MONITORING REPORT

CARBON OFFSET UNIT (CoU) PROJECT

Title: 36 MW Biomass Based Grid Supply Power Project by SDSSSKL, Shirol, India

UCR PROJECT ID: 402

MR Version 2.0 MR Date: 14/02//2024

UCR Monitored Period: 01
Monitored Period Duration: 01/04/2013 to 31/12/2022 (09 Years, 09 Months)
1st Issuance period: 01/04/2013 to 31/12/2022 (09 Years, 09 Months)

1s Crediting period: 01/04/2013 to 31/12/2022 (09 Years, 09 Months)

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

BASIC INFORMATION

Title of the project activity	36 MW Biomass Based Grid Supply Power Project by SDSSSKL, Shirol, India
Scale of the project activity	Large Scale
UCR PROJECT ID	402
Completion date of the MR	29/02/2024
Project participants	**Project Proponent**: M/s Shree Datta Shetkari Sahakari Sakhar Karkhana Ltd, Shirol, Maharashtra **UCR Aggregator**: Progressive Management Consultants
Host Party	India
Applied/Adapted methodologies and standardized baselines	**Adapted CDM UNFCCC Large-scale Consolidated Methodology ACM0006** Electricity and heat generation from biomass, Ver 16.0 UCR Standard for Baseline Grid Emission Factor
Sectoral scopes	01 Energy industries (Renewable/NonRenewable Sources)
SDG Impacts	SDG 7 Affordable and Clean energy SDG 8 Decent work and economic growth SDG 9: Industries, Infrastructure and Innovation SDG 13 Climate Action
Estimated total amount of average GHG emission reductions per year (DD/MM/YYYY: Quantity in CoUs)	01/04/2013-31/12/2013: 5072 tCO_2 (5072 CoUs)
	01/01/2014-31/12/2014: 62835 tCO_2 (62835 CoUs)
	01/01/2015-31/12/2015: 84357 tCO_2 (84357 CoUs)
	01/01/2016-31/12/2016: 77460 tCO_2 (77460 CoUs)
	01/01/2017-31/12/2017: 58005 tCO_2 (58005 CoUs)
	01/01/2018-31/12/2018: 86294 tCO_2 (86294 CoUs)
	01/01/2019-31/12/2019: 89345 tCO_2 (89345 CoUs)
	01/01/2020-31/12/2020: 84221 tCO_2 (84221 CoUs)
	01/01/2021-31/12/2021: 105698 tCO_2 (105698 CoUs)
	01/01/2022-31/12/2022: 84221 tCO_2 (84221 CoUs)
Estimated total amount of GHG emission reductions for the entire monitoring period (2013-2022)	**737471** tCO_2 (**737471** CoUs)

SECTION A. Description of project activity

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

The project **36 MW Biomass Based Grid Supply Power Project by SDSSSKL, Shirol, India** is located in Datta Nagar, Village: Shirol, Tehsil: Shirol, District: Kolhapur, State: Maharashtra, Country: India.

The details of the UCR project activity are as follows:

Purpose of the UCR project activity:

The project activity is a 36 MW renewable biomass (bagasse) based electricity generation cogeneration facility by the project proponent (PP) M/s. Shree Datta Shetkari Sahakari Sakhar Karkhana Ltd (SDSSSKL). The purpose of the project activity is to generate fossil free electricity using renewable biomass and thereby reduce GHG emissions by displacing fossil fuel dominated grid based electricity with such biomass based renewable electricity.

The commissioning date of this UCR project activity is the date of first commercial supply of power to the grid which was established on **11/08/2011 (as per the PPA dated 21/06/2013).** Grid connectivity was however, established on 04/08/2011.

In a typical sugarcane crushing season, the gross power generation capacity is **33.50 MW**, and in the off-season, it is **36 MW**. Captive consumption is typically **11 MW** and **3.5 MW** during the on- and off-season respectively while approximately **22.50 MW** and **32.50 MW** are exported to the state grid, i.e. Maharashtra State Electricity Distribution Limited (MSEDL).

Details of Final Grid Connectivity issued to Bagasse Based Power Projects at MSETCL's Network as on 30/11/2021

SR NO.	NAME OF THE DEVELOPER	LOCATION	Taluka	District	CAPACITY	Substation Name	Evacuation Arrangement	Date of Final Grid Connectivity	Remark
20	M/s JAGRUTI SUGARS AND ALLIED INDUSTRIES LTD.	Talegaon	Devni	LATUR	13		LILO on one ckt of 132 kV CHAKUR - UDGIR line	21.05.2015	
21	M/s BHAIRAVNATH SUGAR WORKS LTD.	Sonari	Paranda	OSMANABAD	14.5	132 kV Paranda	132kV SCDC line	17.04.2012	
22	M/s LOKMANGAL MAULI INDUSTRIES LTD.	Khed-Lohara(Bk)	Lohara	OSMANABAD	30	132 kV Ujani S/S	132kV SCDC line	01.11.2013	
23	M/s DR. BABASAHEB AMBEDKAR SSK LTD.	Arvindnagar,	Osmanabad	OSMANABAD	26	132 kV Ujani S/S	132kV SCDC line	20.02.2015	
24	M/s KANCHESHWAR SUGAR LTD.	Osmanabad	Tuljapur	OSMANABAD	20	220 kV Tuljapur S/S	132kV SCDC line		
25	M/s GANGAKHED SUGAR AND ENERGY PVT. LTD.	Mangrul	GANGAKHED	PARBHANI	31.8	132 kV Gangakhed S/S	132kV SCDC line	10.06.2013	
26	M/s BALIRAJA SAKHAR KARKHANA LTD.	Kanadkhed	Purna	PARBHANI	15	132 KV Purna S/S	132kV SCDC line	28.05.2015	
27	M/s. Twentyone Sugar Limited (Erstwhile M/s MAHARASHTRA SHETKARI SUGAR LTD.)	Saikheda	Sonpeth	PARBHANI	20		LILO on one ckt of 132 kV Parli-Parbhani line	24.01.2014	
28	M/s JAWAHAR SHETAKARI SAHAKARI SAKHAR KARKHANA LTD.	Hupri-Yalgud	Hatkanangale	Kolhapur	12		LILO on one ckt of 110 kV Kolhapur-Ichalkarangi line		
29	M/s SHREE RENUKA SUGARS LTD.	Ganga Nagar,	HATKANANGALE	Kolhapur	30		LILO on one ckt of 110 kV Mudshingi-Ichalkarangi line		
30	M/s SHRI GURUDATT SUGARS LTD.	Takaliwadi	shirol	Kolhapur	15		LILO on 110kV Kurundwad-Miraj line	16.06.2015	
31	M/s URJANKUR SHREE TATYASAHEB KORE WARNA POWER COMPANY LTD.	Warnanagar	Panhala	Kolhapur	44	220/132/33kV Wathar S/s.	132 kV DCDC line	15.03.2013	
32	M/s URJANKUR SHREE DATTA POWER COMPANY LTD.	Dattanagar	Shirol	Kolhapur	36	110kV Jaysingpur S/s.	110 kV DCDC line	04-08-11	
33	M/s SHREE CHHATRAPATI SHAHU SAHAKARI SAKHAR KARKHANA LTD.	Kagal	KAGAL	Kolhapur	21.5	GOKULSHIRGAON S/S	110 kV SCDC line		

MAHADISCOM

MAHARASHTRA STATE ELEC. DISTRIBUTION CO. LTD,
OFFICE OF SUPERINTENDING ENGINEER
ADMINISTRATIVE BUILD, 1st Floor, Tarabai Park,Kolhapur .
Tel No: 2650581 to 84: Fax No: 2656316
Email: sekolhapur@mahadiscom.in(0231)2656316

REF. No. SE/KPC/T/AEV/ No 01287 Dt :

13 FEB 2014

To,
M/s. Urjankur Shree Datta Power Co. Ltd,
IL&FS Finincial Centre, Plot No.-22,G- block,
Bandr Kurla Comlex Mumbai-400051

Sub.:- Synchronisation of 36 Mw Bagasse based Co-generation plant of Urjankur Shree Datta Power Co Ltd, Dattanagar, Shirol Dist- Kolhapur.

Ref.:-1) YOL No.USDPCLMSEDCL/REC/2013-14/01 dtd 11.12.2013
2) Synchronization report dtd.11.08.2011

Dear Sir,

This is to certify that 36 Mw Bagasse based Co-generator of M/s.Urjankur Shree Datta Power Co Ltd, Dattanagar, Shirol Dist- Kolhapur is synchronized with grid on date 11.08.2011 at 22.55 Hrs.

NOTARY OF INDIA

Yours Faithfully,

REGISTERD & NOTED
AT SERIAL NO. 1250
DATE 24/8/2014

TRUE COPY

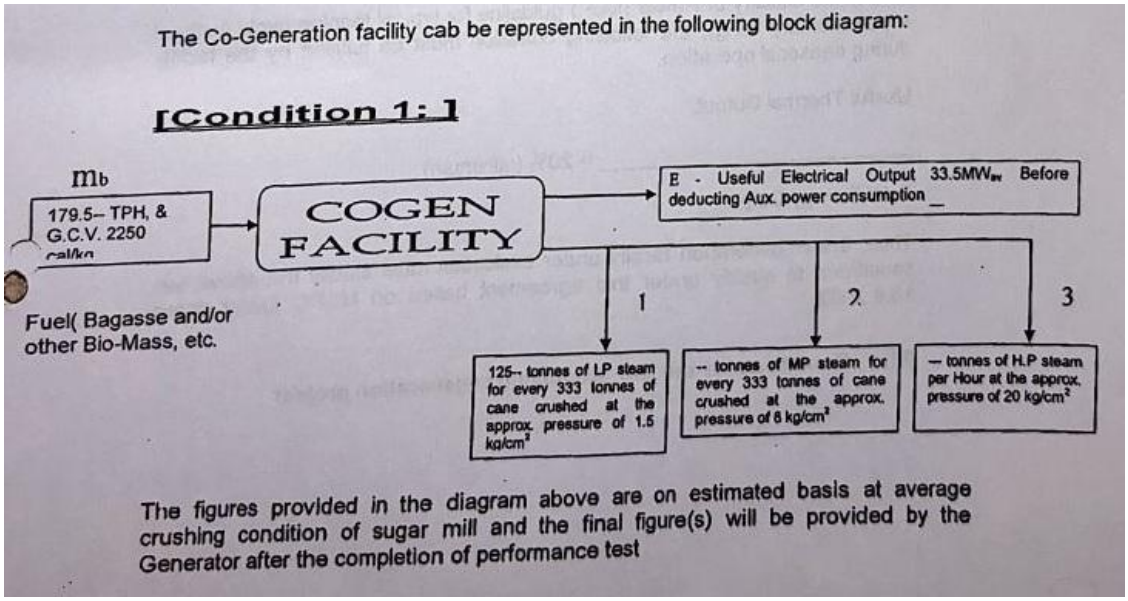
Superintending Engineer (KC)
Kolhapur,

Date of Commissioning Official MSEDL Record

ESTIMATED POWER BALANCE

Sr. No.	Items	Value in MW (MUs)	
		Season	Off –season
1.	Gross Power Generation capacity , MW	33.50 MW	36.00 MW
2.	i. Power Consumption (For Sugar mill Cane crushing & other main and Auxiliary process), MW	7.825 MW	0.700MW
	ii. Co-gen Power Plant Auxiliaries, MW	3.175 MW	2.80 MW
	Total	11.00 MW	3.5 MW
3.	Power at delivery point, MW (MUs)	22.50 MW (97.20 MUs)	32.50 MW (93.60 MUs)

As Per PPA with MSEDL



As Per PPA with MSEDL

The power co-generation units generate biomass based power for captive consumption of the sugar plant and **the sale of surplus power to the state grid**. The primary goal of the project activity is to generate electricity using renewable biomass and thereby reduce emissions by displacing fossil fuel dominated grid-based electricity generation with renewable energy-based electricity generation. Power is generated and supplied in the sugar season and off-season at 11 kV and stepped-up on-site to 132 kV before being transmitted to the nearby Jaysingpur sub-station located at Kolhapur

During the absence of biomass, coal is used to generate electricity. The use of fossil fuel is limited to the extent of 15% of total fuel consumption as per the regulation of the Ministry of New and Renewable Energy. The amount of fossil fuels co-fired does not exceed 80% of the total fuel fired on an energy basis according to ACM0006- CDM methodology booklet of UNFCCC. Hence the project is eligible for UCR CoUs.

The high pressure boilers are fired mainly by bagasse, a biomass residue (byproduct) from the sugar manufacturing process (and minor quantities of cane trash, bamboo/coconut waste and waste stem of grapes), to generate steam which in turn is fed to the steam turbine to generate power. The overall business is integrated with alcohol distillation and power generation. Prior to the UCR project activity, the biomass was used for captive steam and power requirements of the PP without grid export.

The UCR project activity involves the construction and operation of a power plant/unit that uses renewable energy sources and supplies electricity to the grid. The UCR project activity qualifies under the environmental additional positive list of pre-approved project types under the UCR carbon incentive model for the issuance of voluntary carbon credits.

The UCR project activity is the construction and operation of a power plant/unit that uses renewable energy sources (biomass residue) and supplies renewable electricity to the grid. The UCR 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. The UCR project activity qualifies under the environmental additional positive list of pre-approved project types under the UCR carbon incentive model for issuance of voluntary carbon credits.

