



# MONITORING REPORT

CARBON OFFSET UNIT (CoU) PROJECT



**Title: Renewable Biomass Based Thermal Energy Generation By SIPL, Manjri, Pune, Maharashtra**

Version 1.0

**Date of MR: 10/03/2023**

**Monitoring No: 01**

**1<sup>st</sup> CoU Issuance Period: 01/12/2018 to 31/12/2022, 04 Years, 01 Months**

**1<sup>st</sup> Crediting Period: 01/12/2018 to 31/12/2022, 04 Years, 01 Months**

**1<sup>st</sup> Monitoring Period: 01/12/2018 to 31/12/2022, 04 Years, 01 Months**

**Project Activity meets the following UN SDGs**



**UCR PROJECT ID: 279**



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

**BASIC INFORMATION**

Title of the project activity	<b>Renewable Biomass Based Thermal Energy Generation By SIIPL, Manjri, Pune, Maharashtra</b>
Scale of the project activity	Small Scale
UCR PROJECT ID	279
Completion date of the MR	10/03/2023
Project participants	<b><u>Project Owner:</u></b> Serum Institute of India Pvt Ltd (SIIPL), Pune, Maharashtra  <b><u>Aggregator:</u></b> Egis India Consulting Engineers Pvt Ltd  <b><u>UCR ID:</u></b> 467947294
Host Party	India
Applied methodologies and standardized baselines	<b>CDM UNFCCC Methodology</b> <b>AMS-I.C.:</b> Thermal energy production with or without electricity (Ver.21.0)
Sectoral scopes	01 Energy industries (Renewable/NonRenewable Sources)
Calculated amount of annual average GHG emission reductions each crediting year	2018: 76 tCO <sub>2</sub> (76 CoUs)
	2019: 2930 tCO <sub>2</sub> (2930 CoUs)
	2020: 4280 tCO <sub>2</sub> (4280 CoUs)
	2021: 9798 tCO <sub>2</sub> (9798 CoUs)
	2022: 13531 tCO <sub>2</sub> (13531 CoUs)
Calculated total GHG emission reductions this crediting period	<b>30614 tCO<sub>2</sub> (30614 CoUs)</b>

## SECTION A. Description of project activity

### A.1. Purpose and general description of Carbon offset Unit (CoU) project activity >>

The project **Renewable Biomass Based Thermal Energy Generation By SIIPL, Manjri, Pune, Maharashtra** is located at Village: Manjri, Taluka: Haveli, District: Pune, State: Maharashtra, Country: India

The details of the registered project are as follows:

#### **Purpose of the project activity:**

Serum Institute of India Pvt Ltd (SIIPL), the project proponent (PP), is an Indian biotechnology and biopharmaceuticals company founded in 1966 and since then it has established itself as the world's largest manufacturer of vaccines.

The UCR project activity consists of the generation of thermal energy by utilizing renewable biomass (Briquettes) boilers of total installed capacity of **19 TPH** at the Manjri campus site (Pune) biotechnology plant owned and operated by the PP. The project activity currently involves the installation of one (1) biomass briquette fired steam boiler with a steam output capacity of **15 TPH**.

<b>15 TPH (Manjri)</b>	<b>1.5 TPH (Manjri)</b>	<b>1.5 TPH (Manjri)</b>	<b>1.0 TPH (Manjri)</b>
<b>Type</b>	<b>Type</b>	<b>Type</b>	<b>Type</b>
Combipac (Water + Smoke Tube)	Smoke Tube	Smoke Tube	Smoke Tube
Commissioning Date	Commissioning Date	Commissioning Date	Commissioning Date
14/06/2021	01/12/2018	01/02/2019	01/12/2018
In operation since installation	Not in operation since August-21	Not in operation since August-21	Not in operation since August-21

The start date of the project activity is **01/12/2018**. This project activity uses renewable biomass briquettes as fuel and supplies the process steam throughout the plant for an important process of sterilization and clean steam generation for advanced procedures within the project boundary at the Manjri campus.

The project activity is the thermal energy production using renewable energy sources that displaces fossil fuel use and avoids GHG emissions (CO<sub>2</sub>). In the pre-project scenario, the process demand of steam would have been met by a coal fired boiler. The project results in reductions of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change. The project results in reductions of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

