan>>

The monitoring of electricity data revolves around the power generation from the turbine generators and the auxiliary consumption of the power plant. All auxiliary units at the power plant are metered and there are also main meters attached to each turbine generator to determine their total generation.

Operational records and other evidences have been documented, collected and archived in either hard-copies or electronic manners. The energy generation is metered by calibrated meters. Steam quantity, temperature and pressure are measured by calibrated meters. All the values can be checked from the source data i.e. Plant records.

The total amount of bagasse generated by the sugar plant can be calculated from the amount of cane crushed in the season (monitored variable), which is obtained from the in Daily records. Therefore, bagasse can be calculated using the formula: Bagasse = Cane + Added water – Juice

The electricity generation from turbines and auxiliary consumption is recorded continuously on an hourly basis by the operators in the shift. At the end of the day this data is collated by the engineer in charge and signed off by the power plant manager. The steam data is also manually recorded on an hourly basis from the meters. The data is recorded in logbooks by the operators and the engineer in charge collates the data from these log books and stores them electronically. This data is used by engineer in charge to prepare a monthly report and send it to Plant Head for verification. The monthly reports become a part of the Management Information System (MIS) and are reviewed by the management during the quarterly review meeting.

All the meters are checked and calibrated by an independent agency and they are maintained as per the instructions provided by their suppliers. Hence there are no uncertainties or adjustments associated with data to be monitored. An internal audit team, comprising of personnel from the factory but from a department other than utility, reviews the daily reports, monthly reports, procedure for data recording and maintenance reports of the meters. This team checks whether all records are being maintained as per the details provided in the PCN.

All the data and reports will be kept at the offices of the sugar mill until 2 years after the end of the crediting period or the last issuance of CoUs for the project activity, whichever occurs later.

Data/Parameter	MWh/annum																						
Data unit	MWh																						
Description	Total export to MSEDCL in MWh – monthly joint meter reading (JMR) statement; summed for annual figure in MWh																						
Measurement methods and procedures	<table border="1"> <thead> <tr> <th>Year</th> <th>MWh exported</th> </tr> </thead> <tbody> <tr> <td>2013</td> <td>2894.895</td> </tr> <tr> <td>2014</td> <td>15584.51</td> </tr> <tr> <td>2015</td> <td>22829.37</td> </tr> <tr> <td>2016</td> <td>12204.6</td> </tr> <tr> <td>2017</td> <td>2429.642</td> </tr> <tr> <td>2018</td> <td>27855.27</td> </tr> <tr> <td>2019</td> <td>20018.28</td> </tr> <tr> <td>2020</td> <td>8485.8</td> </tr> <tr> <td>2021</td> <td>29878.92</td> </tr> <tr> <td>2022</td> <td>29219.52</td> </tr> </tbody> </table>	Year	MWh exported	2013	2894.895	2014	15584.51	2015	22829.37	2016	12204.6	2017	2429.642	2018	27855.27	2019	20018.28	2020	8485.8	2021	29878.92	2022	29219.52
Year	MWh exported																						
2013	2894.895																						
2014	15584.51																						
2015	22829.37																						
2016	12204.6																						
2017	2429.642																						
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2020	8485.8																						
2021	29878.92																						
2022	29219.52																						
Value(s) applied																							
Source of data	JMR / Credit note																						
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.																						

Data/Parameter	EG project plant, y
Data unit	MWh
Description	Net quantity of electricity generated in the project plant during the year y
Source	Kukadi sugar factory - factory records

Measurement methods and procedures	This value will be determined annually from the records maintained at the factory. All auxiliary units at the power plant are metered and there is also a main meter attached to each turbine generator to determine their total generation.
Monitoring frequency	The hourly recordings of data are to be taken from energy meters located at the project activity site. This data is to be recorded hourly by the shift attendant and entered into logbooks on site. This hourly data is to be signed off at the end of every shift by an engineer in charge of the shift and again at the end of each day and signed off by the power plant manager. The energy meters are calibrated annually by an independent third party.
QA/QC	Net electricity production has been calculated by deducting auxiliary consumption from gross generation of the plant. Digital meters calibration procedures are planned. Daily production details are kept in log books and electronic data base. Energy meters are of class 0.2 with tolerance of 0.5%. All meters are calibrated by accredited external third party, as per standard procedures, periodically.
Data/Parameter	EF grid,y
Data unit	Grid Emission Factor
Description	tCO ₂ /MWh
Source of data Value(s) applied	UCR CoU Standard Default for Indian grid 0.9 tCO ₂ /MWh for the period 2013-2022
QA/QC	The parameter is conservative.
Purpose of data	To estimate baseline emissions