UCR Monitoring Period Number	01
Start Date (DD/MM/YYYY)	01/01/2013
End Date (DD/MM/YYYY)	31/12/2022
Total Emission Reductions over the monitoring period (CoUs)	**737471 tCO_2**

A.2. Location of project activity >>

Country	:	India
District	:	Kolhapur
Village	:	Shirol
Tehsil	:	Shirol
State	:	Maharashtra

The Project Site is located

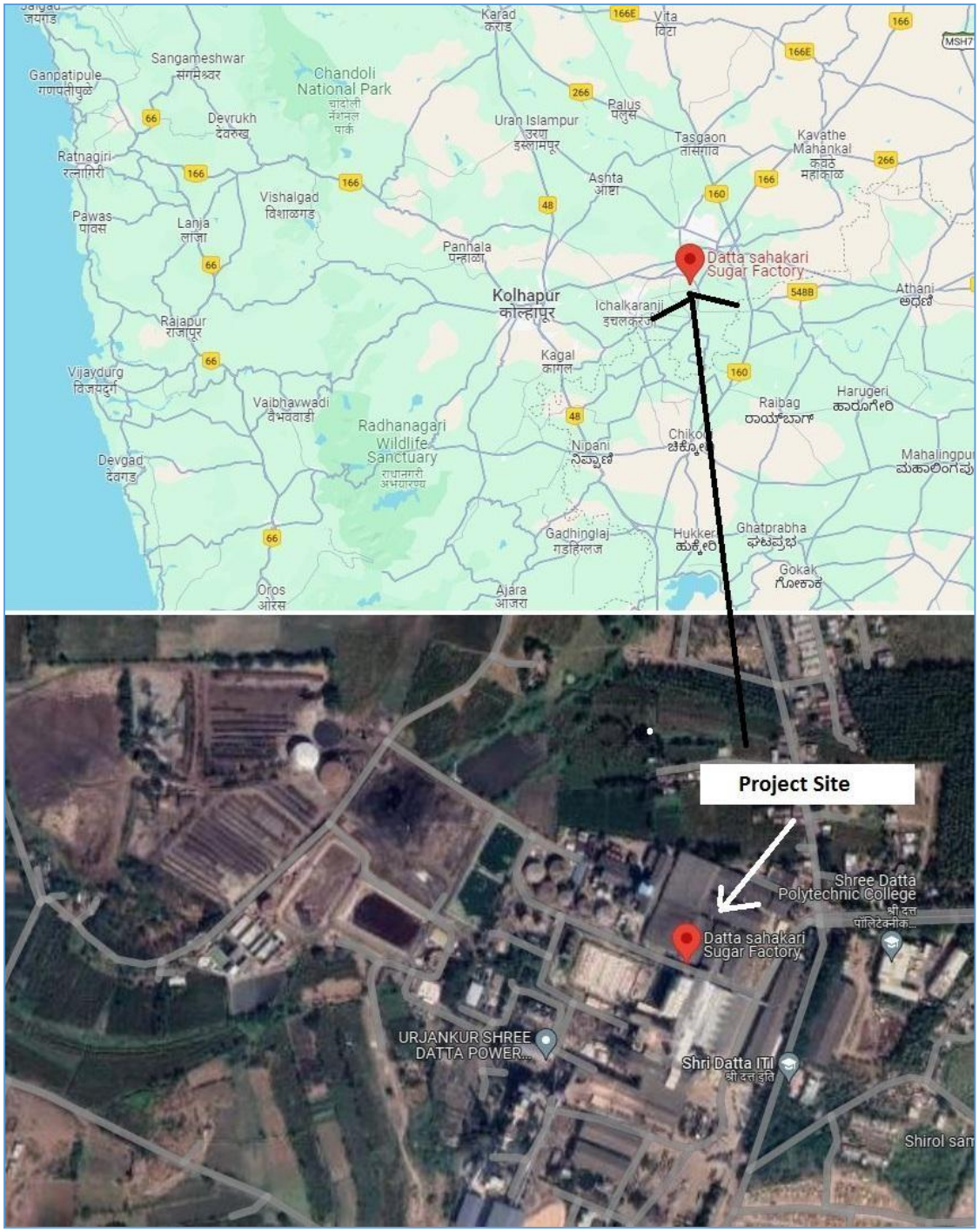
a. 45 Km away from Kolhapur, which is a district in Maharashtra

b. Other important towns nearby are

Jaysingpur, at a distance of 06 Km.
Sangli, at a distance of 16 Km.

c. Jaysingpur, is the nearest Railway station 07 Km away from the project site.

d. Kolhapur is nearest Airport 45 Km away from factory site.



There are no sensitive, historical, forest reserves and wildlife sanctuaries, etc within a 10 Km radius of the factory site. The Mumbai – Bangalore National Highway (N.H. 4) is 45 Km away from the factory site. The latitude and longitude are 16º44'N and 74º35'E respectively. The Elevation above the Mean Sea Level is 542 m.

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 captive use and export of electricity to the electricity grid. The high pressure boilers are fired by bagasse, a byproduct from the sugar manufacturing process to generate steam, which in turn powers the steam turbine to generate power. 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

The UCR project activity involves the installation of a 36 MW turbo generator along with high pressure 110 kg/cm^2 (g) capacity boiler.

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

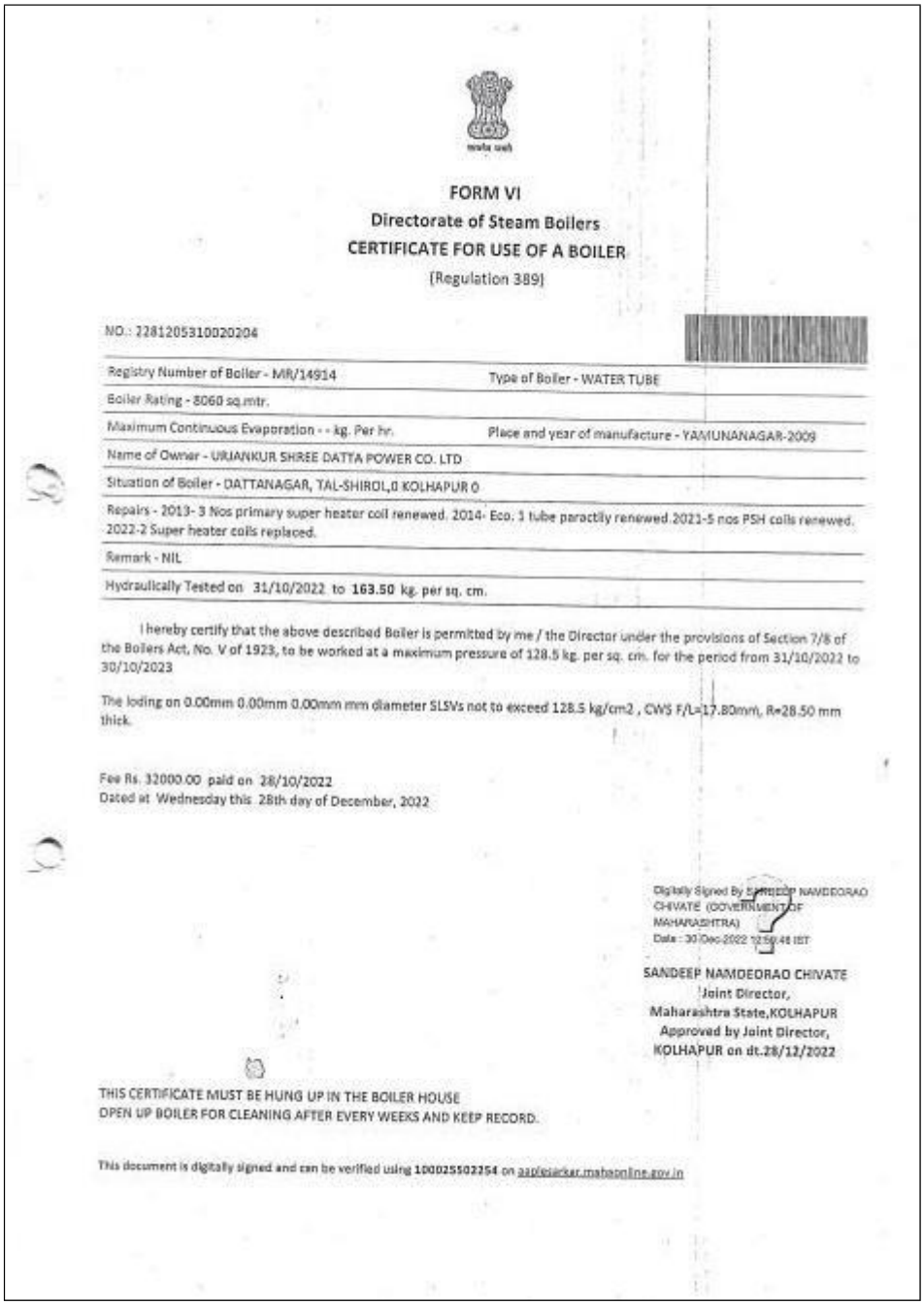
The project is a green field renewable energy power generation project connected to the grid and supplies electricity to the grid and is used for captive purposes. The project activity is generating electricity using biomass (sugar factory residues) with a 1x180 TPH single drum, Travelling Grate boiler using a 36000 KW, 8 HP turbine whose capacity will be governed at MW.

On **an annual average basis**, the project exports around **1077528 MWh/yr** to the Indian electricity grid. Power is generated and supplied in the sugar season and off-season at 11 kV and stepped-up on-site to 132 kV before being transmitted to the nearby Jaysingpur sub-station located at Kolhapur.

Technical details of the project activity

BOILER	
Manufacture	IJT (Isgec John Thompson) make 180 TPH High pressure Boiler (MR/14914)
Type	Single- drum, water tube, Membrane wall, natural circulation, Balanced draught, Top Supported, Travelling Gate boiler
Net Steaming capacity at MCR (kg/hr) for Bagasse firing	180,000
Steam temperature at superheater outlet (Deg C)	540± 5
Steam Pressure at main steam stop value (kg/cm$^{2)}$ (g)	109
Peak Capacity of Boiler (Kg/hr)	198,000
Minimum possible duration for peak capacity/Shift (8 hrs)	30 Minutes
Turbine	
Make	36 MW Simense Make
Type	Extraction cum condensing
Steam pressure at the TG inlet	105 ATA
Steam temperature at the TG inlet	535º C
Exhaust steam pressure	0.064 ATA
Steam inlet quantity	179.51 TPH
Gear Box	

Rated Power	36,000 KW
Energy production	
Gross power	33.50 (season); 36 MW (off – Season)
Auxiliary consumption	11.00 MW (Season); 3.5 MW (off-season)
Net power for export after auxiliary consumption	22.5 MW (season); 32.50 MW (off-season)



FORM VI

Directorate of Steam Boilers

CERTIFICATE FOR USE OF A BOILER

[Regulation 389]

NO.: 2281205310020204

Registry Number of Boiler - MR/14914 Type of Boiler - WATER TUBE

Boiler Rating - 8060 sq.mtr.

Maximum Continuous Evaporation - - kg. Per hr. Place and year of manufacture - YAMUNANAGAR-2009

Name of Owner - URJANKUR SHREE DATTA POWER CO. LTD

Situation of Boiler - DATTANAGAR, TAL-SHIROL,0 KOLHAPUR 0

Repairs - 2013- 3 Nos primary super heater coil renewed. 2014- Eco. 1 tube paractly renewed 2021-5 nos PSH coils renewed. 2022-2 Super heater coils replaced.

Remark - NIL

Hydraulically Tested on 31/10/2022 to 163.50 kg. per sq. cm.

I hereby certify that the above described Boiler is permitted by me / the Director under the provisions of Section 7/8 of the Boilers Act, No. V of 1923, to be worked at a maximum pressure of 128.5 kg. per sq. cm. for the period from 31/10/2022 to 30/10/2023

The loding on 0.00mm 0.00mm 0.00mm mm diameter SLSVs not to exceed 128.5 kg/cm2 , CWS F/L=17.80mm, R=28.50 mm thick.

Fee Rs. 32000.00 paid on 28/10/2022
Dated at Wednesday this 28th day of December, 2022

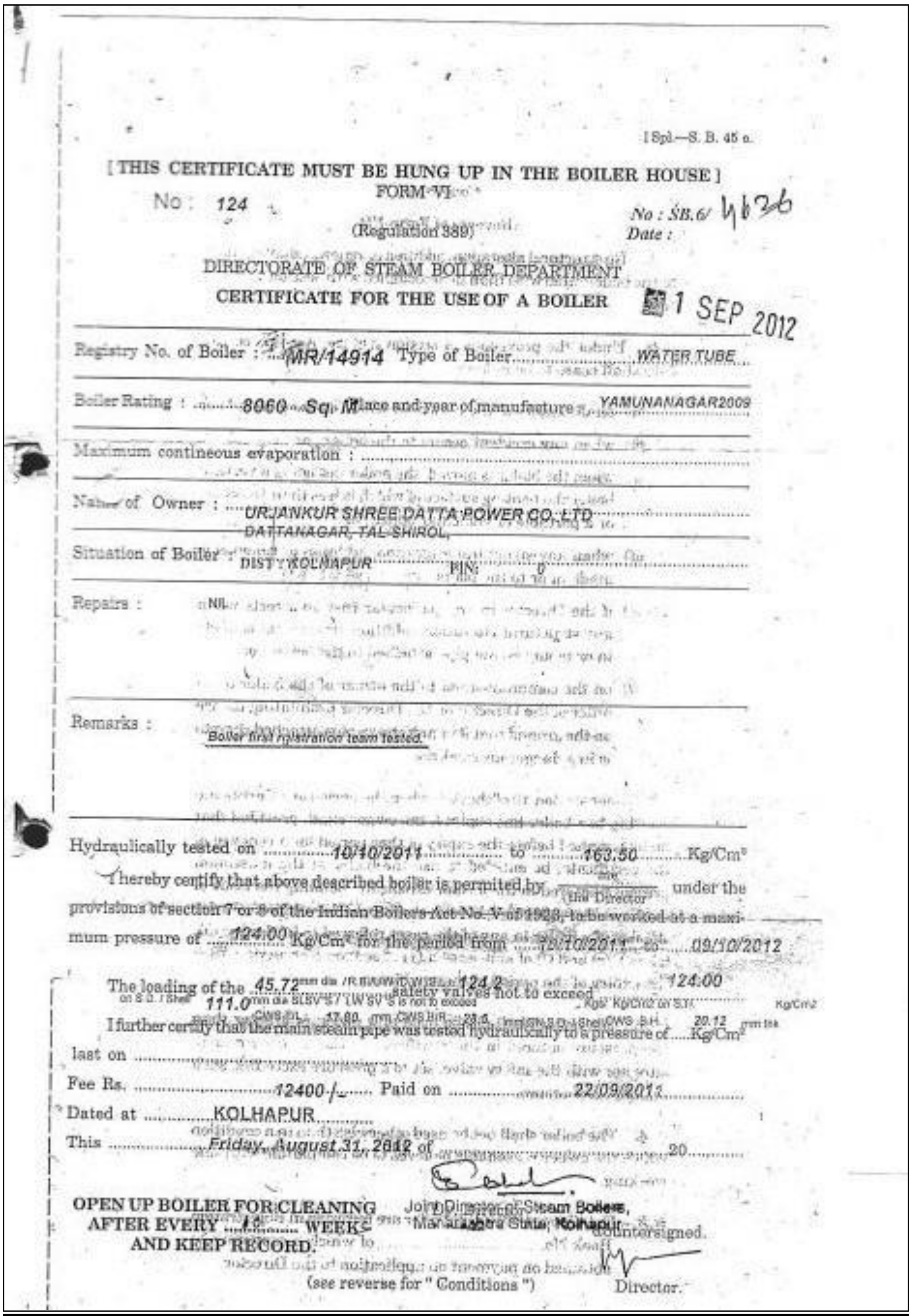
Digitally Signed By SANDEEP NAMDEORAO CHIVATE (GOVERNMENT OF MAHARASHTRA)
Date : 30-Dec-2022 12:59:48 IST

SANDEEP NAMDEORAO CHIVATE
Joint Director,
Maharashtra State,KOLHAPUR
Approved by Joint Director,
KOLHAPUR on dt.28/12/2022

THIS CERTIFICATE MUST BE HUNG UP IN THE BOILER HOUSE
OPEN UP BOILER FOR CLEANING AFTER EVERY WEEKS AND KEEP RECORD.