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

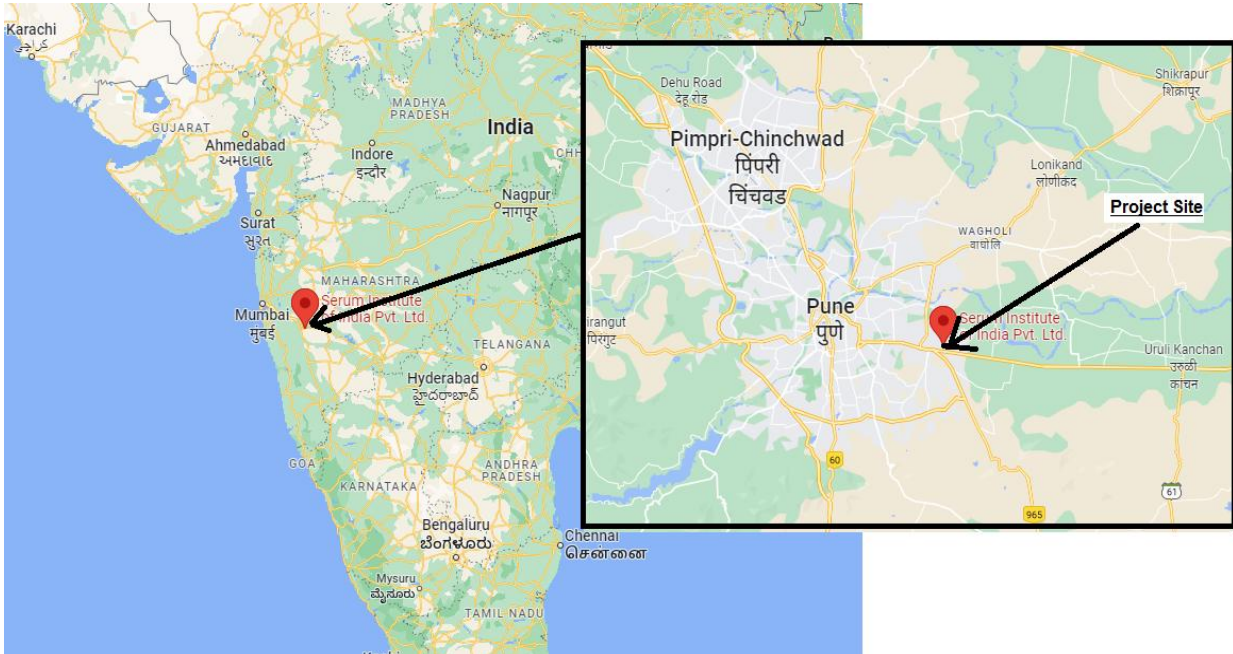
Country : India

Village : Manjri

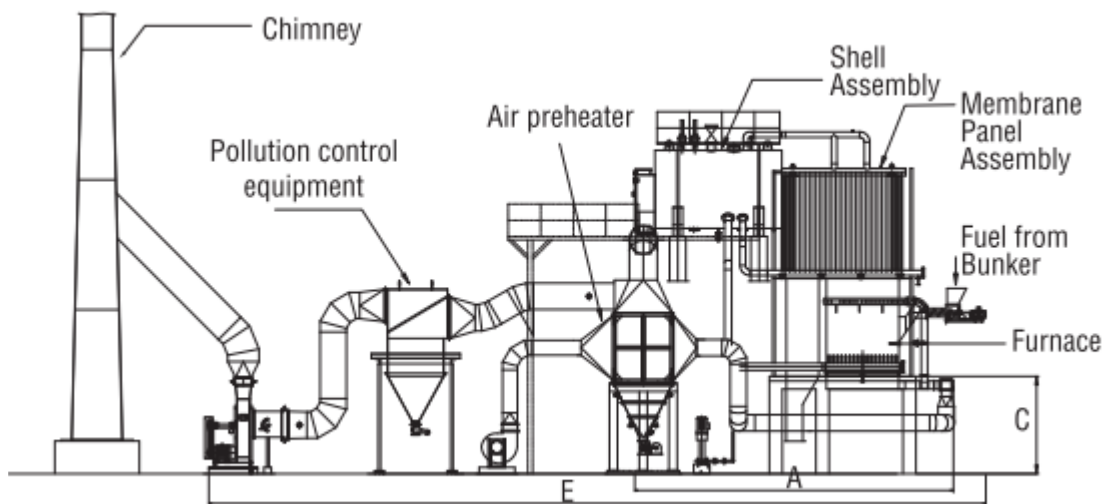
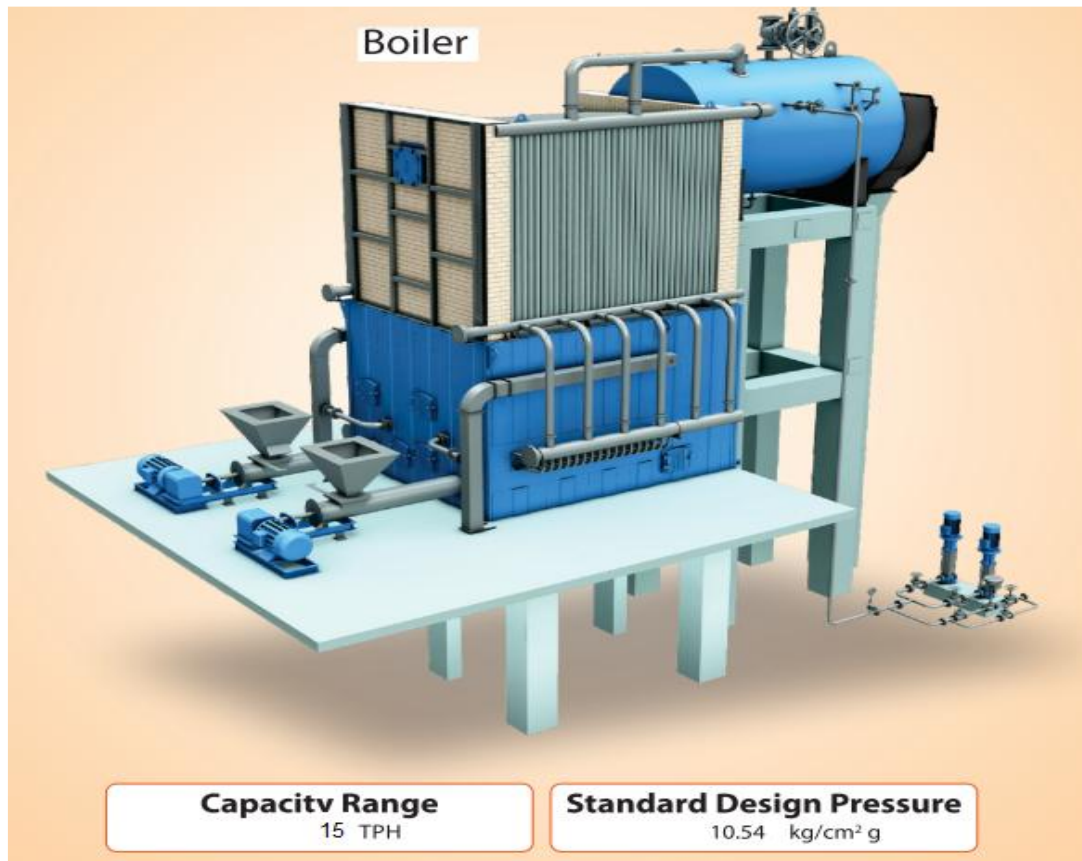
District : Pune

State: Maharashtra (Pincode 412307)

Latitude: 18°30'56.1"N, Longitude: 73° 57'47.2"E



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



The project activity is the installation of biomass fired boilers for steam generation. The generated steam is utilized for meeting the process requirement. In the baseline scenario the steam was to be generated through a coal based boiler, to meet SI IPL's process requirement. The project activity has hence replaced coal based boiler with biomass based boiler for steam generation thus the project activity is environment friendly and leads to GHG emission reduction. The CO<sub>2</sub> emission due to the combustion of biomass is neutralized by the photosynthesis process of agricultural crops. Hence, it "recycles" atmospheric carbon and does not add to the greenhouse effect. And also the biomass contains negligible quantities of nitrogen and sulphur, hence the other green house gas from the combustion of biomass can be neglected. The coal being a carbon intensive fuel leads to GHG emissions hence implementation of the project activity leads to GHG emission reductions.

No transfer of technology is involved to host country because biomass boiler technology is available within India from reputed manufacturers.

Description	Data
Capacity of Current Boilers	15 TPH (4.1 kg/sec)
Number of Boilers	1

#### Expected Feed Water Quality

Sr. No.	Description	Quantity / Appearance
1.	Appearance	Clear
2.	Suspended matter, oil, greases	Nil
3.	Total hardness (as CaCO <sub>3</sub> )	Max. 5 ppm
4.	Ph	8.5 to 9.5
5.	Oxygen, free CO <sub>2</sub> , Free Cl	Nil
6.	Total Dissolved Solids	600 ppm

#### Biomass fuel Specification

Sr. No.	Description	Oorja Pellets Proximate Analysis
1.	GCV	3900-4000 Kcal/Kg
2.	Moisture	< 10%
3.	Ash	< 5%
4.	Fines in bag	At most 2%
5.	Bulk Density	620-640 Kg/m <sup>3</sup>
6.	Color	Grey/ Grey-Black
7.	Diameter	8/25 mm

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

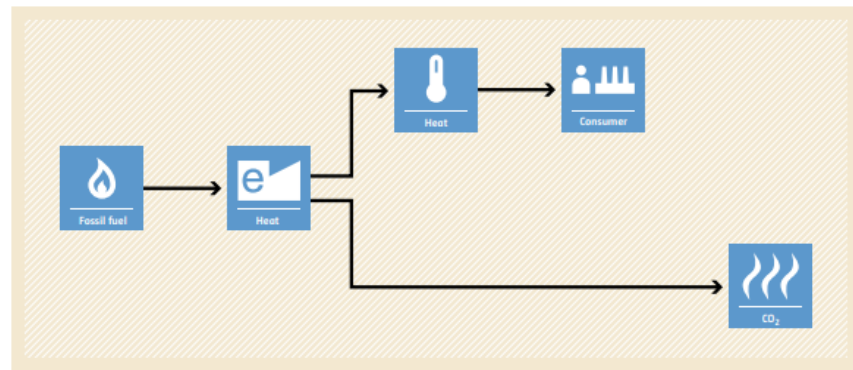
The project activity has been developed completely on the basis of in-house resources of the PP. Project activity does not involve any public funding from Annex I Party, which leads to the diversion of the official development assistance.