Data/Parameter	ES grid,y
Data unit	MWh
Description	Net quantity of electricity supplied to the grid
Source of data Value(s) applied	JMR and/or Monthly Meter Readings / Credit Notes.
Measurement methods and procedures	Type: Calculated Data type: Monitored This parameter may be checked with the necessary invoices or JMR (issued by the state grid - MSEDCL) each month.
Monitoring frequency	Monthly

QA/QC	Energy meters on existing turbines are calibrated. Electricity generation in these units are recorded and kept in log books for verification purpose. Energy meters are of class 0.2 with tolerance of 0.5%. All Meters are calibrated by accredited external third party, as per standard procedures, periodically
Purpose of data	To estimate baseline emissions

Data/Parameter	Q biomass, yr																						
Data unit	MT/yr																						
Description	The quantity of bagasse used to generate steam in the boilers each year																						
Source of data Value(s) applied	Plant records receipts <table border="1" data-bbox="683 869 1302 1339"> <thead> <tr> <th>Year</th> <th>Quantity (MT)</th> </tr> </thead> <tbody> <tr> <td>2013</td> <td>31904.45</td> </tr> <tr> <td>2014</td> <td>135323.1</td> </tr> <tr> <td>2015</td> <td>167639.2</td> </tr> <tr> <td>2016</td> <td>414933.1</td> </tr> <tr> <td>2017</td> <td>52390.01</td> </tr> <tr> <td>2018</td> <td>215302.7</td> </tr> <tr> <td>2019</td> <td>215587.8</td> </tr> <tr> <td>2020</td> <td>80262.31</td> </tr> <tr> <td>2021</td> <td>302893.4</td> </tr> <tr> <td>2022</td> <td>203583.1</td> </tr> </tbody> </table>	Year	Quantity (MT)	2013	31904.45	2014	135323.1	2015	167639.2	2016	414933.1	2017	52390.01	2018	215302.7	2019	215587.8	2020	80262.31	2021	302893.4	2022	203583.1
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2020	80262.31																						
2021	302893.4																						
2022	203583.1																						
Monitoring frequency	monthly																						
QA/QC	The amount of Bagasse used can be cross checked by the documents. Quantity of Bagasse has been monitored.																						

Data/Parameter	Fiber % in sugarcane
Data unit	The fiber content in sugarcane is measured on daily basis in the internal plant lab. Higher the fiber contents higher the calorific value. The NCV values specified fall in range as per IPCC 2006 Guidelines (1,409,191 to 5,493,456 kCal/Ton).
Description	Net fiber content of bagasse Residue.
Source of data Value(s) applied	Calculated by expert team.
Measurement methods and	On site and in labs

procedures	
Monitoring frequency	Every day / weekly.
Purpose of data	Quality control

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:	50.25
Indicate what the data are used for	Baseline emissions





Main meter and check meter.

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.
(A Govt. of Maharashtra Undertaking)
CIN:U40109MH2005SGC153645
Website:- www.mahadiscom.in Tel. : 0241 - 2353556, Fax - (0241)2345745 E-mail: ee@ahmednagar11@gmail.com

Office of the Executive Engineer
Maharashtra State Electricity Distribution Co. Ltd.
Testing Division, "Vidyut Bhavan"
Station Road, AHMEDNAGAR-414001.

EE/ TD/ ANR/Tech / 1359 Date- 31.08.2020

To,
The Superintending Engineer (TQA),
Testing Circle Office, M.S.E.D.C.L., Kalyan.