This document is digitally signed and can be verified using 100025502254 on applesacker.mahaonline.gov.in

Current Boiler Certificate


I Spl.—S. B. 45 a.

[THIS CERTIFICATE MUST BE HUNG UP IN THE BOILER HOUSE]

FORM VI

No: 124

(Regulation 389)

No : SB.6/ 4626

Date :

DIRECTORATE OF STEAM BOILER DEPARTMENT

CERTIFICATE FOR THE USE OF A BOILER

1 SEP 2012

Registry No. of Boiler : MR/14914 Type of Boiler WATER TUBE

Boiler Rating : 8060 Sq. M Place and year of manufacture YAMUNANAGAR2009

Maximum contineous evaporation :

Name of Owner : URJANKUR SHREE DATTA POWER CO. LTD

Situation of Boiler : DATTANAGAR, TAL-SHIROL, DIST : KOLHAPUR PIN: 0

Repairs : NIL

Remarks : Boiler first registration team tested.

Hydraulically tested on 10/10/2011 to 163.50 Kg/Cm²

I hereby certify that above described boiler is permited by the Director under the provisions of section 7 or 8 of the Indian Boilers Act No. V of 1923, to be worked at a maximum pressure of 124.00 Kg/Cm² for the period from 10/10/2011 to 09/10/2012

The loading of the 45.72 mm dia safety valves not to exceed 124.2 Kg/Cm2 on S.H. 124.00 Kg/Cm2 on S.D. / Shell 111.0 mm dia

I further certify that the main steam pipe was tested hydraulically to a pressure of ..... Kg/Cm²

last on

Fee Rs. 12400/- Paid on 22/09/2011

Dated at KOLHAPUR

This Friday, August 31, 2012 of 20

Joint Director of Steam Boilers, Maharashtra State, Kolhapur

OPEN UP BOILER FOR CLEANING AFTER EVERY ...... WEEKS AND KEEP RECORD.

Countersigned.

(see reverse for " Conditions ")

Director.

Boiler Report on Commissioning

Do no harm or Impact test of the project activity>>

The social, environmental, economic, and technological benefits that contribute to sustainable development are as follows:

Social benefits:

Area of operation:

S.No	Name of Taluka	Name of District	Name of the State	No. of Villages
1	Shirol	Kolhapur	Maharashtra	50
2	Hatkanangle	Kolhapur	Maharashtra	32

3	Karveer	Kolhapur	Maharashtra	02
4	Kagal	Kolhapur	Maharashtra	03
5	Chikodi	Belgaum	Karnataka	21
6	Athani	Belgaum	Karnataka	07
Total				115

- The project activity provides employment to people from the surrounding villages as in the table above. It covers over 115 villages and provides various employment opportunities for farmers and other unskilled and skilled labour forces.
- The project activity contributes to employment generation in the local area for both skilled and unskilled people for the operation and maintenance of the equipment.
- It has created steady higher value jobs and skilled workers at the facility. The project activity contributes to national energy security by reducing the consumption of fossil fuels.
- The project continuously innovates and modernizes on the technology front. Some of the technologies used are:

➢ Auto Cane feeder.
➢ Pressure Fedders.
➢ High-pressure boilers.
➢ Mass flow meter.
➢ Semi-kestners.
➢ Auto pH Control System.
➢ Cooling & condensing automation.
➢ Pan automation.
➢ Continuous pan.
➢ Direct Contact Heater.
➢ Vapour Line Juice Heaters.
➢ Condensate Heat Recovery System.
➢ Super-Heated Wash Water System.
➢ Waste Heat Recovery for Sulphur burner.
➢ Silo with Automatic Weighing and Stitching System.
➢ Well Equipped Sugar Laboratory.

- The project has a well-established hospital to carry out regular health check-ups for the employees in nearby villages and the farmers.
- The project established educational facilities for the benefit of nearby village employees and local people and created confidence in the activities of the Industry.

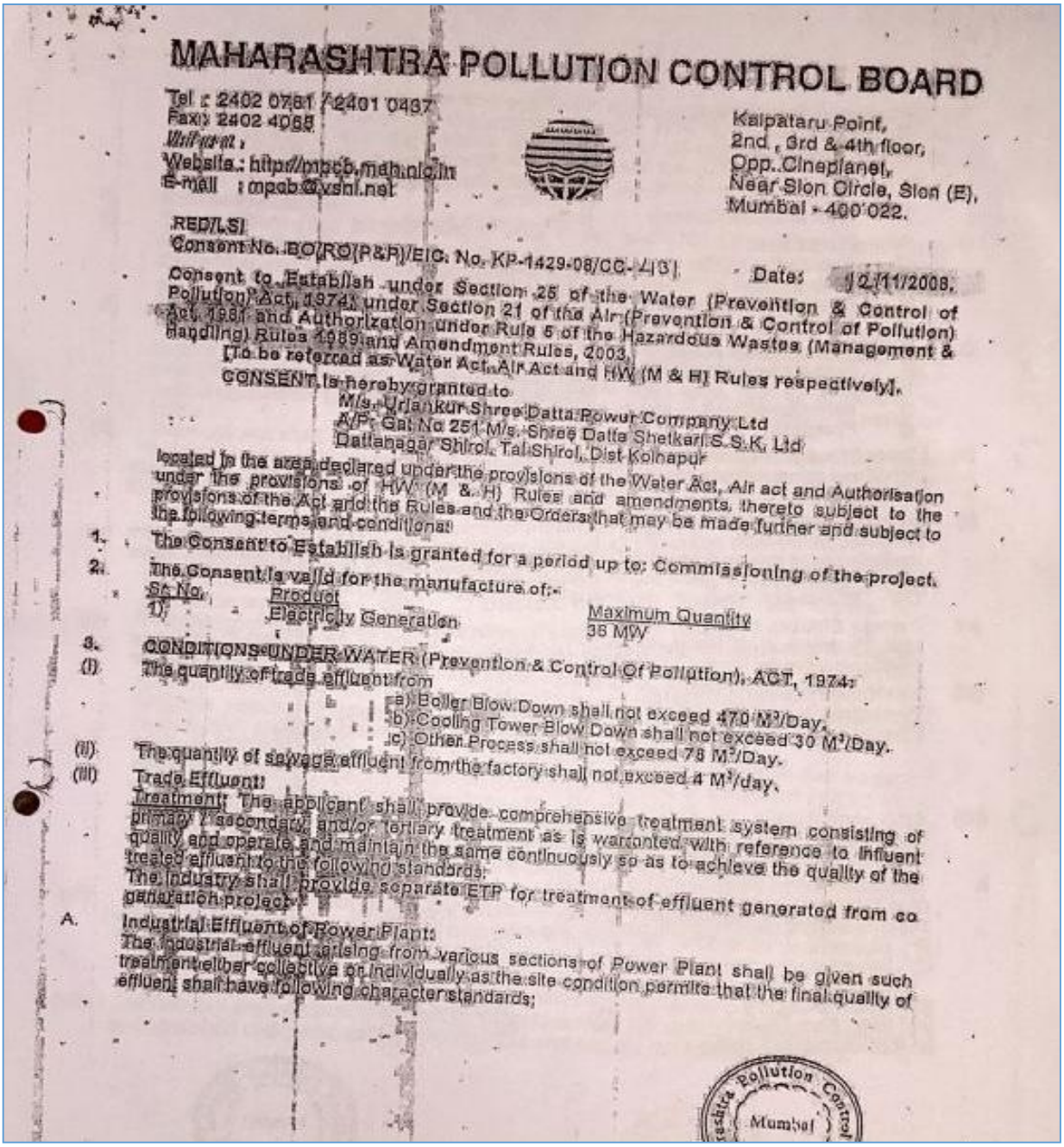
Environmental benefits:

- The project activity is a renewable energy project, which utilizes biomass as a fuel for power generation with grid supply, a move that is voluntary and not mandated under current environmental laws of India. Since this project activity generates green energy in the form of power, it has positively contributed towards the reduction in (demand) use of finite natural resources like coal and oil, minimizing depletion and in turn increasing its availability to other important purposes. Therefore, this project activity helps environmental sustainability by reducing GHG emissions in the atmosphere.

- The treated sugar factory effluent along with spray pond over flow is used for irrigation on 1000acres of land. The excess condensate is used as process water.
- Avoids global and local environmental pollution, leading to a reduction of GHG emissions.
- Enabling the local electricity grid to divert the electricity displaced by the project activity to the nearby needy areas.
- Indirect capacity building by providing a case example to other sugar mills in the region for switching to high-capacity cogeneration configuration, for electricity generation. In addition to the reduction in carbon dioxide (CO2) emissions, the project implementation will result in a reduction of other harmful gases (NOx and SOx) that arise from the combustion of coal used in power generation. The project activity also leads to reduced ash generation since the ash content in bagasse is lower than that of Indian coal.
- Rainwater Harvesting was done for the entire campus and collected in a pond. The rainwater collected is used for Green belt development.

Economic benefits:

- The project activity creates employment opportunities during the project stage and the operation and maintenance of the boiler and turbines.
- The project activity helps in the conservation of fast-depleting natural resources like coal and oil thereby contributing to the economic well-being of the country as a whole.
- The various other benefits due to the project activity ensure that the project is contributing to the sustainable development of the region by bringing in green technologies and processes to a backward region. The technology is indigenous and by implementing such projects the country is showcasing its GHG mitigation actions in its efforts to combat climate change.



MAHARASHTRA POLLUTION CONTROL BOARD

Tel : 2402 0781 / 2401 0437
Fax: 2402 4068
Website : http://mpcb.mah.nic.in
E-mail : mpcb@vsnl.net

Kalpataru Point,
2nd , 3rd & 4th floor,
Opp. Cineplanet,
Near Sion Circle, Sion (E),
Mumbai - 400 022.

RED/LSI
Consent No. BO(RO(P&R)/EIC. No. KP-1429-08/CC- 413 | Date: 12/11/2008.

Consent to Establish under Section 25 of the Water (Prevention & Control of Pollution) Act, 1974; under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule 5 of the Hazardous Wastes (Management & Handling) Rules 1989 and Amendment Rules, 2003.
[To be referred as Water Act, Air Act and HW (M & H) Rules respectively].

CONSENT is hereby granted to
M/s. Urjankur Shree Datta Powar Company Ltd
A/P: Gat No 251 M/s. Shree Datta Shetkari S.S.K. Ltd
Dattanagar Shirol, Tal.Shirol, Dist Kolhapur

located in the area declared under the provisions of the Water Act, Air act and Authorisation under the provisions of HW (M & H) Rules and amendments, thereto subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:

1. The Consent to Establish is granted for a period up to: Commissioning of the project.
2. The Consent is valid for the manufacture of:-

Sr. No.	Product	Maximum Quantity
1)	Electricity Generation	38 MW

3. CONDITIONS UNDER WATER (Prevention & Control Of Pollution), ACT, 1974:

(I) The quantity of trade effluent from
a) Boiler Blow Down shall not exceed 470 M^3/Day.
b) Cooling Tower Blow Down shall not exceed 30 M^3/Day.
c) Other Process shall not exceed 78 M^3/Day.

(II) The quantity of sewage effluent from the factory shall not exceed 4 M^3/day.