Party (Host)	Participants/Aggregator
India	<p><b>Project Owner:</b> Serum Institute of India Pvt Ltd (SIPL), Pune, Maharashtra</p> <p><b>Aggregator:</b> Egis India Consulting Engineers Pvt Ltd</p> <p><b>UCR ID:</b> 467947294</p> <p><b>Email:</b> <a href="mailto:sneha.k@egis-india.com">sneha.k@egis-india.com</a></p>

## A.5. Baseline Emissions>>

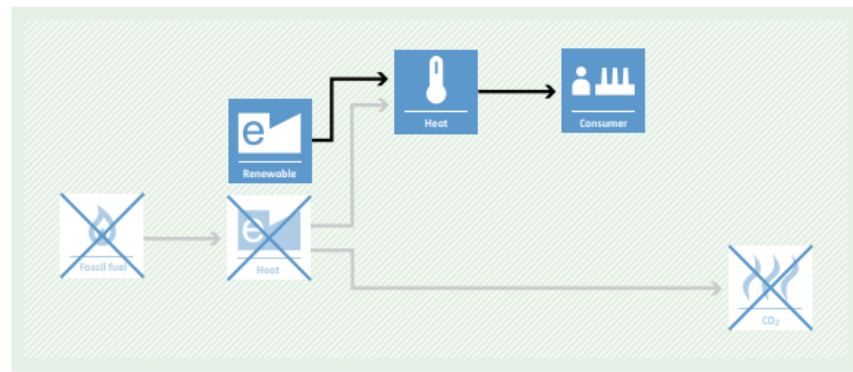
### **BASILINE SCENARIO**

Energy generation (thermal heat and / or electricity) by more-carbon-intensive technologies based on fossil fuel. In case of retrofits or capacity addition, operation of existing renewable power units without retrofit and capacity addition.



### **PROJECT SCENARIO**

Energy generation by installation of new renewable energy generation units, by retrofitting or replacement of existing renewable energy generation units as well as by switch from fossil fuel to biomass in modified existing facilities.



The approved baseline methodology AMS IC, has been referred from the indicative simplified baseline and monitoring methodologies for selected small-scale UNFCCC CDM project activity categories.

The applicable methodology and simplified modalities and procedures for small scale CDM project activities, states that “*For renewable energy technologies that displace technologies using fossil fuels, 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 coefficient for the fossil fuel displaced. IPCC default values for emission coefficients may be used.*”

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

In absence of the project activity, the probable baseline scenario would have been steam generation using fossil fuel (coal). Thus to determine emission co-efficient SIPL has used emission factor for coal as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories for GHG emissions which is 96.1 tCO<sub>2</sub> /TJ.

### **Emission coefficient of fuel used in the project activity**

The fuel used in the project activity is the biomass residues (bagasse/agricultural waste), which is a carbon neutral fuel and therefore the emission coefficient (tC/TJ) is zero.

## 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

CATEGORY- *AMS-I.C.: Thermal energy production with or without electricity (Ver. 21.0)*

This methodology comprises renewable energy technologies that supply users i.e. residential, industrial or commercial facilities with thermal energy that displaces fossil fuel use. These units include technologies such as energy derived from renewable biomass and other technologies that provide thermal energy that displaces fossil fuel.

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

The project activity is thermal energy generation project using a biomass (bagasse and crop residues i.e. soya bean waste, groundnut shell etc) based boiler that displaces equivalent amount of thermal energy that would have been generated by a fossil fuel based boiler. Since the project activity utilises biomass for the generation of thermal energy by displacing fossil fuel (coal), it meets the primary applicability criteria of the methodology.

The thermal generation capacity of project activity is currently 10.75 MW<sub>thermal</sub> which is less than the threshold of 45MW<sub>thermal</sub> as per the applied methodology. The capacity limits specified in the methodologies apply to both discontinued/existing and additional units within the project activity. In the present case of the project activity, a 15 TPH boiler was added to the already 4 TPH (combined capacities) boilers, however, the total capacity of the units added within the project activity (since 2021), is 19 TPH, and this results in a thermal capacity generation of 13.61 MW<sub>thermal</sub> which also complies with capacity limits of the methodology. All boilers were physically distinct from each other prior to discontinuation.

The biomass used by the project plant is not stored for more than one year.

The project activity does not involve recovery and utilization of biogas for power/heat production.

The project activity is neither a co-generation nor co-firing system, therefore this condition is not applicable in the case of current project activity.

Biomass generated steam is used for captive use. The steam produced in the project activity is utilized in the process of SILL. It is not delivered to any third party.

The project activity does not involve the use of any refrigerant within its boundaries and hence the given applicability clause in the methodology is not fulfilled here.


The PP is not the producer of the processed solid biomass fuel. The PP has a contract with the biomass briquette supplier for the supply of the same which will ensure that there is no doublecounting of emission reductions by the supplier.

Thermal energy generation capacity are determined by taking the difference between enthalpy of total output leaving the project equipment and the total enthalpy of input entering the project equipment.

The installed biomass boiler generates steam to meet the demand of steam recipient plant and displace fully the use of fossil fuel based boilers. The project technology utilizes appropriate treatment systems to ensure exhaust gas and discharged water in compliance with national environmental regulations. Note that fossil fuel (i.e. furnace oil, coal, gas, etc) cannot be used for biomass fired boilers due to its specialized design of combustion chamber. The service level (e.g. temperature, pressure) of supplied steam in case of utilizing different types of renewable biomass residues is ensured by qualified boiler operators and is monitored by steam flow meter at recipient plant. The project activity will thus reduce Green house gas (GHG) emissions associated with the combustion of fuel oil in baseline boilers. The project activity claims emission reduction for the thermal energy production by renewable energy technologies (biomass boilers) that displace the use of fossil fuel based boilers. This is in line with the applied methodology AMS I.C requirements.

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

The biomass boiler is constructed by the PP within the boundary. The biomass boiler has a unique ID (MR/18087), which is visible on the unit.

  
Form V  
[Regulation 381 (c)]  
Provisional Order under section 9 of the Boilers Act of 1923

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No.:249PUN2021

SEZ BIOTECH SERVICES PRIVATE LIMITED,SEZ UNIT NO PBP I ,POONAWALA BIOTECHNOLOGY PARK ,MANJARI BUDRUK,IN FROM TO BHARAT PETROL PUMP,Haveli,Pune,MANJARI Bk Maharashtra-412207 are hereby permitted to use the Boiler MF-18087 Boiler Rating 650 Made by THERMAX LIMITED and bearing Makers number CPRG150/12-5/1001 at a maximum pressure of 12.5 kg. per square cm pending the issue or refusal of a certificate within six months from the date hereof after which period this order will become void.

Period from 23/09/2020 to 22/03/2021

Dated:04/01/2021

Yours faithfully,

**UMESH SHANKARRAO MADANE**  
Joint Director,  
Maharashtra State  
(Government of Maharashtra)  
Date : 04-Jan-2021 12:43:23 IST

N.B.:This order must be produced on demand by any authorised person and surrendered to the Director of receipt of orders.