Subject:- Re- Programming of Summation meters Main & Check along with feeder meter GT1 & GT2 in r/o M/s Karmayogi Kundlikrao Jagtap Patil Kukadi Sahakari Sakhar karkhana Ltd, Pimpalgaon Pisa, Tal.-Shrigonda Dist Ahmednagar

Reference:- 1) Letter from Secure meters limited no. SML/Mumbai/PA 3108 dt. 31.08.2020
2) Consumer Letter no. KKRJPKSSK/Engg/Cogen/467/2021 Dt. 23.08.2020

In connection with above subject, as per email received from SE (ANRC), Ahmednagar & letter under references no 1 & 2 M/s Karmayogi Kundlikrao Jagtap Patil Kukadi Sahakari Sakhar karkhana Ltd, Pimpalgaon Pisa, Tal.-Shrigonda Dist Ahmednagar (Cons. No-153209010590) has requested to reprogramming of Summation meters Main & Check along with feeder meter GT1 & GT2, one by one with the help of meter manufacturer M/s Secure Ltd to overcome the billing issues of GT1 & GT2. The details of Meters are as per below

- 1) Main Apex Summator with 2 Feeder meters- Summator Rack Serial No. XD417672 & feeder Module vide serial No. X0672188 & X0672189, Make - Secure
- 2) Check Apex Summator with 2 Feeder meters- Summator Rack Serial No. XD417673 & feeder Module vide serial No. X0672190 & X0672191.

Both the meters will be reprogrammed for secondary scaling i.e. PTR-11KV/rt3/110/rt3, CTR- -/1A. After secondary scaling meter will display all parameters in KWH for billing as per MSEDCL cumulative values will consider and precision will not be the part of billing values. Here MF will be consider externally.

Submitted for your kind information & necessary approval please.

DED
Executive Engineer,
TESTING DIVISION, AHMEDNAGAR.

C.S.W.R.To: 1) The Superintending Engineer (ANRC), MSEDCL, Circle Office, Ahmednagar.

Copy To: 1) M/s Karmayogi Kundlikrao Jagtap Patil Kukadi Sahakari Sakhar karkhana Ltd, Pimpalgaon Pisa, Tal.-Shrigonda Dist Ahmednagar

Meter reprogramming certificate.



(A Govt. of Maharashtra undertaking)
CIN: U40109MH2005SGC153645

Phone no: 02412353645
Fax no: 0241 2344585

Email: seahmednagar@gmail.com
Website: www.mahadiscom.in

Office of the, Superintending
Engineer,
O&M Circle, Ahmednagar.
Old Power House, New Admn.Bldg,
Station Road, Ahmednagar - 414
001.

No.SE/ANRC/TECH/HT/DYEE AMR/10742

Date: 19 JUL 2016

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that 132 KV S/C line on D/C Tower & 132 KV switch yard erected & commissioned on date 05.12.2013 by M/s. Kukadi Sahakari Sakhar Karkhana Ltd., gat no.95-97, Pimpalgaon Pisa, Tal. Shrigonda, Dist. Ahmednagar has commissioned their 12 MW bagasse based co-generation power project on date 05.12.2013.

Start up power connection for the co-generation project released on 05.12.2013.

Co-generation power project synchronised with the grid on date 06.12.2013 & started exporting of power from 24.12.2013.

This certificate is issued on request letter dated 11.07.16 from M/s. Kukadi Sahakari Sakhar Karkhana Ltd., gat no.95-97, Pimpalgaon Pisa, Tal. Shrigonda, Dist. Ahmednagar.


(A. Koli)
Superintending Engineer
Ahmednagar



(A Govt. of Maharashtra undertaking)
CIN: U40109MH2005SGC153645

Phone no: 02412353645
Fax no: 0241 2344585
Email: seahmednagar@gmail.com
Website: www.mahadiscom.in

Office of the, Superintending Engineer,
O&M Circle, Ahmednagar.
Old Power House, New Admn.Bldg,
Station Road, Ahmednagar - 414 001.

No.SE/ANRC/TECH/HT/DYEEAMR/ 20595

Date: 14.12.2018

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that 132 KV S/C Line on D/C Tower & 132 KV switch yard erected & commissioned for 15 MW bagasse based co-generation power project in r/o) M/s. Kukadi Sahakari Sakhar Karkhana Limited, Gat No.95 to 97, Pimpalgaon Pisa, Tal. Shrigonda, Dist. Ahmednagar.Cons.No.153209010590 . Start up power connection released on 16.10.2018 .