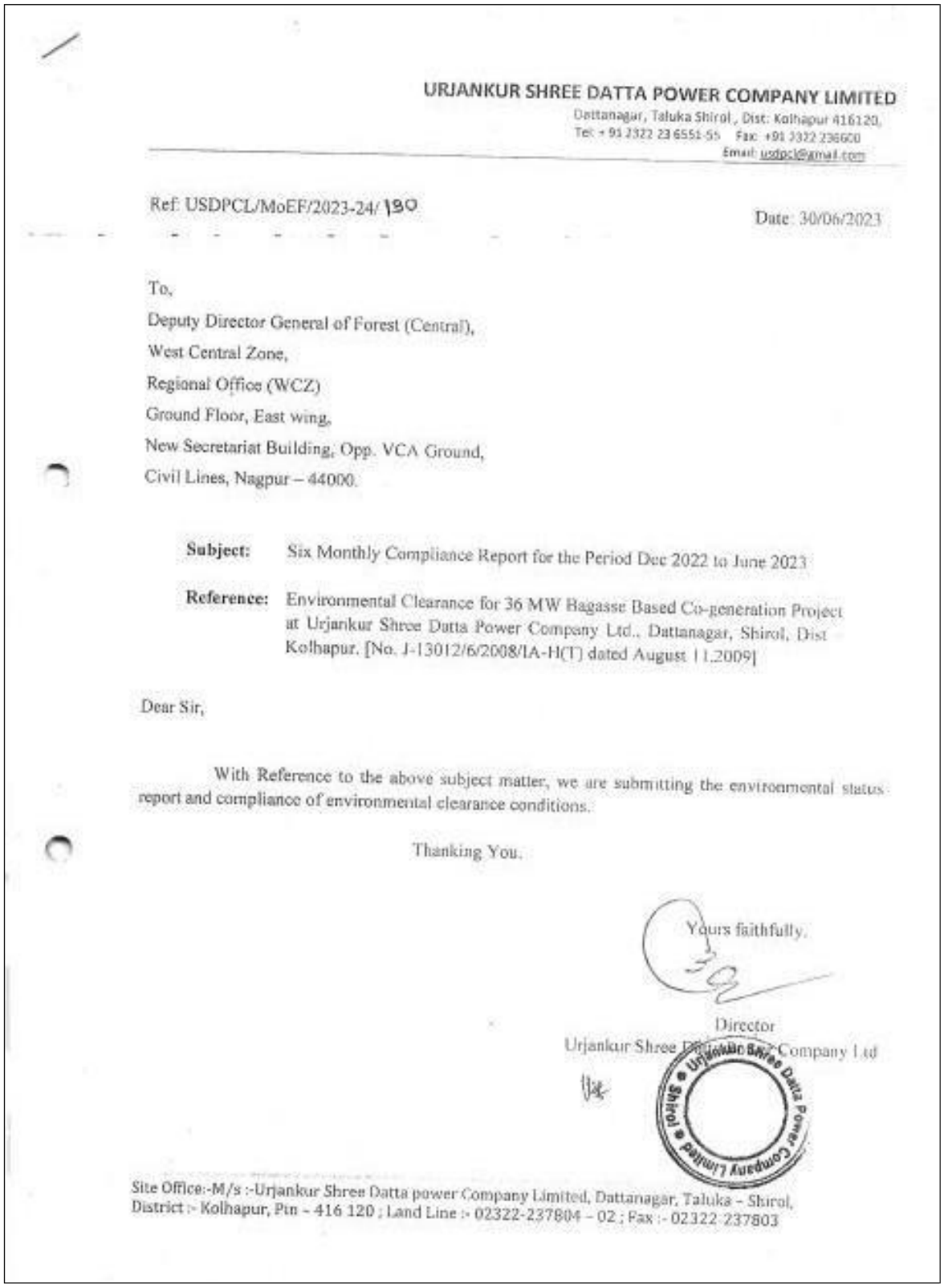
(III) Trade Effluent:
Treatment: The applicant shall provide comprehensive treatment system consisting of primary / secondary and/or tertiary treatment as is warranted with reference to influent quality and operate and maintain the same continuously so as to achieve the quality of the treated effluent to the following standards:
The industry shall provide separate ETP for treatment of effluent generated from co generation project.

A. Industrial Effluent of Power Plant:
The industrial effluent arising from various sections of Power Plant shall be given such treatment either collective or individually as the site condition permits that the final quality of effluent shall have following character standards:

Pollution Control Mumbai

Pollution Board Consent To Establish 12/11/2008

The latest environmental monitoring and clearance report for the project activity is as follows:



URJANKUR SHREE DATTA POWER COMPANY LIMITED

Dattanagar, Taluka Shirol, Dist: Kolhapur 416120.
Tel: +91 2322 23 6551-55 Fax: +91 2322 236600
Email: usdpcl@gmail.com

Ref: USDPCL/MoEF/2023-24/190

Date: 30/06/2023

To,
Deputy Director General of Forest (Central),
West Central Zone,
Regional Office (WCZ)
Ground Floor, East wing,
New Secretariat Building, Opp. VCA Ground,
Civil Lines, Nagpur – 44000.

Subject: Six Monthly Compliance Report for the Period Dec 2022 to June 2023

Reference: Environmental Clearance for 36 MW Bagasse Based Co-generation Project at Urjankur Shree Dutta Power Company Ltd., Dattanagar, Shirol, Dist Kolhapur. [No. J-13012/6/2008/IA-II(T) dated August 11.2009]

Dear Sir,

With Reference to the above subject matter, we are submitting the environmental status report and compliance of environmental clearance conditions.

Thanking You.

Yours faithfully,

Director
Urjankur Shree Dattapur Power Company Ltd

Urjankur Shree Datta Power Company Limited • Shirol •

Site Office:-M/s :-Urjankur Shree Datta power Company Limited, Dattanagar, Taluka – Shirol, District :- Kolhapur, Pin – 416 120 ; Land Line :- 02322-237804 – 02 ; Fax :- 02322 237803

PROFARMA FOR COMPLIANCE OF ENVIRONMENT CLEARANCE CONDITIONS OF CO-GENERATION UNIT

1.	Period of Submission of half yearly Compliance Report	December 2022 to June 2023
2.	Stack Emission and Water Analysis Data	**Annexure I**
3.	Current States of the Project	The 36 MW implemented and has been working since 2011. The shares of Urjanjankur Shree Datta Power Company Ltd. belonging to IREL were Purchased by Shree Datta Shetkari SSK Ltd., in the year 2017 and is the shareholder of Urjankur Shree Datta Power Company Ltd.
4.	Name and Contact Details of the responsible person with respect to the submitted report	M. V. Patil Director, Urjankur Shree Datta Power Company Ltd., (Po) Dattanagar – 416120, (Tq) Shirol, (Dist) Kolhapur. Ph. - (02322) 236556 (6 lines), (02322) 236600 Email: usdpcl@gmail.com
5.	Legal States	No Court Cases
6.	Online Monitoring	Installed for Co-gen Boiler Stack & ETP Unit
7.	CREP Conditions	Implemented
8.	ETP Technologies Adopted	Equalization, Settling, Sanded Activated Charcoal bed and treated effluent are recycled into service reservoir.

Urjankur Shree Datta Power Company Limited • Shirol •

ENVIRONMENT CLEARANCE CONDITIONS OF COMPLIANCE FOR 36 MW BAGASSE BASED CO-GENERATION POWER PROJECT

Sr. No.	EC Conditions	Compliance
i.	The project proponent should install regular monitoring system for SPM & SO2	The project has installed online monitoring system for SPM ,NOx and SO2
ii.	The project proponent agreed to provide separate & well covered ash storage to avoid dispersion due to wind blowing.	Provided separate Ash storage Silos to avoid dispersion of ash due to wind blowing.
iii.	Handling of dusty raw material should be completely done with covered conveyor belts.	Handling of bagasse/coal are covered and passed through conveyor belts
iv.	Hazardous wastes used oil would be disposed to authorized reprocess or and ETP sludge will be sent to common hazardous waste treatment storage disposal facility.	Hazardous wastes spent oil is used as lubricant oil for bullock carts within factory premises & ETP sludge is Composted along with Pressmud and used as manure.
v.	Handling of dusty raw material should be completely done with covered conveyor belts.	Compliance as per handling of bagasse/coal are covered and passed through conveyor belts
vi.	No land development / construction work preliminary or otherwise relating to the project shall be taken up without obtaining due clearance from respective authorities.	Land development/construction work taken up only after obtaining the prior Environment Clearance.
vii.	No additional land shall be used /acquired for any activity of the project without obtaining proper permission.	No additional land was used/acquired for the activity of the project.
viii.	No fuel other than mentioned above with said contents shall be used without obtaining proper permission.	No fuel other than mentioned in CTO is used.
ix.	For controlling fugitive natural dust. Regular sprinkling of water & wind shields at appropriate distances in vulnerable areas of the plant shall be ensured.	For controlling fugitive natural dust, regular sprinkling of water & wind shields at appropriate distances in vulnerable areas of the plant are provided.
x.	Regular monitoring of the air quality, including SPM & SO2 levels both in work zone and ambient air shall be carried out in and around the power plant and records shall be maintained. The Location of monitoring stations and frequency of monitoring shall be decided in consultation with Maharashtra pollution control board (MPCB) & submit report accordingly to MPCB	Regular monitoring of the air quality, including SPM, NOx & SO2 levels both in work zone and ambient air are carried out in the power plant and frequency of monitoring are decided in consultation with MPCB & submit report accordingly to MPCB. Reports are enclosed as **Annexure-I**
xi.	A detailed scheme for rainwater harvesting shall be prepared and implemented to recharge ground water.	A detailed scheme for rainwater harvesting was prepared and implemented to recharge ground water. Around 5600 m^3 of Rain water

Urjankur Shree Datta Power Company Limited

		was harvested during 2022- 2023
xii.	Periodic monitoring of ground water shall be undertaken and results analyzed to ascertain any change in the quality of water. Result shall be regularly submitted to the Maharashtra Pollution control board.	Shall be monitored during the season.
xiii.	Leq of Noise level shall be maintained as per standards for people working in the high noise area, required personal protective equipment like earplugs etc., shall be provided.	Leq of noise level are maintained as per Standards & Personal Protective Equipment (PPE) like ear plugs etc. are provided to employees.
xiv.	Green belt shall be developed & maintained around the plant periphery Green belt development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO/Agriculture dept.	Green belt is developed & maintained around the plant periphery. Green Belt Development is carried out considering CPCB guidelines including selection of plant species.
xv.	Adequate safety measures shall be provided to limit the risk zone within the plant boundary, in case of an accident. Leak detection devices shall also be installed at strategic places for early detection & warning.	Adequate Safety measures are provided to limit the risk zone within the plant boundary & detection devices are also installed at strategic places for early detection and warning.
xvi.	Regular mock drills for the on-site emergency management plan shall be carried out. Implementation of changes / improvement required, if any, in the on-site management plan shall be ensured.	Regular mock drills for the on-site emergency management plans are carried out. Enclosed as **Annexure-II**
xvii.	A separate environment cell with qualified staff shall be set up for implementation of the stipulated environment safeguard	A separate environment management cell with qualified staff has been set up for implementation of the stipulated environmental safeguards. Enclosed as **Annexure-III**
xviii.	Transportation of ash will be through closed container and measures should be taken to prevent spilling of the ash.	Transportation of ash being carried out through closed containers and all measures are taken to prevent Spillage of Ash.
xix.	The coal will be transported through closed containers	The coal is transported through closed containers.
xx.	Proper coal handling, transportation and handling system should be as plan approved by MPCB.	Proper coal handling transportation and handling system is as per the approved plan.
xxi.	Separate silos will be provided for collection and storing bottom ash fly ash.	Separate arrangement is provided for collecting and storing bottom ash and fly ash.
xxii.	Separate funds shall be allocated for implementation of environment protection measures /EMP along with item wise breaks-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measure shall not be	Separate funds were allocated for implementation of environment protection measures/EMP along with item –wise break –up. These cost included as part of the project cost.

Urjankur Shree Datta Power Company Limited

	diverted for other purposes and year wise expenditure should reported to the MPCB & this department	
xxiii.	The project management shall advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in Marathi language of the local concerned within seven days of issue of this letter, informing that the project has been accorded environmental clearance and the copies of clearance letter are available with the MPCB and may also be seen at website at http://envis.maharashtra.gov.in	The project management advertised in two local newspapers widely circulated in the Region around the project one of which is in Marathi language of the local concerned within seven days of issue of this letter.
xxiv.	Project management should submit half yearly compliance reports in respect of the stipulated prior environment clearance terms and conditions in hard and soft copies to the MPCB and this department, on 1st June and 1st December of each calendar year.	The project management is submitting the compliance reports in respect of the stipulated prior environment clearance conditions and hard copies shall be submitted regularly to MOEF, CPCB and also submit soft copy on "PARIVESH" portal.
xxv.	A copy of the clearance letter shall be sent by proponent to the concerned Municipal Corporation and the local NGO, if any, from whom suggestions /representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	A copy of the clearance letter was given by the proponent to Shirol Gram Panchayat.
xxvi.	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at convenient location near the main gate of the company in the public domain	Company shall upload the status of compliance of the stipulated EC Conditions.
xvii.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the MPCB	The Project Proponent submitted the reports on the status of compliance of the stipulated EC conditions including results of monitored data (both hard copies as well as by e-mail) to the Regional Office MPCB at Kolhapur and also submit soft copy on "PARIVESH" portal.
xviii.	The environmental statement for each financial	The environment statement for each financial

	year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	year ending 31st March in form-V submitted by the USDPCL to the MPCB.
xxix.	The environmental clearance is being issued without prejudice to the action initiated under EP Act or any court cases pending in the court of law and it does not mean that project proponent has not violated any environmental laws in the past and whatever decision under EP Act or of the Hon'ble court will be binding on the project proponent. Hence this clearance does not give immunity to the project proponent in the case filed against him.	Noted.
4	The Environment department reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the department or for that matter, for any other administrative reason.	Noted.
5	**Validity of Environment Clearance:** The environmental clearance accorded shall be valid for a period of 5 years to start of production operations by the power plant.	Noted.
6	In case of any deviation or alterations in the project proposed from those submitted to this department of clearance, a fresh reference should be made to the department to assess the adequacy of the condition(s) imposed and to incorporate additional environmental protection measures required, if any.	Noted.
7	The above Stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the public Liability Insurance Act, 1991 and its amendments.	Noted.