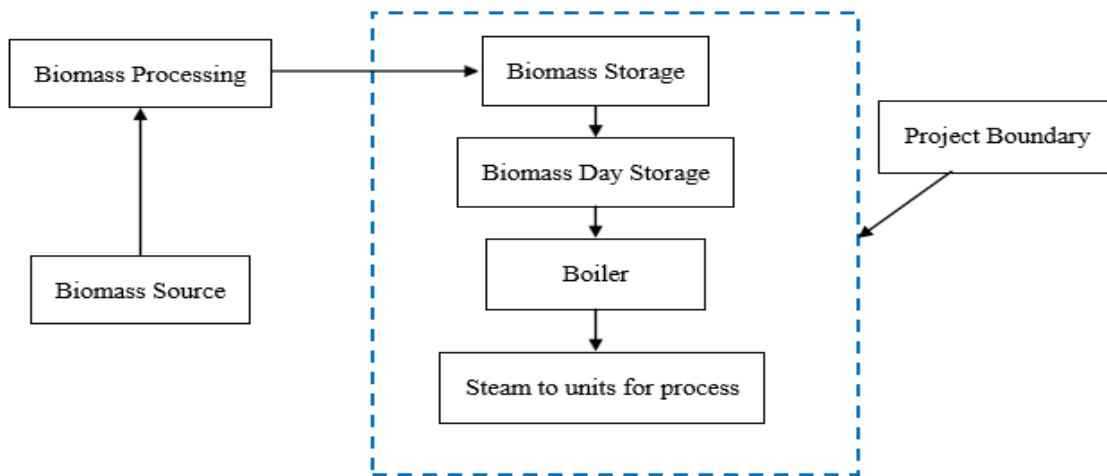
Copies of all related Boiler Inspection Reports are provided to the UCR verifier during the verification process.

The project activity has never applied for registration under any GHG mechanism for carbon credits. Hence there is no double counting of the credits anticipated for the current project activity. The double counting avoidance agreement will be provided to the UCR verifier during the verification process.

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

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

- Site of the renewable energy generation
- Biomass based boiler, which starts from the biomass storage to the point of steam supply
- Biomass storage facility



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

There is no registered or an application to register another small-scale carbon project activity with the same project participants in the same project category **within 1 km of the project boundary**, hence the project activity is not a debundled component of a large scale project.

By using locally sourced GHG-neutral biomass, 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 fossil fuel in boilers for heat	CO <sub>2</sub>	<b>Included</b>	Major source of GHG emissions
		CH <sub>4</sub>	Excluded	Excluded for simplification. This is conservative
		N <sub>2</sub> O	Excluded	Excluded for simplification. This is conservative
	Emissions from Biomass		Excluded	Excluded for simplification. This

Project Activity

	Project Activity	CO <sub>2</sub>		is conservative
		CH <sub>4</sub>	Excluded	Excluded for simplification. This is conservative
		N <sub>2</sub> O	Excluded	Excluded for simplification. This is conservative

## 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.*

**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 AMS I.C, for steam produced using fossil fuels the baseline emissions are calculated as follows:*

$$BE_y = (HG_y * EF_{CO_2}) / \eta_{th}$$

Where:

**HG<sub>y</sub>** = The net quantity of heat supplied by the project activity during the year in TJ. It is calculated as product of quantity of steam generated and net enthalpy of steam. The net enthalpy of steam is calculated as difference of enthalpy of steam and enthalpy of feedwater. The enthalpy of steam is calculated from steam pressure and steam temperature..

**EF<sub>CO<sub>2</sub></sub>** = The CO<sub>2</sub> emission factor per unit of energy of the fuel that would have been used in the baseline plant in (tCO<sub>2</sub>/TJ), obtained from reliable local or national data if available, otherwise, IPCC default emission factors are used.

**η<sub>th</sub>** – The efficiency of the boiler using fossil fuel that would have been used in the absence of the project activity (Table 1 below).

**PE<sub>y</sub>** = Project activity emissions. The GHG emissions due to the combustion of biomass is neutralized by the sequestration done during the growth of the biomass, thereby making it a carbon neutral fuel. Further the bagasse contains negligible quantities of nitrogen and sulphur, the other green house gas from the combustion of biomass can be considered as negligible. Therefore essentially there would not be any GHG emissions due to the project activity within the project boundary.

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. Leakages is to be considered if the energy generating equipment is transferred from another activity or if the existing is transferred to another activity. There is no transfer of energy generating equipment or existing equipment to another activity. Further, emissions arising during the transportation of husk and biomass to the site, is negligible since the biomass is sourced locally within a radius of less than 200 kms, hence considered as negligible.

<b>STEAM GENERATION DETAILS (1.5 + 1.5 + 1.0 ) TPH PALLET BOILER (Manjri)</b>					
<b>Sr. No.</b>	<b>Month</b>	<b>Fuel Consumption (in Tons)</b>	<b>Steam Generation (in Tons)</b>	<b>Yearly Steam Generation (Tons)</b>	<b>Boiler Operating Days in Year</b>
1	Dec-18	72	284	284	15
2	Jan-19	210	979	11138	285
3	Feb-19	227	767		
4	Mar-19	243	873		
5	Apr-19	231	952		
6	May-19	212	933		
7	Jun-19	222	1027		
8	Jul-19	282	1037		
9	Aug-19	255	912		
10	Sep-19	262	967		
11	Oct-19	248	1021		
12	Nov-19	230	857		
13	Dec-19	183	813		
14	Jan-20	263	1258		
15	Feb-20	265	1307		
16	Mar-20	263	1424		
17	Apr-20	251	1163		
18	May-20	304	1404		
19	Jun-20	256	1221		
20	Jul-20	293	1364		
21	Aug-20	290	1258		
22	Sep-20	311	1411		
23	Oct-20	343	1562		
24	Nov-20	275	1162		
25	Dec-20	399	1704		

26	Jan-21	463	2091	12596	191
27	Feb-21	449	2007		
28	Mar-21	527	2233		
29	Apr-21	501	2109		
30	May-21	513	2122		
31	Jun-21	378	1490		
32	Jul-21	148	507		
33	Aug-21	14	37		
<b>Steam Generated</b>			<b>Tons</b>	<b>40257</b>	<b>814</b>

Monthly Data of 15 TPh Boiler (MR-18087) at Manjri				
Year	Month	Steam Generation (Tons)	Fuel Consumption (Tons)	Op Days
2021	Jun-21	636.793	163.2802564	167
	Jul-21	2674.35	649.1477329	
	Aug-21	3654.741	3947.12028	
	Sep-21	3239.351	710.385	
	Oct-21	3356.367	839.124	
	Nov-21	3746.664	793.322	
	Dec-21	3795.714	831.912	
<b>Total 2021</b>		<b>21103.98</b>	<b>7934.291269</b>	
2022	Jan-22	3303.835	710.453	269
	Feb-22	3436.764	712.676	
	Mar-22	3446.306	707.635	
	Apr-22	3350.296	689.057	
	May-22	3385.561	730.731	
	Jun-22	4216.317	876.737	
	Jul-22	4640.486	959.357	
	Aug-22	5043.903	1045.101	
	Sep-22	4002.207	833.399	
	Oct-22	5566.343	1159.816	
	Nov-22	5159.797	1071.226	
	Dec-22	5797.12	1202.239	
<b>Total 2022</b>		<b>51348.935</b>	<b>10698.427</b>	

Technology of the energy generation system	Default efficiency
New natural gas fired boiler (w/o condenser)	92%
New oil fired boiler	90%
Old natural gas fired boiler (w/o condenser)	87%
New coal fired boiler	85%
Old oil fired boiler	85%
Old coal fired boiler	80.00%

(Table 1) Default baseline efficiency values for different technologies as per AMS IC Methodology

Year	2018	2019	2020	2021	2022
Baseline Emissions (tCO <sub>2</sub> eq)	76	2970	4330	9953	13683
Project Emissions (tCO <sub>2</sub> eq)	1	40	50	155	152
Emission Reductions (tCO <sub>2</sub> eq)	75	2930	4280	9798	13531
Total	30614				

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

The project activity has never earlier applied for registration under any GHG mechanism for carbon credits. Hence there is no double counting of the credits anticipated for the current project activity for the current UCR monitoring and crediting period.