Co-generation power project synchronised with the grid on date 29.10.2018 & started exporting of power from 29.10.2018.

This certificate is issued on request letter dated 30.10.2018 from M/s. Kukadi Sahakari Sakhar Karkhana Limited, Gat No.95 to 97, Pimpalgaon Pisa, Tal. Shrigonda, Dist. Ahmednagar.Cons.No.153209010590


(Santosh Sangale),
Superintending Engineer
Ahmednagar

Commissioning certificates.

Testcal COMBUSTION SYSTEM
FLOW METER & WATER METER SALES & FURNACE MANTANCE
 Digital water Meter & Flow Meter & Gas Leakage Tester & Gas Line & Electric Installation
 NABL & NON NABL Calibration Services
 Technical Services
 HEAD OFFICE:- 637/2B OMKAR NAGER BIBWADHI PUNE 411037
 MOBIL Ph:- + 91- 9881396861 / 9307742092
 Office Email ID:- Tccssystems@gmail.com / Testcalpune@gmail.com / Tccsservice1@gmail.com
 Website- www.Tccs.com

CALIBRATION CERTIFICATE

1) Customer	
K k R J P Kukadi S S K Ltd A/p Pimpalgav Pise Tal-Shrigonda Dist- Ahmednagar	Calibration Certificate No. : SI/KSSKL/CAL/FT-01 Condition of Item : ok Challan No. : -- Date of Received : 17/12/2023 Date of Calibration : 17/12/2023 Calibration Due On : 16/12/2024
Environmental Condition	
Amb. Temp. : 21 to 40 °C Relative Humidity : <70 %RH	Date of issue : 19/12/2024 Location of Calibration : On Site Work Instruction No. : SI/W/MEC/003

2) Details of UUC	
Name : Flow Transmitter (DP Type) ID/Sr. No. : NA Make : SIEMENS Accuracy : ±1 % FS Location : Steam Pressure	Instrument Range : 0 To 4000 mmH ₂ O Least Count : 0.1 mmH ₂ O

3) STANDARD USED FOR CALIBRATION	
Name : Digital Pressure Gauge Certificate No : 2023/005 Certified By : Instotech ID No : SI-DPG-02-01 Due Date : 02/01/2024	Universal Calibrator 2023/009 Instotech SI-UC-001 03/01/2024

4) CALIBRATION OBSERVATIONS				
Input	Reading on UUC	Desire Reading	Actual Reading	Error
mmH ₂ O	mmH ₂ O	mA	mA	%
0	0.0	4.00	4.000	0.00
1000	999.4	8.00	7.998	-0.01
2000	1992.6	12.00	11.971	-0.18
3000	2986.2	16.00	15.945	-0.34
4000	3975.6	20.00	19.902	-0.61

THE STANDARD USED TRACEBLE TO NATIONAL/INTERNATIONAL STANDARD THROUGH CHAIN OF CALIBRATION

Note :

- 1) This certificate refers only to the particular item submitted for calibration. UUC stands for Unit Under Calibration.
- 2) This calibration results reported in the certificate are valid at the time of and the stated conditions of measurement.
- 3) Calibration Points were selected as per customer specification.
- 4) Expanded Uncertainty in the measurement at 95% C.L. at a coverage factor k=2
- 5) This certificate shall not be reproduced, except in full unless written permission for the publication of an approved abstract has been obtained from the Technical Manager of Stratus Instrumentation.