Annexure-I: Monitoring Reports

TEST REPORT STACK EMISSIONS	
Report Ref. No.	SEC/Co-gen Stack-EH/01-23
Report Date	16 January 2023
Name of industry	Urjankur Shree Datta Power Company Ltd
Address	Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur
Start Date of commencement of Sampling	05 January 2023
Start Time of commencement of Sampling	03:30 pm
End Date of commencement of Sampling	05 January 2023
End Time of commencement of Sampling	04:00 pm
Retention period of the remnant sample	30 days
PARTICULARS OF STACK	
Stack attached to boiler	180 TPH [ESP]
Stack Diameter	4.00 m
Stack Height	100.00 m
Stack Temperature	112°C
Stack Velocity of Flue Gases	9.9 m/s
Type of Fuel	Bagasse

POLLUTION PARAMETER RESULTS

Parameter	Results			Limits	Units	Method Used
	Jan	Feb	March			
Particulate Matter (PM)	79	87	92	150	mg/Nm³	IS:11255 (Part 1): 1985 Reaffirmed 2003
SO_2	26	33	35	80	mg/Nm³	IS-11255 (Part 2): 1985 Reaffirmed 2009
NOx	47	54	56	80	mg/Nm3	IS-11255 (Part 7): 2005 Reaffirmed 2012

Note: The test report shall not be reproduced except in full without written approval of the laboratory.

Urjankur Shree Datta Power Company Limited Shirol

AMBIENT AIR QUALITY REPORT

Report Ref. No. : SEC/AA-EH/01-23	End of Analysis : 14 January 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd.	Report Date : 16 January 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : AA2-EH
Date of Collection / Sampling : 05 January 2023	Sample Description: Ambient Air
Date of Receipt : 06 January 2023	Sample Collected By: SEC Lab
Sample Location : **Near Co-gen Plant (Urjankur Gate)**	

Sr. No.	Parameter	Unit	Result	Standard Limit	Test Method
1	Particulate Matter (PM 10)	$\mu g/m^3$	79	100	IS 5182 (Part 23): 2006 Reaffirmed 2012
2	Particulate Matter (PM 2.5)	$\mu g/m^3$	37	60	SEC/SOP/Air/ Ambient/03:2018
3	Sulphur Dioxide (as SO_2)	$\mu g/m^3$	13.00	80	IS 5182 (Part 2): 2001
4	Nitrogen Dioxide (as NOx)	$\mu g/m^3$	15.00	80	IS 5182 (Part 6): 2006

Urjankur Shree Datta Power Company Limited • Tal. Shirol

Name of Sample: Co-gen ETP Inlet

TEST REPORT	
Report Ref. No. : SEC/W-EH/01-23	End of Analysis : 14 January 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd	Report Date : 16 January 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : EH5
Date of Collection / Sampling : 05 January 2023	Nature of Sample: Water
Date of Receipt : 06 January 2023	Sample Collected By: SEC Lab
Date of Analysis: 06 January 2023	Sample Quantity : 1 lit

TEST REPORT	
Report Ref. No. : SEC/W-EY/02-23	End of Analysis : 20 February 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd	Report Date : 21 February 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : EY8
Date of Collection / Sampling : 11 February 2023	Nature of Sample: Water
Date of Receipt : 12 February 2023	Sample Collected By: SEC Lab
Date of Analysis: 12 February 2023	Sample Quantity : 1 lit

TEST REPORT	
Report Ref. No. : SEC/W-FL/03-23	End of Analysis : 16 March 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd	Report Date : 18 March 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : FL6
Date of Collection / Sampling : 07 March 2023	Nature of Sample: Water
Date of Receipt : 08 March 2023	Sample Collected By: SEC Lab
Date of Analysis: 08 March 2023	Sample Quantity : 1 lit

Sr. No.	Test Parameter	Results			Unit	Test Method
		Jan	Feb	March		
1	pH @ 25 °C	7.78	7.16	8.06	-	IS:3025 (P-11) 1983
2	Chemical Oxygen Demand	106	638	597	mg/l	IS:3025 (P-58) 2006
3	B.O.D. (3 days at 27°C)	37	216	205	mg/l	IS:3025 (P-44) 1993
4	Total Dissolved Solids	896	870	892	mg/l	IS:3025(P-16)1984
5	Total Suspended Solids	102	90	96	mg/l	IS:3025 (P-17) 1984
6	Chloride as Cl	214	239	219	mg/l	IS:3025 (P-32) 1988
7	Sulphate as SO_4	144	128	125	mg/l	IS:3025 (P-24) 1986
8	Oil & Grease	ND	ND	ND	mg/l	IS:3025 (P-39) 1991 (RA 2003)

Urjankur Shree Datta Power Company Limited • Shirol • Dist. Kolhapur

Name of Sample: Co-gen ETP Outlet

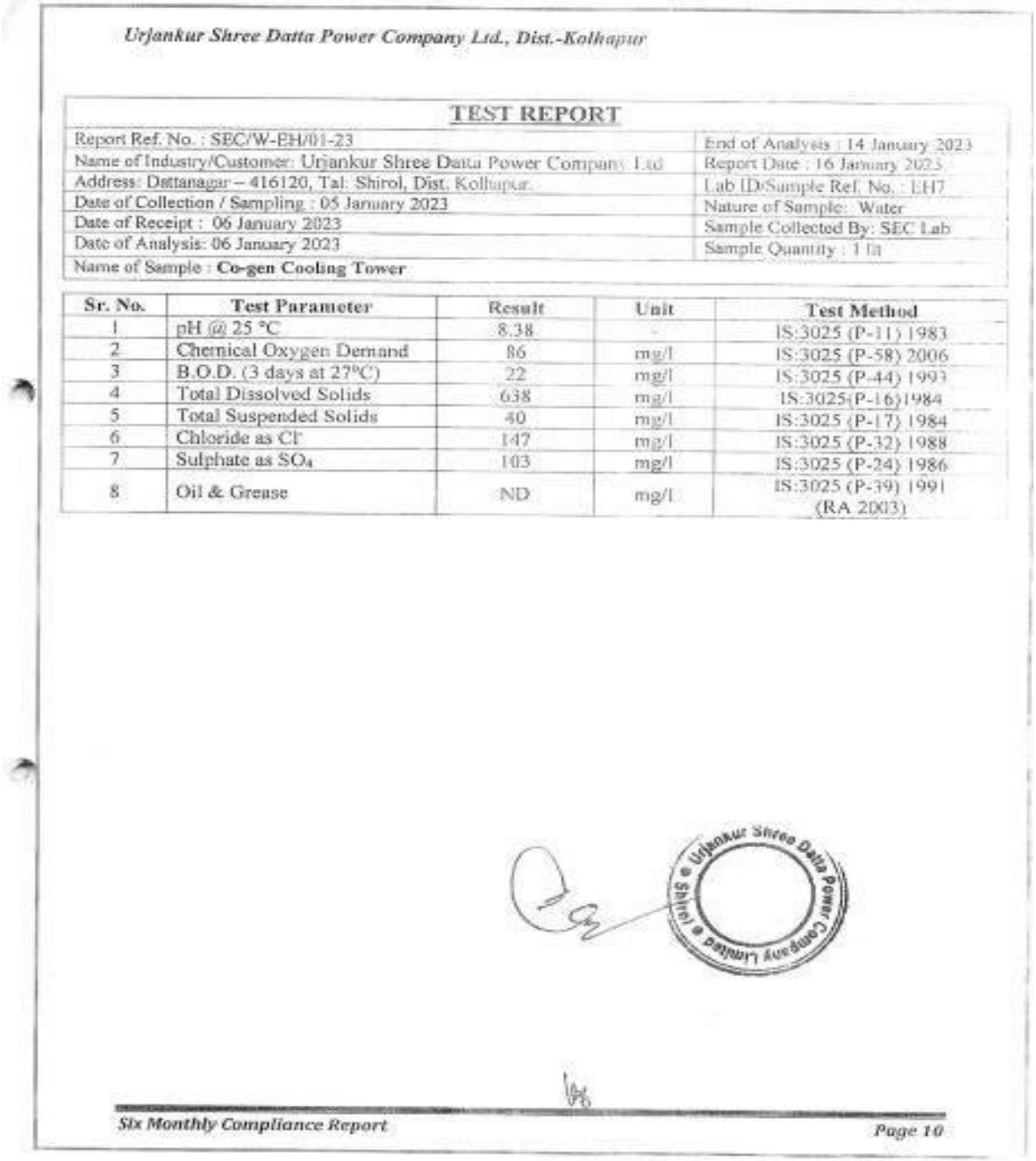
TEST REPORT	
Report Ref. No. : SEC/W-EH/01-23	End of Analysis : 14 January 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd	Report Date : 16 January 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : EH6
Date of Collection / Sampling : 05 January 2023	Nature of Sample: Water
Date of Receipt : 06 January 2023	Sample Collected By: SEC Lab
Date of Analysis: 06 January 2023	Sample Quantity : 1 lit

TEST REPORT	
Report Ref. No. : SEC/W-EY/02-23	End of Analysis : 20 February 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd	Report Date : 21 February 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : EY9
Date of Collection / Sampling : 11 February 2023	Nature of Sample: Water
Date of Receipt : 12 February 2023	Sample Collected By: SEC Lab
Date of Analysis: 12 February 2023	Sample Quantity : 1 lit

TEST REPORT	
Report Ref. No. : SEC/W-FL/03-23	End of Analysis : 16 March 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd	Report Date : 18 March 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : FL7
Date of Collection / Sampling : 07 March 2023	Nature of Sample: Water
Date of Receipt : 08 March 2023	Sample Collected By: SEC Lab
Date of Analysis: 08 March 2023	Sample Quantity : 1 lit

Sr. No.	Test Parameter	Results			Unit	Test Method
		Jan	Feb	March		
1	pH @ 25 °C	7.95	7.72	8.14	-	IS:3025 (P-11) 1983
2	Chemical Oxygen Demand	88	116	119	mg/l	IS:3025 (P-58) 2006
3	B.O.D. (3 days at 27°C)	23	37	38	mg/l	IS:3025 (P-44) 1993
4	Total Dissolved Solids	714	742	710	mg/l	IS:3025(P-16)1984
5	Total Suspended Solids	58	55	54	mg/l	IS:3025 (P-17) 1984
6	Chloride as Cl	208	191	185	mg/l	IS:3025 (P-32) 1988
7	Sulphate as SO_4	117	120	97	mg/l	IS:3025 (P-24) 1986
8	Oil & Grease	ND	ND	ND	mg/l	IS:3025 (P-39) 1991 (RA 2003)

Urjankur Shree Datta Power Company Limited • Tal. Shirol • Dist. Kolhapur



Urjankur Shree Datta Power Company Ltd., Dist.-Kolhapur

TEST REPORT

Report Ref. No. : SEC/W-EH/01-23	End of Analysis : 14 January 2023
Name of Industry/Customer: Urjankur Shree Datta Power Company Ltd	Report Date : 16 January 2023
Address: Dattanagar – 416120, Tal: Shirol, Dist. Kolhapur.	Lab ID/Sample Ref. No. : EH7
Date of Collection / Sampling : 05 January 2023	Nature of Sample: Water
Date of Receipt : 06 January 2023	Sample Collected By: SEC Lab
Date of Analysis: 06 January 2023	Sample Quantity : 1 lit
Name of Sample : **Co-gen Cooling Tower**	

Sr. No.	Test Parameter	Result	Unit	Test Method
1	pH @ 25 °C	8.38	-	IS:3025 (P-11) 1983
2	Chemical Oxygen Demand	86	mg/l	IS:3025 (P-58) 2006
3	B.O.D. (3 days at 27°C)	22	mg/l	IS:3025 (P-44) 1993
4	Total Dissolved Solids	638	mg/l	IS:3025(P-16)1984
5	Total Suspended Solids	40	mg/l	IS:3025 (P-17) 1984
6	Chloride as Cl^-	147	mg/l	IS:3025 (P-32) 1988
7	Sulphate as SO_4	103	mg/l	IS:3025 (P-24) 1986
8	Oil & Grease	ND	mg/l	IS:3025 (P-39) 1991 (RA 2003)

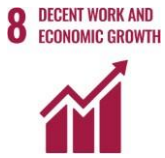
Urjankur Shree Datta Power Company Limited Shirol

Six Monthly Compliance Report *Page 10*

United Nations Sustainable Development Goals:

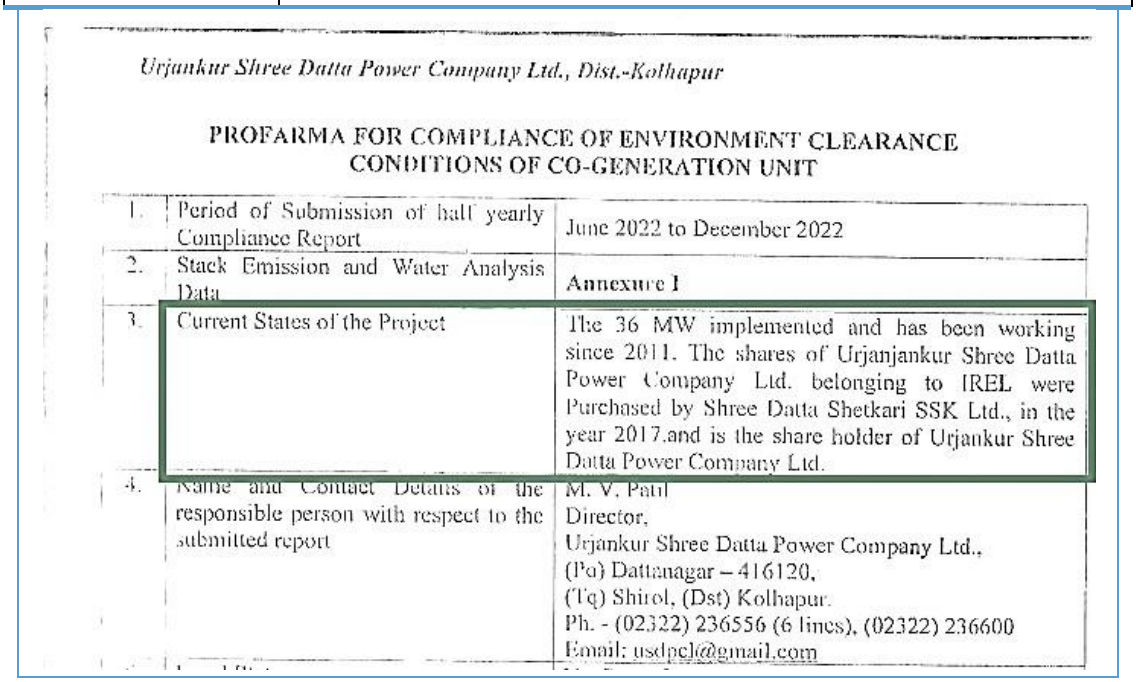
The project activity generates electrical power using Biomass, thereby displacing non-renewable fossil resources resulting in sustainable, economic and environmental development. In the absence ofthe project activity an equivalent amount of power generation would have taken place through fossil fuel dominated power generating stations. Thus, the renewable energy generation from project activity will result in reduction of the greenhouse gas emissions.