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

There is no change in the start date of crediting period.

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

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

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

**Monitoring No:** 01

**1<sup>st</sup> Monitoring Period:** 01/12/2018 to 31/12/2022, 04 Years, 01 Months

#### B.10. Monitoring plan>>

The monitoring and recording of the required parameters is carried out by trained personnel who are managed by the Project Managers decided by the PP. All measurements use calibrated measurement equipment that are maintained regularly and checked for its functioning which will meet the minimum requirement of the methodology. Calibration record have been provided to the verifier.

All indicators of importance for controlling and reporting of projects performance have been incorporated in the monitoring protocol and work instructions available in the control room at the site.

Data parameters and log books and invoices of biomass receipts are provided during the verification of the project activity.

Year	Year/Op Days of Boilers at Manjri			
	15 TPH	1.5 TPH	1.5 TPH	1.0 TPH
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	0	0	0	0
2018	0	15	0	13
2019	0	285	265	162
2020	0	323	316	186
2021	167	192	192	191
2022	269	0	0	0





OPERATOR NAME: S.S. Patil		OPERATOR CERTIFICATE NO: 0125/2020		DATE: 23/09/22		SHIFT: I/A	
DESCRIPTION	UNITS	1	2	3	4	5	6
TIME	AM/PM	08:00	09:00	10:00	11:00	12:00	13:00
CRITICAL PARAMETERS							
LOAD	%	20.6	34	67.0	50.5	91.5	92.0
STEAM FLOW	KG/HR	6135	7531	8036	6688	7487	9328
STEAM PRESSURE	KG/CM <sup>2</sup>	9.81	9.53	9.50	9.52	9.30	8.58
WATER FLOW	KG/HR	—	—	—	—	—	—
WATER LEVEL	%	48.6	46.8	48.7	45.3	53.4	46.9
FURNACE TEMP	°C	566.0	553.8	572.0	569.9	601.4	567.4
FURNACE DRAUGHT	MMWC	-10.66	-8.99	-8.58	-8.68	-7.75	-7.90
OXYGEN	%	11.6	11.9	9.8	11.6	8.7	10.6
DEAERATOR LEVEL	%	66.4	66.0	57.2	53.9	51.6	58.6
DEAERATOR PRESSURE	KG/CM <sup>2</sup>	0.13	0.10	0.24	0.16	0.16	0.15
ECO O/L WATER TEMP	°C	71.5	72.2	78.7	78.1	74.6	76.3
ECO O/L WATER TEMP	°C	138.4	143.0	138.5	141.7	124.9	135.6
ECO FAN OUTPUT	%	65.5	66.0	61.9	53.4	61.1	67.0
FLUE GAS TEMPERATURE							
FURNACE TEMP	°C	566.0	553.8	572.0	569.9	601.4	567.4
BOILER OUTLET FLUE GAS TEMP	°C	225.6	232.2	241.1	229.1	246.4	241.8
ECO OUTLET FLUE GAS TEMP	°C	160.6	167.8	171.0	164.4	183.8	180.8
BAG FILTER INLET FLUE GAS TEMP	°C	164.2	170.9	177.0	167.4	176.6	175.6
ECO FAN INLET FLUE GAS TEMP	°C	131.1	139.6	138.4	137.7	138.8	136.8
HYDRAULIC POWER PACK							
HYDRAULIC PACK OIL TEMP-BOILER	°C	36.3	36.5	36.2	37.00	37.7	38.8
HYDRAULIC PACK OIL TEMP 1-FHS	°C	29.7	31.4	33.6	33.3	32.6	31.8
HYDRAULIC PACK OIL TEMP 2-FHS	°C	33.3	33.1	31.5	33.2	33.6	32.1
HYDRAULIC PACK OIL TEMP 3-FHS	°C	27.5	27.4	27.3	30.2	35.0	34.8
BAG FILTER							
BAG FILTER 1 TEMP	°C	92.2	95.0	96.6	98.5	98.0	98.9
BAG FILTER 2 TEMP	°C	92.4	91.8	93.5	95.1	93.8	95.4
BAG FILTER 3 TEMP	°C	110.3	113.7	114.0	115.3	112.0	115.0
BAG FILTER DIFFERENTIAL PRESSURE	MMWC	OK	OK	OK	OK	OK	OK
SLO READINGS							
WATER JACKET SC WATER TEMP O/L	°C	—	—	—	—	—	—
WATER JACKET SC WATER PRESS AT O/L	KG/CM <sup>2</sup>	1.6	1.6	—	—	—	—
ECO WATER DISCHARGE PRESS AT O/L	KG/CM <sup>2</sup>	18.60	17.5	—	—	—	—
COMPRESSOR OIL LEVEL	%	—	—	—	—	—	—
COMPRESSOR AIR TEMP	°C	—	—	—	—	—	—
COMPRESSOR AIR PRESS	KG/CM <sup>2</sup>	1.5	1.5	—	—	—	—

SHIFT WATER ANALYSIS			
DESCRIPTION	UNITS	FEED WATER	BOILER WATER
Total hardness	PPM	1	4
pH value		9	11
TDS (max)ppm	PPM	60	2400

SHIFT CONSUMPTION			
DESCRIPTION	UNITS	ACTUAL	REMARKS
STEAM	KGS	63310	
FEED WATER	KGS	68375	
FUEL	KGS	12213	
SFR	KG/KG	1.18	
RUN HRS	HOURS	8.03	
RED ASH WEIGHT	KGS		
FLY ASH WEIGHT	KGS		

TOTALISER READING			
DESCRIPTION	UNIT	INITIAL	CLOSING
STEAM FLOW	KGS	1902.960	19154.090
FEED WATER FLOW	KGS	—	—
FUEL FLOW	KGS	5955.967	3468.000

OTHER POINTS IF ANY:

MANPOWER DETAILS			
NAME	DESIGN	TIME IN	TIME OUT
Kanishk Bopache	OPERATOR	7:00	15:00
Ashok Chhapade	HELPER	7:00	15:00

DESCRIPTION	PRESSURE	TIME	DURATION
	KG/CM <sup>2</sup>	(AM/PM)	(SEC)
BLOW DOWN DRAIN	9.65	10:25	1:50:00
MOBBY DRAIN	7.78	10:28	
GAUGE GLASS DRAIN	7.78	10:28	
HEADER DRAIN	—	—	—
ECONOMISER BLOW DOWN	—	—	—