Calibrated By : Calibration Engineer Suraj Pimpale	Approved By : Technical Manager Sagar Mohite
--	--

** End of the certificate **

TESTCAL COMBUSTION SYSTEM
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 NABL & NON NABL Calibration Services
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 HEAD OFFICE:- 637/2B OMKAR NAGER BIBWADHI PUNE 411037
 MOBIL Ph:- + 91- 9881396861 / 9307742092
 Office Email ID:- Tccssystems@gmail.com / Testcalpune@gmail.com / Tccsservice1@gmail.com
 Website- www.Tccs.com

CALIBRATION CERTIFICATE

Customer	
K k R J P Kukadi S S K Ltd A/p Pimpalgav Pise Tal-Shrigonda Dist- Ahmednagar	Calibration Certificate No. : SI/KSSKL/CAL/FT-02 Condition of Item : ok Challan No. : -- Date of Received : 17/12/2023 Date of Calibration : 17/12/2023 Calibration Due On : 16/12/2024
Environmental Condition	
Amb. Temp. : 21 to 40 °C Relative Humidity : <70 %RH	Date of issue : 19/12/2024 Location of Calibration : On Site Work Instruction No. : SI/W/MEC/003

Details of UUC	
Name : Flow Transmitter (DP Type) ID/Sr. No. : NA Make : SIEMENS Accuracy : ±1 % FS Location : Water Flow	Instrument Range : 0 To 2500 mmH ₂ O Least Count : 0.1 mmH ₂ O

STANDARD USED FOR CALIBRATION	
Name : Digital Pressure Gauge Certificate No : 2023/005 Certified By : Instotech ID/Sr No : SI-DPG-02-01 Due Date : 02/01/2024	Universal Calibrator 2023/009 Instotech SI-UC-001 03/01/2024

CALIBRATION OBSERVATIONS				
Input	Reading on UUC	Desire Reading	Actual Reading	Error
mmH ₂ O	mmH ₂ O	mA	mA	%
0	0.0	4.00	4.000	0.00
625	622.2	8.00	7.982	-0.11
1250	1245.4	12.00	11.971	-0.18
1875	1862.9	16.00	15.923	-0.48
2500	2487.3	20.00	19.918	-0.51

THE STANDARD USED TRACEBLE TO NATIONAL/INTERNATIONAL STANDARD THROUGH CHAIN OF CALIBRATION

Note :

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Calibrated By : Calibration Engineer Suraj Pimpale	Approved By : Technical Manager Sagar Mohite
--	--

** End of the certificate **

Calibration certificates.



सत्यमेव जयते

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

Environment department,
Room No. 217, 2nd floor,
Mantralaya, Annexe,
Mumbai- 400 032.
Date: May 14, 2018

To,
M/s. Kukadi Sahakari Sakhar Karkhana Ltd
at Gut No. 91 & 92

Subject: Environment Clearance for Expansion of sugar mill from 3,500 TCD to 5,500 TCD and cogeneration unit from 12 MW to 27 MW

Sir,

This has reference to your communication on the above mentioned subject. The proposal was considered as per the EIA Notification - 2006, by the State Level Expert Appraisal Committee-I, Maharashtra in its 147th Meeting meeting and recommend the project for prior environmental clearance to SEIAA. Information submitted by you has been considered by State Level Environment Impact Assessment Authority in its 129th meetings.

2. It is noted that the proposal is considered by SEAC-I under screening category Category B: For Sugar: 5 (j), For Thermal Project: 1 (d) as per EIA Notification 2006.

Brief Information of the project submitted by you is as below :-

1.Name of Project	M/s. Kukadi Sahakari Sakhar Karkhana Ltd
2.Type of institution	TOE
3.Name of Project Proponent	M/s. Kukadi Sahakari Sakhar Karkhana Ltd
4.Name of Consultant	Vasantdada Sugar Institute, Majara (Bk)
5.Type of project	Not applicable
6.New project/expansion in existing project/modernization/diversification in existing project	Expansion in existing project
7.If expansion/diversification, whether environmental clearance has been obtained for existing project	Not applicable
8.Location of the project	Gut No. 91 & 92
9.Taluka	Shrigonda
10.Village	Pimpalgaon Pise
11.Area of the project	Other Area: Grampanchayat
12.IOD/IOA/Concession/Plan Approval Number	Not Applicable IOD/IOA/Concession/Plan Approval Number: Not Applicable Approved Built-up Area:
13.Note on the initiated work (If applicable)	No work has been initiated for said work
14.LOI / NOC / IOD from MHADA/ Other approvals (If applicable)	Not Applicable
15.Total Plot Area (sq. m.)	Not applicable
16.Deductions	Not applicable
17.Net Plot area	Not applicable