Positive contribution of the project to the following **Sustainable Development Goals (SDG) outcomes:**

Development Goals Targeted	SDG Target	Indicator (SDG Indicator)
SDG 7: Affordable and Clean Energy 	**7.2:** By 2030, increase substantially the share of renewable energy in the global energy mix **Target: Renewable Power supplied to the grid in the monitored period =<u>1077528 MWh</u>**	**7.2.1**: Renewable energy share in the total final energy consumption
SDG 8: Decent Work and Economic Growth 	**8.5** By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value. **Target:** • Training staff annually • Employment of staff	**8.5.1**: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities.
SDG 09: Industries, Infrastructure and Innovation 	9.2: Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	The project activity provides employment to people 115 villages in the area.
SDG 13: Climate Action 	13.2: Integrate climate change measures into national policies, strategies and planning **Target: <u>737471</u> tCO_2 = Quantity of tCO_2 reduced in this monitored period**	**13.2.1**: Number of countries that have communicated the establishment or operationalization of an integrated policy/ strategy

A.4. Parties and project participants>>

Party (Host)	Participants
India	**Project Proponent**: Shree Datta Shetkari Sahakari Sakhar Karkhana Ltd **UCR Aggregator**: Progressive Management Consultants **UCR** # 110736904 **Email**: info@progressive-iso.com



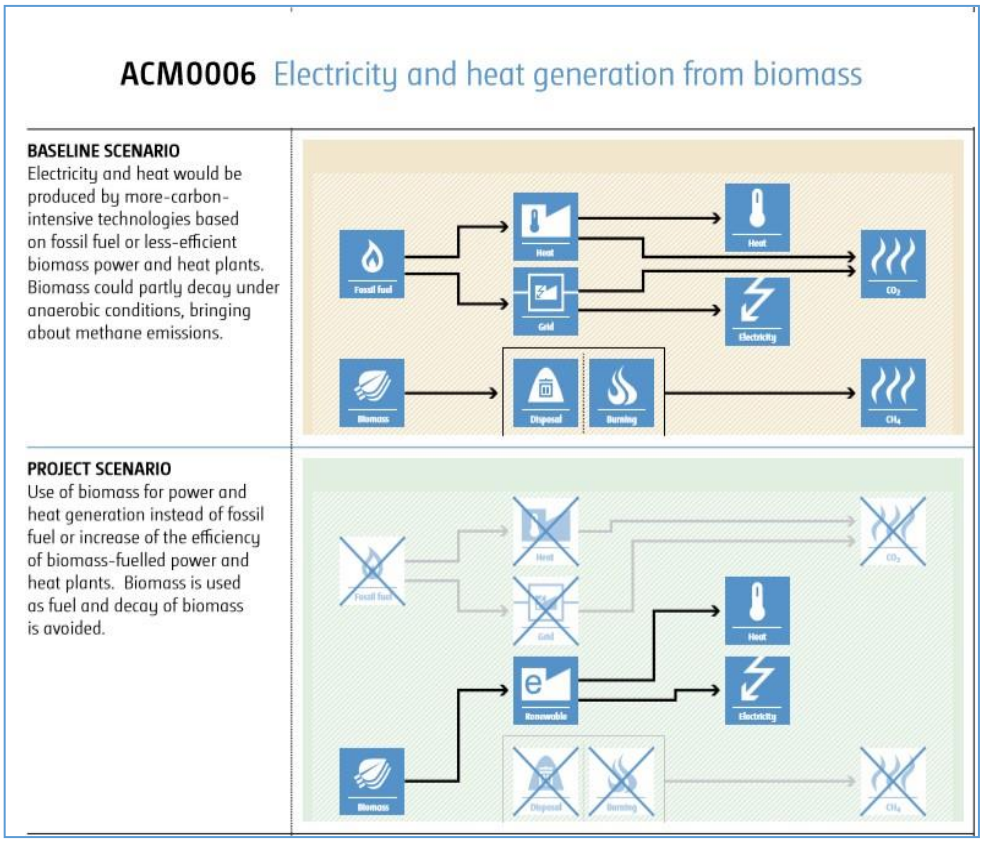
Urjankur Shree Datta Power Company Ltd., Dist.-Kolhapur

PROFARMA FOR COMPLIANCE OF ENVIRONMENT CLEARANCE CONDITIONS OF CO-GENERATION UNIT

1.	Period of Submission of half yearly Compliance Report	June 2022 to December 2022
2.	Stack Emission and Water Analysis Data	Annexure I
3.	Current States of the Project	The 36 MW implemented and has been working since 2011. The shares of Urjanjankur Shree Datta Power Company Ltd. belonging to IREL were Purchased by Shree Datta Shetkari SSK Ltd., in the year 2017.and is the share holder of Urjankur Shree Datta Power Company Ltd.
4.	Name and Contact Details of the responsible person with respect to the submitted report	M. V. Patil Director, Urjankur Shree Datta Power Company Ltd., (Po) Dattanagar – 416120, (Tq) Shirol, (Dst) Kolhapur. Ph. - (02322) 236556 (6 lines), (02322) 236600 Email: usdpcl@gmail.com

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

A.5. Baseline Emissions>>



The approved and adapted baseline methodology has been referred from the indicative simplified baseline and monitoring methodologies for selected large scale UNFCCC CDM project activities that involve generation of power and heat in thermal power plants, including cogeneration plants using biomass.

Typical activities under *ACM0006* 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 tCO_2/MW_h for the period 2013-2022.

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 (Large Scale)

CATEGORY – **ACM0006** *Electricity and heat generation from biomass*, Version 16.0

This methodology is applicable to project activities that operate biomass (co-)fired power and-heat plants. The project activity includes the installation of new plants at a site where currently power or heat generation occurs. The new plant replaces or is operated next to existing plants (capacityexpansion projects). Project types included under this methodology are co-generation of power and heat using biomass. Typical activities include capacity expansions, as is the current UCR project activity.

UCR CoU Standard emission factors are used to determine the baseline grid emission factor for the 2013-2022 period.

B.2. Applicabilityofmethodologiesandstandardizedbaselines>>

The project activity is a power generation project using 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 UCR and UNFCCC CDM methodology project eligibility parameters. The project is also included in the positive list of approved types of activities of the UCR CoU Standard.
The project activity is a power-and-heat plant that encompasses cogeneration plants, i.e. a power-and-heat plant in which at least one heat engine simultaneously generates both process heat and power. The total installed capacity of project activity is **36MW** which is acceptable as per the applied large-scale methodology.
The installation of a new biomass residue fired power generation unit, which replaces existing power generation capacity fired with fossil fuel as in the project plant (power capacity expansion projects) is also included in this methodology.
For the purposes of this methodology, heat does not include waste heat, i.e., heat that is transferred to the environment without utilization, for example, heat in flue gas, heat transferred to cooling towers or any other heat losses.
The biomass used by the project plant is not stored for more than one year. The biomass used by the project plant is not processed chemically or biologically (e.g., through esterification, fermentation, hydrolysis, pyrolysis, bio- or chemical degradation, etc.) prior to combustion.
The Project Activity uses biomass residues from a production process (e.g., production of sugar), and the implementation of the project does not result in an increase of the processing capacity of (the industrial facility generating the residues) raw input (e.g., sugar) or in other substantial changes (e.g. product change) in this process.
The project activity unit does co-fire fossil fuel and it does not exceed the limit of 25% co-firing fossil fuel criteria as per the UCR Protocol for such projects.
Biomass generated power is used for direct grid supply and for meeting the captive needs at the facility. The project activity involves the grid-connected bagasse-based electricity generation capacity involving the installation of facilities for allowing the export of electricity to the regional grid.
Biomass is not sourced from dedicated plantations. The existing installed turbo-generators are fired by bagasse, a by-product of the sugarcane processing and a biomass residue. Biomass used by the project plant

is limited to biomass residue (bagasse).
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-based boiler and turbine are within the project boundary. The biomass-based boiler and turbine have unique serial numbers which are visible on the units. The generated electricity is measured using energy meters which also have unique serial numbers. Please refer to *Appendix 1* fordetails of the same.

B.4. Project boundary, sources and greenhousegases (GHGs)>>

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

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

Leakage Emissions ($LE_{y)}$

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

Hence $LE_y = 0$

	Source	GHG	Included?	Justification/Explanation
Baseline	GHG Emissions from fossil fuel in Grid Baseline Power Generation	CO_2	**Included**	Major source of GHG emissions
		CH_4	Excluded	Excluded for simplification. This is conservative
		N_2O	Excluded	Excluded for simplification. This is conservative
	Uncontrolled burning or decay of surplus biomass residue	CO_2	Excluded	Excluded for simplification. This is conservative
		CH_4	Excluded	Excluded for simplification. This is conservative
		N_2O	Excluded	Excluded for simplification. This is conservative
Project Activity	Emissions from Biomass Project Activity On-site fossil fuel and electricity consumption	CO_2	**Included**	Fossil fuel co-fired with biomass is included as a major project emission source.

	due to the project activity (stationary or mobile) Off-site transportation of biomass during cultivation Combustion of biomass residue for electricity and / or heat generation Storage of biomass residue Wastewater from the treatment of biomass			Off-site transportation of biomass during cultivation using default emission factor as per the methodology
		CH_4	Excluded	No fossil fuel / electricity is consumed at the project site due to the project activity. No biomass residue from off-site will be used for the project activity Excluded for simplification. This is conservative Wastewater is treated aerobically
		N_2O	Excluded	Excluded for simplification. This is conservative

Project Emissions (PEy)

The project emissions (PEy) under the methodology may include

- CO_2 emissions from transportation of biomass and/or biomass residue to the project site,
- CO_2 emissions from on-site consumption of fossil fuels due to project activity,
- CO_2 emissions from electricity consumption at the project site that is attributable to the project activity and
- CH_4 emissions from combustion of biomass.

where

PET_y = are the CO_2 emissions during the year y due to transport of the biomass to the project plant in tons of CO_2,

PET_y = Default project emissions as per UCR notification dated 04/10/2023 has been applied following the provisions from the TOOL12,

- *For large-scale project activities, apply a net-to-gross adjustment of 10%, i.e. multiply the emission reductions determined based on the applied methodology by 0.9 to determine the final amount of emission reductions that can be claimed*.

$PE_{FFCO2,y}$ = are the CO_2 emissions during the year y due to fossil fuels co-fired by the generation facility in tons of CO_2,

$PE_{EC,y}$ = are the CO_2 emissions during the year y due to electricity consumption at the project site that is attributable to the project activity in tons of CO_2,

GWP_{CH4} = is the Global Warming Potential for methane valid for the relevant commitment period and,

$PE_{Biomass,CH4,y}$ = are the CH_4 emissions from the combustion of biomass during the year y.

When the project activity exceeds the co-firing limit of 25% for any month during the monitored period, the emission reductions have not been considered, in keeping with the principle of conservativeness. Also the project emissions have been included for the said month on account of coal usage being a major source of emissions for the same. The emission reduction calculations sheethas been updated for the same.

The project activity also doesn't include the CH_4 emissions from the combustion of biomass.
Hence,
PE $_{FFCO2,\ y}$ = **PE$_{FC,j,y}$** = are the CO_2 emissions during the year y due to fossil fuels co-fired by the generation facility in tons of CO_2, in process j during the year y (tCO_2 / yr);

$$PE_{FC,j,y} = \sum_{i} FC_{i,j,y} \times COEF_{i,y}$$

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

COEF $_{i,y}$ = the CO_2 emission coefficient of fuel type i in year y (tCO_2 / mass or volume unit);
i = the fuel types combusted in process j during the year y.

The coefficient of emission factor of the fuel is calculated in accordance with the option 'B' of the "Tool to calculate project or leakage CO2 emissions from fossil fuel consumption" which states that "The CO_2 emission coefficient ***COEF $_{i,y}$*** is calculated based on net calorific value and CO_2 emission factor of the fuel type i as follows:"

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y}$$

Where:
COEF $_{i,y}$ = the CO_2 emission coefficient of fuel type i in year y (tCO_2/ mass or volume unit);
NCV *i,y* = the weighted average net calorific value of the fuel type i in year y (GJ/ mass or volume unit);
EF $_{CO2,i,y}$ = weighted average CO_2 emission factor of fuel type i in y

CO2 emission factor for coal	0.09970 tCO2e/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 Inventories (99,700kg/TJ)
Hence, the project emission estimate on account of firing of coal fines is calculated as:	COEF $_{I,y}$ = NCV $_{i,,y}$ × EFCO $_{2\,i\,y}$	= 0.0142358 GJ/kg x 0.09970 tCO2e/GJ = 0.001419309 tCO2e/kg

PE$_{EC,\ y}$ = 0 and,
PE$_{Biomass,CH4,y}$ = 0.

Leakage Emissions (LE$_y$)
Leakage emissions is not applicable as the project activity does not use technology or equipment transferred from another activity.
Hence **LE$_y$** = 0

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

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

Renewable energy technology displaces technology using fossil fuels, wherein the simplified baseline is the fuel consumption of the technology 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 the displacement of electricity are determined by the net quantity of electricity generation as a result of the project activity (incremental to baseline generation) during the year y in MW_h times the CO_2 emission factor for the electricity displaced due to the project activity during the year y in tCO_2/MW_h.