CHECKLIST PER SHIFT		FOUND OK	REMARKS
FLY ASH SLO LEVEL		NA	NA
AIR SUCTION IN ECO HOPPER (TO BE CHECKED BY OPENING THE 1 INCH DUMMY)		OK	Normal
AIR SUCTION IN CYCLOMAX HOPPER (TO BE CHECKED BY OPENING THE 1 INCH DUMMY)		OK	Normal
AIR SUCTION IN BAG FILTER 1,2,3 HOPPER (TO BE CHECKED BY OPENING THE 1 INCH DUMMY)		OK	Normal
DUST EXTRACTION SYSTEM HOPPER (TO BE KNOCKED BY METAL PIECE AND CHECKED)		OK	Normal
ALL TROLLEY LIMIT SWITCHES CLEANED THROUGH AIR		OK	Normal
DOSING BIN TO BE CLEANED THROUGH AIR		NA	NA

24 HRS REPORT		DATE: 23/09/22
DESCRIPTION	UNIT	
STEAM FLOW	KGS	
FEED WATER FLOW	KGS	
FUEL FLOW	KGS	
RUNNING HOURS	HRS	
SFR	KGS/KGS	
DENSITY	KG/M <sup>3</sup>	310.60
RED ASH WEIGHT	KGS	61650
FLY ASH WEIGHT	KGS	

LP CHEMICAL DOSING AND STOCK				
DESCRIPTION	MAX/TREAT 200	MAX/TREAT 300	MAX/TREAT 300	MAX/TREAT 300
OPENING STOCK	10.6	7.5	149.60	199.0
CONSUMPTION	0.10	1.25	0.50	0.50
BALANCE	10.40	6.25	149.10	198.50
ACTUAL				

SCADA - 330 y/m<sup>3</sup>

WORKS DONE (INCLUDING MAINTENANCE)

- live bottom bunker level high @ 07:53, 10:04, 12:06
- Grab Trolley 2 fail to run limit switch misconnection - 08:01, 08:02, 08:10, 08:22 @ 9:120 works done by Kanishk. Fixed the limit switch with wire as per suitable operations place. now working & under observation.
- new Turn screw conveyor to p-12:18,
- new Grab trolley no 2 fail to run due to limit switch & live work under progress -

WORKS TO BE DONE ON NEXT SHIFT

- Grab trolley no 2.

REMARKS:

ALL SHIFT ACTIVITIES HANDED OVER TO MR

SIGNATURE OF OPERATOR  
23/09/22

SIGNATURE OF M/FM

Sample Log Book Daily Entry Records

# COMMISSIONING REPORT



Date: 09/07/2021

Make : M/s Thermax Limited,  
Chinchwad, Pune.  
India. -411019.  
Model : CPRG 150/12.5/1001  
Year : 2016  
Capacity : 15,000 kg/hr  
Fuel : Biomass Briquette  
Voltage : 415 V, 3 Phase  
Frequency : 50 Hz  
Customer : M/s Serum Institute of India  
Address : Manjari, Pune Maharashtra

The above mentioned "Reciprocating Grate Type" is commissioned by M/s **Thermax Limited** on 14<sup>th</sup> June 2021 and handed over for operation & commercial use of steam has been started.

For, M/s Serum institute of India.

*S. S. Patil*  
10.07.2021

For, M/s Thermax Ltd

*Abhishek Singh*  
10/07/2021

*System kept under observation.*

CPRG-150/12.5/1001

Page 1 of 1

**15TPH Boiler Commissioning Certificate from Thermax**



Government of Maharashtra  
Labour Department  
Office of the Joint Director of Steam Boilers, Pune.

Kamgar Kalyan Bhavan, 2<sup>nd</sup> Floor, Sambhajinagar,  
020-27371697/27371051. Chinchwad, Pune-411 019

<https://mahakamgar.maharashtra.gov.in>, <http://www.mahabouler.in>  
E-mail, [jdirsh.pune@maharashtra.gov.in](mailto:jdirsh.pune@maharashtra.gov.in), [jdsbpune@rediffmail.com](mailto:jdsbpune@rediffmail.com), <http://www.mahabouler.in>

No: SB-6/SNC/2022/ 7373

Date: 3/10/2022

To,  
SEZ BIOTECH SERVICES PVT LTD.,  
MANJARI BUDRUK,  
TAL : HAVELI, DIST : PUNE-412 307.

Subject: Issue of Provisional Order for Boiler No Boiler No. - MR/18087.

Gentlemen,

With reference to my visit to your factory, I have to inform you that the subject boiler was inspected on 21/09/2022 & thereafter hydraulically tested to 18.75 Kg/cm<sup>2</sup> on 29/09/2022 & both found satisfactory.

Now, I have to forward herewith provisional order no.144, dated 03/10/2022, to enable you to work your above boiler for the period from 29/09/2022 to 28/03/2023 at a maximum working pressure of 12.50 Kg/cm<sup>2</sup>.

Pending:-

1. Approval of Working Pressure by the Director of Steam Boilers, Mumbai.
2. Approval of Registration Steam Test by the Director of Steam Boilers, Mumbai.

The boiler must be offered for steam test within the period stipulated in the provisional order i.e. by 28/03/2023 or otherwise the same will have to be offered for re-inspection on payment of fresh inspection fees.

Please note that this office will not issue any reminder to offer the boiler for steam test before the validity of the provisional order expires. Therefore, in your own interest you should offer the boiler for steam test much in advance of the expiry period of the provisional order. Please note that a visit for steam test will also be not fixed within a short time. This office must be informed well in advance when the boiler is ready for steam test so that a visit on the suitable date can be arranged.

If the steam test is not completed within six months of stipulated period in the provisional order, the boiler will have to be shut down and offered for inspection and hydraulic test on payment of fresh inspection fees.

The full particulars of Boiler Attendant/Proficiency Engineer i.e. name, grade, no. and date of issue of their certificate should be submitted in this office for scrutiny and records.

Yours faithfully,

( S. N. Chivate )

Joint Director of Steam Boilers,

Current Boiler 15 TPH Permit

Data/Parameter	$Q_{\text{biomass}}$
Data unit	Average of MT
Description	The quantity of renewable biomass briquettes used to generate steam in the boilers
Source of data Value(s) applied	Plant records and log books receipts of incoming quantity
Measurement methods and procedures	Monitoring: The quantity of biomass fed into the boiler is controlled. Data type: Measured Responsibility: Boiler Operator /Plant in charge
Monitoring frequency	Daily
QA/QC	The amount of biomass used can be cross checked by the purchase orders and stock inventory for biomass as provided.

Sr. No.	Month	Total Biomass Quantity (In TONS)	Yearly Received Quantity (In Tons)
1	Jan-21	0	4788.442
2	Feb-21	0	
3	Mar-21	16.500	
4	Apr-21	68.165	
5	May-21	0.000	
6	Jun-21	85.320	
7	Jul-21	715.970	
8	Aug-21	787.725	
9	Sep-21	591.535	

10	Oct-21	811.442
11	Nov-21	920.530
12	Dec-21	791.255

Sr. No.	Month	Total Biomass Quantity (In TONS)	Yearly Biomass Tons
1	Jan-22	834.070	10820.775
2	Feb-22	935.570	
3	Mar-22	688.135	
4	Apr-22	991.780	
5	May-22	858.080	
6	Jun-22	529.605	
7	Jul-22	840.010	
8	Aug-22	971.865	
9	Sep-22	908.500	
10	Oct-22	1064.555	
11	Nov-22	934.810	
12	Dec-22	1263.795	

**OM****OM BIO ENERGY**

305', Omkar Appartment, Tirumalanager, Kabranager,  
Nanded-431605  
Cell :- 8806888811