Given that 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 into the grid. Therefore, the baseline scenario is the emission of GHG from the present electricity generation mix of the electricity grid.

Direct off-site emissions in the project activity arise from the biomass residue transport. However, the biomass is generated from the in-house processes pertaining to the sugar processing industry, hence, biomass residue transport is only accounted if biomass residue is imported from outside the project boundary. The same type of CO_2 emission occurs during transportation of coal from coal mines to thermal power plants (supplying power to state grid). The biomass is collected from the nearby sources and is transported by trucks to the project site.

Each truck laden with biomass is weighed on the electronic weighbridge and the corresponding readings are noted in the plant log books. For the current monitoring period no biomass residue was collected from outside, thus for this monitoring period, the value of this parameter is zero, however, using the UCR principles of conservativeness, transport emissions are calculated by applying a net-to-gross adjustment of 10%, i.e. multiply the emission reductions determined based on the applied methodology by 0.9 to determine the final amount of emission reductions. The reported values of the quantity of biomass transported can be verified against the plant records.

Emission Reductions (ER_y): The emission reductions due to the project activity are 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_y = Baseline emissions in year y (t CO2e)

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

$BE_y = EGPJ,_y * EFgrid,_y$

Where:

$EGgrid,_y$ = Quantity of net electricity generation that is fed into the electricity grid as a result of the implementation of the project activity in year y (MWh)

$EFgrid,_y$ = The CO2 emission factor for grid connected power generation in year y calculated using UCR Standard emission factor (0.9 tCO_2/MWh).

Year	Net Power Exported MWh	Baseline Emission Reductions tCO2eq	Project Emissions (coal) tCO2eq	Default Project Emissions Biomass Cultivation/ Transport tCO2 eq	ER tCO2eq
2013	40866.233	36779	28029	3677.9	5072
2014	124413.599	111972	37939	11197.2	62835
2015	127576.51	114818	18979	11481.8	84357
2016	119097.826	107188	19009	10718.8	77460
2017	78521.152	70669	5597	7066.9	58005
2018	110550.7219	99495	3251	9949.5	86294
2019	114798.3356	103318	3641	10331.8	89345
2020	122602.6857	110342	15123	11034.2	84184
2021	132590.3344	119331	1699	11933.1	105698
2022	106510.7644	95859	2052	9585.9	84221
Total	**1077528.162**	**969771**	**135319**	**96977.1**	**737471**

LEy = Leakage emissions = 0 tCO_2

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.

Calculated renewable power (MWh) to grid supplied in this MR = **1077528.162 MWh**

Calculated total baseline emission reductions **(BE_y)** in this MR= **969771 tCO_{2eq}**

Estimated Total Emission Reductions (ER_y) = **737471 CoUs (737471 tCO2eq)**

B.6. PriorHistory>>

The project has received no public funding. The project activity has not applied to any other GHG program for the generation or issuance of carbon offsets or credits for the current crediting period.

B.7.Changes to startdate of crediting period >>

There is no change in the start date of the 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>>

MR Version 2.0

UCR Monitored Period: 01 (Monitored Period Duration: 09 Years, 09 Months)
1st UCR Monitoring Period: 01/04/2013 to 31/12/2022.

B.10.Monitoringplan>>

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 is metered and there are also main meters attached to each turbine generator to determine their total generation.

The total amount of bagasse generated by the sugar plant and consumed in the power generation unit is available based on plant records in tonnes.

The management of the plant has designated one person to be responsible for the collation of data as per the monitoring methodology. The designated person collects all data to be monitored as mentioned in this PCN and reports to the power plant manager.

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.

The monthly reports can be made available during the verification of the project activity, to estimate the monthly emission reductions, which are also, included in the MIS. The monitoring personnel are familiar with the process of monitoring and documentation. They have been maintaining and reviewing the factory records pertaining to the sugar manufacturing.

All the meters are checked and calibrated every 5 years 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 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. The audit team also enlists the modifications/corrective actions required, if any, in more accurate monitoring and reporting. All the data and reports will be kept at the office 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.

Though the project is a co-generation project, the **PP is claiming UCR CoUs only based on the electrical energy supplied to grid**, hence, the parameters for steam generation, pressure of steam temperature of steam, feed water inlet temperature are not relevant to the applied methodology and are showcased as being monitored.

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

1. Fire in the fuel yard
2. 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. The proposed project activity has also taken under the ISO on operation. The monitoring process is also been covered under the ISO.

Parameters	Description
$Q_{S,y}$	Quantity of steam supplied per year measured at recipient's end
$T_{steam,y}$	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
$E_{Gthermal,y}$	Net quantity of thermal energy supplied by the project activity during the year y
$B_{Biomass,y}$	Net quantity of thermal energy supplied by the project activity during the year y
$MC_{biomass}$	Moisture content of the biomass

Parameters	Description	Measured Data
$Q_{S,y}$	Quantity of steam supplied per year measured at recipient's end	The net heat generated from the project plant is determined as a difference between the steam energy (based on measured steam flow, temperature and pressure) and feed water energy (based on feed water flow, temperature). The outlet steam conditions, pressure and temperature, are continuously monitored using pressure transmitter and temperature sensor respectively.The steam flow rate is monitored on a continuous basis using the steam flow meter. At the boiler outlet, steam pressure and temperature condition, the enthalpy is obtained from the standard steam table. The multiplication of the enthalpy of steam with the steam flow rate, gives the total heat content of the outlet steam from the boiler. Similarly, the enthalpy of feed water has also been monitored and reported and the samewas considered to obtain the final Qproject plant which reflects the actual net quantity of heat generation from the project plant boiler. The readings recorded from the flow meter are converted to MWh.

TURBINE PARAMETERS

Description	Units	Values	
Turbine type		Extraction cum condensing	
Power generation	KW	Season	Off-season
		33400	36000
Steam quantity required at the Turbine stop Valve	TPH	180	143

Process steam requirements at consuming points		Season TPH	Off season TPH
	8 kg/cm2(a) Un controlled extraction @190 deg.c	6.25	-
	2.7kg/cm2(a) Controlled extraction @135 deg.c	113.2	7.0

$T_{steam,y}$	Temperature of steam at the recipient's end (turbine stop valve)	A temperature transmitter is used to measure the temperature of the steam produced. The temperature of the steam is monitored on a continuous basis and recorded daily. A daily average value of temperature is recorded in the plant log book. **The recorded daily values of the temperature of steam were 535 (+/-5) ºC over the monitoring period.**
$P_{steam,y}$	Pressure of steam at turbine stop valve	A Pressure transmitter is used to measure the pressure of the steam produced. The pressure of the steam generated is monitored on a continuous basis and recorded daily. The daily average value is taken from the digital reading and the same is recorded into log books**. The average daily steam pressure reading is 105 kg/cm^2 over the monitoring period.**
$T_{Feedwater}$	Temperature of boiler feed water	A temperature transmitter is used to measure the temperature of the feedwater and is monitored on a continuous basis and recorded daily. A daily average value of temperature is recoded in to the plant log book**.**
$EG_{thermal,y}$	Net quantity of thermal energy supplied by the project activity during the year y	The enthalpy of steam is obtained from the steam table by using pressure and temperature condition (temperature and pressure as being monitored above) of the steam generated from the project boiler.
$B_{Biomass,y}$	Net quantity of biomass consumed in year y (on dry basis)	The quantity of biomass type (on "as received" basis) combusted in the project plant is measured on conveyor belt by load cells. Load cells are calibrated on an annual basis according

		to the standard procedure by the PP. Calibration certificates of load cells are available on site. Calibration of load cell had been done by accredited a NABL (National Accreditation Board for Testing and Calibration Laboratories) approved lab. The amount of biomass combusted in the process can be verified from the plant log books. It is worth mentioning here that this parameter is not being used in the ER calculation.
$MC_{biomass}$	Moisture content of the biomass	NA

Gross electricity generation is being measured continuously by energy meters. The meter readings are recorded in the plant log books on shift wise basis. Energy meters have been calibrated as per standard procedures by third party agencies which are also according to the monitoring plan. The same can be verified from the calibration certificates provided during the UCR verification process. The average thermal efficiency of the boiler for the current monitoring period is 70.5% and is found comparable to the rated efficiency as per the manufacturer (71.2%).

Year	$EG_{project\ plant,\ y}$ Total Power GENERATION (MWh)	Auxillary (MWh)	Net Export To Grid (EG_{grid}) (MWh)	Coal Consumed (Tonnes)
2013	56743.481	4329.246	40866.233	19748.31
2014	174747	14725.8	124413.599	26730.08
2015	174438.472	14126.439	127576.51	13371.923
2016	166834.502	13124.631	119097.826	13392.825
2017	112671.983	8863.5	78521.152	3943.213
2018	153084.525	10424.7965	110550.7219	2290.54
2019	154427.19	12125.3345	114798.3356	2565
2020	169290.48	13788.54	122602.6857	10655
2021	159057.475	14747.007	132590.3344	1196.463
2022	149870.3625	12342.777	106510.7644	1445.1

Data/Parameter	NCV_k
Data unit	The Net calorific value of the bagasse ("as received" basis) is measured monthly in the internal plant lab and annually by the third party in an accredited lab. The NCV values specified fall in range as per IPCC 2006 Guidelines (1,409,191 to 5,493,456 kCal/Ton). NCVI [Net calorific value of biomass, {MWh/ton}] ranges between 2.56-2.60 MWh/ton.
Description	Net Calorific Value of Biomass Residue Type *K*
Source of data Value(s) applied	Measurements is carried out by reputed labs and reported in dry biomass basis.
Measurement methods and procedures	On site and in labs

Monitoring frequency	Every 6 months
Purpose of data	Quality control

Data/Parameter	$Q_{biomass,yr}$
Data unit	MT/yr
Description	The quantity of bagasse used to generate steam in the boiler each year
Source of data Value(s) applied	Plant records and log books receipts. 45000 kg weighbridge purchase order and installation certificate is provided to the verifier.
Measurement methods and procedures	Monitoring: The quantity of biomass fed into the boiler is controlled. Data type: Measured Responsibility: Boiler Operator
Monitoring frequency	Daily
QA/QC	The amount of biomass used can be cross checked by the purchase orders and stock inventory. Quantity of biomass has been monitored. Biomass measuring device has an accuracy level of +/- 0.5% of full scale, and ranging between 0-120 TPH.

MONTH/YY	$Q_{biomass,yr}$ **Biomass residue (tonnes)**
Apr-13	55412
May-13	
Jun-13	
Jul-13	0
Aug-13	0
Sep-13	0
Oct-13	1031.633
Nov-13	2652.464
Dec-13	58777.833
Total	**117873.9**
Jan-14	59036.971
Feb-14	53996.115
Mar-14	67446.05
Apr-14	57016.402
May-14	29962.555
Jun-14	2213.939
Jul-14	0
Aug-14	14.82
Sep-14	0
Oct-14	0
Nov-14	34871.333
Dec-14	58806.295

Total	**363364.480**
Jan-15	57212.043
Feb-15	48224.264
Mar-15	54966.358
Apr-15	48290.638
May-15	28751.765
Jun-15	12760.429
Jul-15	13097.239
Aug-15	2129.517
Sep-15	0
Oct-15	0
Nov-15	38916.783
Dec-15	57687.952
Total	**362036.988**
Jan-16	53436.804
Feb-16	5197.534
Mar-16	54085.37
Apr-16	51009.899
May-16	50388.837
Jun-16	
Jul-16	0
Aug-16	0
Sep-16	0
Oct-16	
Nov-16	38304.453
Dec-16	58279.625
Total	**310702.522**
Jan-17	57901.322
Feb-17	52911.135
Mar-17	39359.253
Apr-17	0
May-17	0
Jun-17	0
Jul-17	0
Aug-17	0
Sep-17	0
Oct-17	
Nov-17	39315.02
Dec-17	55388
Total	**244874.73**
Jan-18	59054
Feb-18	53212.44
Mar-18	55915
Apr-18	44021.821
May-18	34574.288
Jun-18	0
Jul-18	0
Aug-18	0
Sep-18	0
Oct-18	
Nov-18	34458.289
Dec-18	57989.21
Total	**339225.048**

Jan-19	60057.473
Feb-19	54722.975
Mar-19	59894.124
Apr-19	46865.825
May-19	44254.966
Jun-19	0
Jul-19	0
Aug-19	0
Sep-19	0
Oct-19	
Nov-19	4318.673
Dec-19	58670.565
MWh Total	**328784.601**
Jan-20	54832.267
Feb-20	51737.87
Mar-20	57029.77
Apr-20	35241.873
May-20	45933.001
Jun-20	7456.565
Jul-20	0
Aug-20	0
Sep-20	0
Oct-20	
Nov-20	46472.237
Dec-20	57956.068
MWh Total	**356659.651**
Jan-21	60119.216
Feb-21	54408.336
Mar-21	55490.108
Apr-21	42073.173
May-21	27686.131
Jun-21	32258.813
Jul-21	0
Aug-21	0
Sep-21	0
Oct-21	19608.405
Nov-21	57396.115
Dec-21	59122.828
MWh Total	**408163.125**
Jan-22	58397.26
Feb-22	54569.780
Mar-22	53005.78
Apr-22	38753.73
May-22	30860.35
Jun-22	0
Jul-22	0
Aug-22	0
Sep-22	0
Oct-22	982.64
Nov-22	42398.87
Dec-22	59861.97
MWh Total	**338830.38**

Data/Parameter	**$EG_{project\ plant,\ y}$**
Data unit	MWh
Description	Net quantity of electricity generated in the project plant during the year y
Source	SDSSSKL-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 meters attached to each turbine generator to determine their total generation.
Monitoring frequency	The hourly recordings of data is 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 productions 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/MW_h
Source of data Value(s) applied	UCR CoU Standard Default for Indian grid 0.9 tCO_2/MW_h for the period 2013-2022
Measurement methods and procedures	NA
Monitoring frequency	NA
QA/QC	The parameter is conservative.
Purpose of data	To estimate baseline emissions

Data/Parameter	**$EG_{grid,y}$**
Data unit	MWh
Description	Net quantity of electricity supplied to the grid

Source of data Value(s) applied	JMR and/or Monthly Meter Readings
Measurement methods and procedures	Type: Calculated Data type: Monitored This parameter may be checked with the necessary invoices (sample copy below) or JMR (issued by the state grid) each month.
Monitoring frequency	Daily
QA/QC	Energy meters on existing turbines are calibrated on annual basis by NABL accredited labs. 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

APPENDIX 1

Synchronisation certificate with grid

MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LTD.,
EHV CC O&M ZONE, KARAD

Administrative Building
1st Floor Vijaynagar
Karad, 415114
Dist : Satara

MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

Tel (O) : 02164 255054
(P) : 02164 646056
Fax : 02164 255186
E-mail: eekarad@mahatransco.in

CE/EHV CC O&M/ZONE/KRD/T/ 1-2147 Date :- 9 AUG 2011

To,
Superintending Engineer,
Testing Communication Circle,
Karad.