E-mail :- vishvabs@rediffmail.com

**GSTIN: 27BUAPS8113B1ZV**

**Tax Invoice**

Invoice No. : 143	Invoice date : 11/08/2022
D. C. No. : 143	D.C. Date : 10/08/2022
P.O.No. : 1030011979	P. O. Date : 26/07/2022
Vehicle No : MH 14 KA 0870	State : MAHARASHTRA

**Bill to Party**

Name : Thermax On Site Energy Solution LTD.  
Address : C/O.SEZ Biotech Services Pvt. Ltd. Swapnil tupe patil road, Manjari, PUNE  
GSTIN : 27AADCT2702L1ZC  
State : MAHARASHTRA

Sr. No.	NAME OF GOODS	HSN CODE	QTY.( IN KG )	RATE (per Kg)	TOTAL	
1	BIOMASS BRIQUETTE	4401	8840	11.500	101660.00	
					Sub Total	101660.00
					SGST 2.5%	2541.50
					CGST 2.5%	2541.50
					Total	106743.00
Amount in words : One Lakh Six Thousand Seven Hundred Forty Three Only					Grand Total	106743.00

**Declaration :**

- I/we declare that this invoice shows actual price of the goods and/or services described and that all particulars are true and correct.
- Error and Omission expected.
- Subject to Nanded Jurisdiction.

Bank Details: AXIS BANK LTD. Taroda Naka , Nanded-431605  
Bank Account No. : 920020044533284  
Bank IFSC : UTIB0001371

For. OM BIO ENERGY

OM BIO ENERGY

Authorized Signatory

Authorized signatory

Save Trees. Save Paper. Save Environment.

13600833

18/08/22

Sample Copy of Biomass Purchase Invoice/Delivery/Quantity Receipts on File

SEZ Biotech Services Pvt. Ltd.  
Poonawala Road, -Hadapsar, off. Soil Poonawala Road,

Pune-India

OM BIO ENERGY  
tirumalanager, kabranager  
nanded  
nanded-431605  
16-JUL-22  
Maharashtra-India

GOODS RECEIPT NO : 13600833  
DATE : 18-AUG-22 03:54 PM  
PO NO & TYPE : 1030011979 DATE:

VENDOR CODE : 158506  
CHALLAN/BILL NO : 143  
DC NO : 143 /

OPEX\_PO\_TOESL  
BOE NO :  
BOE DATE :  
LOCATION : SEZ Biotech Services

Pvt  
DC DATE : 2022/08/10

BUYER : Mr. Kishor Mahadev

Chava  
VEHICLE NO : MH 14 KA 0870  
TRANSPORTER NAME :

Receipt Routing : Inspection Required  
GRN PREPARED BY : Mr. Rohit Ganesh Patil  
Debit Note :

SR NO	PART NO	DESCRIPTION/Addn. Desc	UOM	QUANTITY	RECEIVED	REJECTED
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ACCEPTED	1	HIBBQ00001 BIOMASS BRIQUETTE	KG	8840.0		
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#IR

LOC :- 1.1.COMP

#IR->Inspection Required ,#DD-> Direct Delivery ,#SR->Standard Receipt  
GOODS NAME : STORE'S NAME : GOODS NAME :  
RECEIVED SIGN : INCHARGE/ SIGN : INSPECTED SIGN :  
BY STORE DATE : MANAGER DATE : BY DATE :

#Fuel Analysis->As Per PO->As Actual->Signature1->Signature2

GCV>Kcal	3800	3809
ASH <%	10	9.9
MOISTURE<%	10	9.9

TRANSIT DAMAGE OK  NOT OK  PACKING CONDITION OK  
IDENTIFICATION OK  NOT OK  DOCUMENTS-TC/GC/CC OK   
ITEM MISS -OUT OK  NOT OK  AS PER PCAT/BOM/DRG OK  
SPR ITEMS HANDED OVER TO IN FULL QTY & ACCEPTABLE QUALITY  
NAME : SIGN : DATE :

\* Marked Component is in Backorder to be deliver on Pri

INSPECTION DETAILS

Thermax Onsite Energy Solutions Ltd.		
Sr	GRN Check List	Tick
1	Booked In lower Weight	<input checked="" type="checkbox"/>
2	Both Weight Slips enclosed	<input checked="" type="checkbox"/>
3	Inward Stamp on DC/Invoice	<input checked="" type="checkbox"/>
4	Original Invoice Enclosed	<input checked="" type="checkbox"/>
5	E-Way Bill Enclosed	<input checked="" type="checkbox"/>
6	Debit/Credit Note Enclosed	<input checked="" type="checkbox"/>

Maker (AFM/Chem/Sup) Date (FM)

Sample Copy of Biomass Purchase Quantity Receipts on File

**SHRI UMIYA WEIGH BRIDGE** 1858

M.I.D.C. Corner, Hyderabad Road, TUPPA Nanded-431603. Mob. : 9823227441

CAPACITY 80 TONNES **COMPUTERISED** 24 HOURS & SMS SERVICE

R.S.T NO. 8279 4247 VEHICLE MH14KA0870

CHARGES RS.: 80 + 0 = 80/- MATERIAL:

**SINCE 1991**

GROSS : 14490 KG. DATE: 10/08/2022 TIME: 17:56

TARE : 5650 KG. DATE: 10/08/2022 TIME: 17:22

NET. : 8840 KG. EIGHT EIGHT FOUR ZERO kg

1. फॉर्म छोड़ने के बाद हमारी कोई जिम्मेदारी नहीं।  
 2. चालक द्वारा बताए गए वजन (★) की हमारी जिम्मेदारी नहीं है।  
 3. माल व गाड़ी नं. चालक के कहनुसार है। 4. रसिद की वॉल्यु 24 घंटे रहेगी।  
 4. सभी विवादों को न्याय नॉन्डेड कोर्ट तक सीमित होगा।

Operators Signature

★ VALID UPTO 24 HOURS ★ RECORDED AVAILABLE FOR 1 MONTH. ★

**SEZ BIOTECH SERVICES PVT. LTD.**  
 POONAWALLA BIOTECH PARK, MANJRI BUDK, PUNE

**WEIGHBRIDGE 50TON WEIGHMENT SLIP**

RST NO : 6989 VEHICLE NO : MH 14 KA 0870  
 MATERIAL : BIOMASS INVOICE NO : 143  
 SUPPLIER : OM BIO ENERGY

GROSS Wt : 14590 Date: 12/08/2022 Time: 10:24  
 TARE Wt : 5710 Date: 12/08/2022 Time: 10:12  
 NET Wt : 8880 EIGHT EIGHT EIGHT ZERO kg

STORE OFFICER SIGN: USER SIGN:

WB BY ROCKWAY WEIGHBRIDGE TECHNO, PUNE  
 PH NO: 9623442382/84/86/87/9626.

**Sample Copy of Biomass Quantity Weigh Bridge Computer Receipts on File**

Year	Month	Biomass Purchase Receipts 15 TPH Quantity (t)	Year	Biomass Purchase Receipts 22 TPH Quantity (t)
2021	Apr-21	79	2013	13730.291
	May-21	528	2014	21402.428
	Jun-21	482	2015	21657.096
	Jul-21	1608	2016	20900.846



	Aug-21	1554	2017	22120.291
	Sep-21	1520	2018	23553.29
	Oct-21	1556	2019	22176.717
	Nov-21	1694	2020	19279.397
	Dec-21	1676	2021	17933.616
2022	Jan-22	1208	2022	19020.845
	Feb-22	1627		
	Mar-22	1769		
	Apr-22	1618		
	May-22	1772		
	Jun-22	1830		
	Jul-22	1836		
	Aug-22	1834		
	Sep-22	1939		
	Oct-22	1892		
	Nov-22	1699		
	Dec-22	1892		

Data/Parameter	S <sub>P</sub>
Data unit	Range 7.0 - 10.54 Kg/cm <sup>2</sup> boiler
Description	Pressure of the steam at the outlet of the biomass boiler as monitored.
Source	The steam pressure is measured using pressure gauge. This parameter is used to calculate the Net Enthalpy of steam.
Measurement methods and procedures	Monitoring: Log book Data type: Monitored
Monitoring frequency	Daily/Hourly
QA/QC	The parameter is monitored and logged in log sheets. Based on the logged data, a report consisting of the parameter are prepared by Shift in charge in hard copy and are forwarded to manager on monthly basis. The data used is reviewed by conducting an inter department review meeting once in 6 months.

Data/Parameter	T <sub>feedwater</sub>
Data unit	90 <sup>0</sup> C
Description	The temperature of feed water
Source of data Value(s) applied	Plant Log Sheets

Measurement methods and procedures	Feed water temperature is measured in the plant premises by using temperature gauge. This parameter is used to calculate the Net Enthalpy of steam. Monitoring: Log book Data type: Monitored
Monitoring frequency	Daily
QA/QC	The parameter is monitored and logged in log sheets. Based on the logged data, a report consisting of the parameter are prepared by Shift in charge in hard copy and are forwarded to manager on monthly basis. The data used is reviewed by conducting an inter department review meeting once in 6 months.

सी.आ.ए.ए./GPN No.: MH6147789/132/22M

Receipt No: 221381853

दिनांक/Date: 19-03-2022


वैद्य मानसदास बघिनार-धुमल भाव

Legal Metrology Officer:

DHUMAL BHARAT PRALHADRAO

संज्ञक संख्या / Identification No

MH 378



Government of Maharashtra  
Food, Civil Supply and Consumer  
Protection Department Legal Metrology


पत्रशाळणी प्रमाणपत्र / CERTIFICATE OF VERIFICATION

वैद्य मानसदास बघिनार, 2009 व महाराष्ट्र वैद्य मानसदास (संयोजकवापसी)

नियम, 2011 बसवुणी-मंडळ (नियम 14(1) पहा)

See Rule 14(3) Schedule IX

The Legal Metrology Act, 2009 & The Maharashtra Legal Metrology (Enforcement)



LCR NO: CLM17382829

अ.ब. / Sr No: 91202213812513

दिनांक/Date: 19/03/2022

स्थान/Place: (Trader Premises)

मी, खालील अटी अन्वयेत खालील वी, खालील वी वीस SEZ BIOTECH SERVICES PVT. LTD., बघनार - MEDICINE/VACCINE, स्थान - POONAWALA BIOTECH PARK SEZ, MANJARI BK यांची वस्तु तपासणी करून या वस्तु यांची पत्रशाळणी व मुद्रांकन केले

I hereby certify that I have this day verified and stamped the under mentioned weights,measures,etc., belonging to Shri/Ms SEZ BIOTECH SERVICES PVT. LTD., Trade - MEDICINE,VACCINE, Locality - POONAWALA BIOTECH PARK SEZ, MANJARI BK

मात्रा Quantity	वस्तु या वस्तु, प्रकार, बघिनार, बघनार, वर्ग, क्षमता(एकता), मशीन क्रमांक, वस्तुची या वस्तुची (Denomination, Capacity, Class, Make, Machine no., and type of Weight or Measure etc.	पत्रशाळणी शुल्क रक्कम Verification Fee Rs.	हस्तांतरण (हस्तांतरण), प्रवाह यात्रा, वैयक्तिक वाहतूक, वस्तुवाहतूक हस्तांतरण/Carriage, Conveyance adjusting
1	NAWI-Electronics Scale: (1) Max Capacity 50000kg, Make ROCKWAY WEIGHBRIDGE TECHNOLOGY, Model No RWC-50, Class III, Minimum Capacity 100kg, E-Value 5kg, D-Value: Sr No RWC0204 / 1 (Rs-4000)	4000	200
एकूण हस्तांतरण/Total		₹ -4200.00	


₹ -4200.00      रुपय चार हजार दोन (शेकड)शे (Rupees Four Thousand Two Hundred only)

पुस्तक /Registered By: S M Enterprises/3362

पुस्तक तपासणीची तारीख/Next Verification Due On / Before: 18-03-2023

टीप :-

- पुस्तक तपासणीच्या दिनांकाला आधी वस्तु तपासणीची तारीख असावी आणि तारीख असावी.
- वस्तु तपासणीच्या दिनांकाला आधी वस्तु तपासणीची तारीख असावी आणि तारीख असावी.
- पुस्तक तपासणीच्या दिनांकाला आधी वस्तु तपासणीची तारीख असावी आणि तारीख असावी.
- पुस्तक तपासणीच्या दिनांकाला आधी वस्तु तपासणीची तारीख असावी आणि तारीख असावी.



Inspector of Legal Metrology, Haveli-2 Division

Digitally signed By BHARAT PRALHADRAO DHUMAL

Date: 19/03/2022

**Weigh Bridge Calibration Report**

# CALIBRATION CERTIFICATE

## TESTCAL SYSTEMS

HEAD OFFICE :- 637/2B OMKAR NAGER BIBAWADHIPUNE 411037

MOBIL Ph :- + 91- 8010395439 /9881396861/ 9307742092

Office Email ID:- Testcalpune@gmail.com / Testcalind@gmail.com /

Tcsservice@gmail.com Testpurchase@gmail.com / Testcalonline@gmail.com

Website-[www.testcal.com](http://www.testcal.com)

Job Number: 221220

Certificate Number: TCC537/22-23/19-07-2023

Customer Name and Address

M/s

SERUM INSTITUTE OF INDIA  
MANJARI, Pune 411028

Customer Reference

Verbal Order

### Details of the Instrument

Location	BRIQUETTF BOILERMR-18087 FLOW METER
Description	FLOW Meter
Make	ENDRESS HAUSER
Model TM	-40°C TO 85°C
Serial number	M3012720000
Size	DN 65
Resolution	0.01 TON/PER HOURS
Accuracy	± 2%
Condition of the equipment on receipt	Good
Date of calibration	19.07.2022
Date of next calibration suggested	18.07.2025

### Calibration environments

Temperature	25.5°C
Relative humidity	58% RH

### Standard Instrument Details

Master - I

Description	Digital Thermometer
Make	Mextech
Type / Model	ST-9264
Identification number	TCC5/EQ-T-06
Report Number	CC-2021-L-0201/005
Calibration valid till	30.12.2022

### Standard Instrument Details

Master - II

Description	Ultrasonic Flowmeter
Make	Manas
Type / Model	UF-HH-10/TS-2
Serial number	Indicator 69/0/Sensor TM-00126912 /TS-0001479
Report Number	2021-22/CFC/2141/1
Calibration valid till	04.11.2023/03.11.2023

The Standards used are traceable to National / International Standards

NILESH JADHAV LAB INCHARGE



*Yashraj*

**Flow Meter Calibration Certificate for 15 TPH Boiler**