Sub: Synchronisation of 36MW Co-generation plant at Dattanagar Tal. Shirol, Dist. Kolhapur and release of H.T. Power supply.

Ref.: 1. C.E., MSLDC L. No. 1522 dtd. 08.03.11.
Addressed to M/s. Urjankur Shree Datta Power Co. Ltd.
2. S.E. (KT) MSEDCL L. No. 5907 dtd .08.08.11.

****

With reference to the above subject, the C.E.(MSLDC), Kalwa has granted the permission for synchronization of 36MW Co-generation plant of M/s. Urjankur Shree Datta Power Co. Ltd., at Dattanagar, Tal. Shirol, Dist. Kolhapur.

The S.E., Kolhapur Circle MSEDCL has given permission to release the H.T. Power supply to M/s. Urjankur. The joint testing has been carried out on 01.08.11.

It is directed to check the detail scheme before synchronization and release of H.T. Supply. The company has decided to synchronized the plant on 10th August 11 to the grid.

Chief Engineer,
EHV CC O&M Zone, Karad.

O/C Approved by CE

Copyt to:-
1) The S.E., EHV Const. Circle, Kolhapur.
...It is requested to ask concern to charge the bays & line after verifying the details document.
2) The S.E., EHV O&M Circle, Kolhapur....For necessary action.
3) The S.E., MSEDCL, Tarabai Park, Kolhapur.
...It is requested to ask testing unit to pesent at the time of charging.
4) The E.E., Const. Division, Kolhapur/O&M Dn., Kolhapur.
5) The E.E., Testing Division, Kolhapur.
6) M/s. Urjankur Shree Datta Power Co. Ltd. Dattanagar, Tal. Shirol, Dist. Kolhapur.
.....It is requested to comply the points mentioned in the letter by C.E., MSLDC Kalwa to the earliest.

M/F T

Meter Calibration Latest Copy:

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.
TESTING DIVISION, KOLHAPUR.
Off No 0231-2680585 Fax No :- 0231-2658127 E-mail :- eetkolhapur@mahadiscom.in

Cons. No.	052529053170	
Contract Demand	: 248	KVA
Conn. Load	: 200	KW
Dt. of Supply	: 11/02/2011	
T/F Capacity	:	KVA
Ref.No.	:	

Ref. No. EE/TEST/KOP/TECH/
Office of the Executive Engineer,
M.S.E.D.C.L. Testing Division,
Bapat Camp,Kolhapur – 416 005

Date :

To,
The Executive Engineer,
MSEDCL, O & M Division
Jaysingpur.

Sub: Annual /Six Monthly /Quarterly Testing Of Meters Of M/S Vajarene Shree Datta Power Co. Ltd. Gat No: 252, Shirol.

The Annual /Six Monthly /Quarterly Testing of TOD meter was carried out by the Testing Division Engineers in the presence of field Engineers and consumer's representative on 10/02/2020

1) Details of Meter : HT TOD/L.T.M.D METER

1) Make	:	Elstee
2) Sr. No.	:	12853662
3) Testing Number	:	TCAH142/19-20
4) Type	:	M1800
5) Amps	:	-/5A
6) Voltage	:	11KV/110V
7) Impulses/Units	:	5000
8) Scale M.F. for Units	:	One
9) Scale M.F. for M.D.	:	One
10) Class	:	0.2s

2) DETAILS OF C.T.& P.T. : HT Cubicle Make : O/H. Sr.No.

	(CT)			(PT)		
	R	Y	B	R	Y	B
1) Ratio available :	225/1-A			11KV/110V		
2) Ratio connected :						

3) Load test for ½ an hour was conducted and overall M.F. was confirmed to be 2050 for KWH Units 2050 for M.D. and 2050 For RKVAH Units.

4) The phase sequence was found to be Forward / ~~Reverse~~

5) The meter readings were as under

KWH	KVARH Lag	KVARH Lead	KVA MD	KVAH	MD RC
579	387	193	0.000	871	82.

6) The Total Harmonies at the time of testing were as under

THD%	L1	L2	L3
Total Voltage	0.93	0.77	0.83
Total Current	1.39	1.31	1.76

7) Remarks:-

V. S. Phunde
Executive Engineer,
Testing Division, Kolhapur.

Copy s.w.rs.to:
The Superintending Engineer (KC) MSEDCL, Kolhapur

Copy to:
The ~~Add. EE.~~/ Dy. Exe. Engg., MSEDCL (O&M) S/Dn, Shiroli.

LOAD TEST

Date 10/02/2020

Name of consumer: Urjankur Shree Datta Power co. ltd. Shirol. Con.No. 252529053170

Meter CTR -/5A Meter PTR 11 KV/110 V Meter Make:- Elster

CTR Connected 225/1 PTR Connected 11DKV/110V Meter Sr. No. 12853662 TDK/ TOA/142/13-14

MF For Unit: 2250 MF for MD: 2250 Duration 1/2 Hrs. (From: 13·32 Hrs To 13·37 Hrs.)

	KWH	KVARH	KVAH	KVAMD	ZERA KWH
Reading after Test	31·2300	43·2550	06·3825 56·129	(:)	8·359096
Reading before Test	30·3950	42·9325	05·4825	(30: 00)	
Difference	0·895	0·3225	0·895	10·8	
Multiplying Factor	2250	2250	2250	2250	225
Final result	1828·75	725·625	2013·75	24300	1880·5966

TAN ϕ = 0·38 Cos ϕ = 0·93 % Calculate Error = −0·11 % % Scanner Error = −0·15 %

AT MTC

Voltage: Current:

RY = 111 Rn = 65 R = 0·54

YB = 111 Yn = 64 Y = 0·56

BR = 111 Bn = 64 B = 0·56

Vavg = 111 Pr.PF = 64·6 Iavg = 0·553

KVA I = √3 V.I. = 23921·6

KW I = √3 V.I.COS = 22247·1

AT LOAD

Voltage: Current:

RY = 111 KV R = 121

YB = 111 KV Y = 126

BR = 111 KV B = 126

Vavg = 111 KV Iavg = 124·34

KVA II = √3 V.I. = 23904·0

KW II = √3 V.I.COS = 22230·7

Consumers Representative Sub Dnl. Engineer Testing Engineer

URJANKUR SHREE DATTA POWER COMPANY LIMITED

Dattanagar, Taluka Shirol, Dist: Kolhapur Tel: + 91 2322 23 6551-55 Fax: +91 2322 236600

Email: usdpcl@gmail.com

INVOICE

Invoice No USDPCL/ MSEDCL/Bill /2022-23/ 004 For the month of Nov-22 Date : 01 December 2022

Name of the Generator: Urjankur Shree Datta Power Company Limited

Name of the MSEDCL: Maharashtra State Electricity Distribution Company.

C.T. Ratio Available / Connected: 225/1, - 225/1 A (0.2s-Cl) (Connected), Meter Ratio :- 1 / 1 Amps

Date of first commissioning: 11th August 2011

P. T. Ratio Available / Connected: 110 KV /110 V (Connected), Meter Ratio :- 11KV / 110 V

Date of EPA With MSEDCL: 21st June 2013

Scale Factor :- 1

Multiplying Factor (MF) 2250

Installed Generation Capacity: 36 MW

Billing Meter Make / Number :- ELSTER- ABT, A- 1800 / 12053662 (Sr.Number) (Class - 0.2s)

Surplus Generation Capacity for Season: 22.5 MW

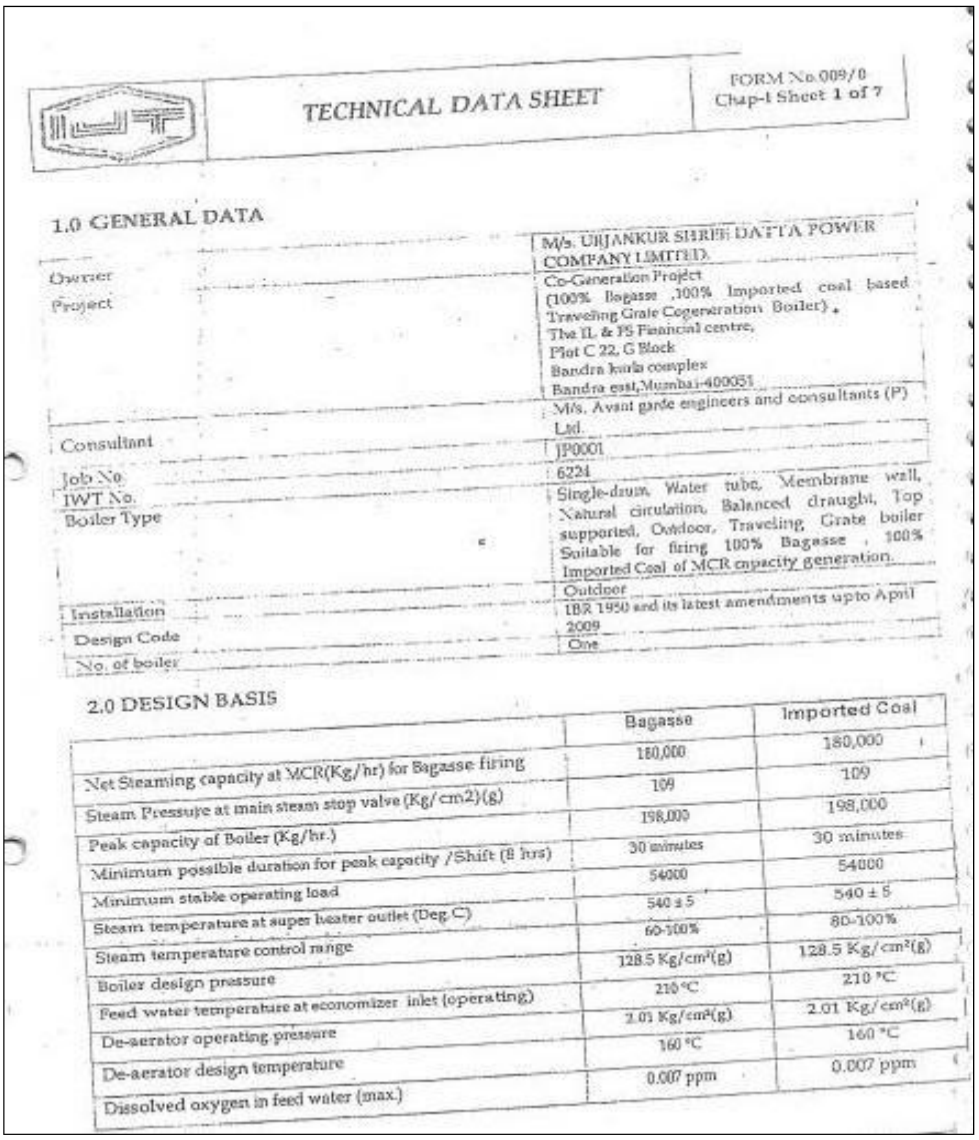
Surplus Generation Capacity for Off - Season: 32.5MW

Active Power (KWh)		Reactive Power (KVARH)	
Previous Reading (Initial Reading) 01.11.2022 @ 00:00:00	51950.3625	Previous Reading (Initial Reading) 01.11.2022 @ 00:00:00	19193.215
Current Reading (Final Reading) 01.12.2022 @ 00:00:00	57609.165	Current Reading (Final Reading) 01.12.2022 @ 00:00:00	21298.4275
(A) Difference	5658.8025	(A) Difference	2105.2125
(B) Difference X MF)	12732305.63	(B) Difference X MF)	4736728

Ratio - KWH KVARH 37.20 %

Sample Copy of Invoice on File

Technical Data Sheet



TECHNICAL DATA SHEET

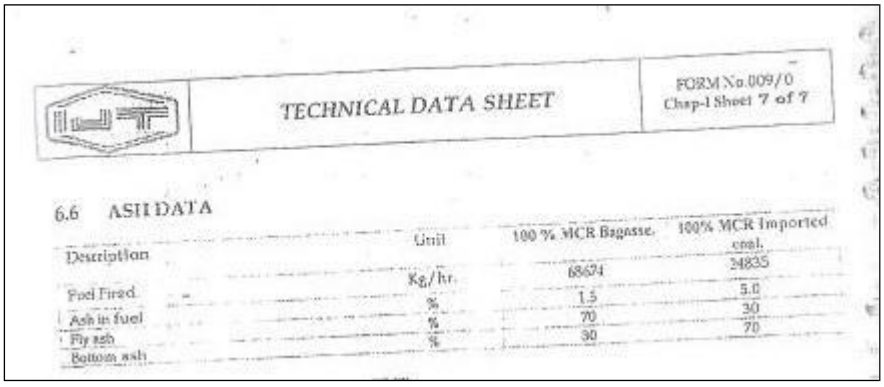
FORM No.009/0
Chap-I Sheet 1 of 7

1.0 GENERAL DATA

Owner	M/s. URJANKUR SHREE DATTA POWER COMPANY LIMITED.
Project	Co-Generation Project (100% Bagasse ,100% Imported coal based Traveling Grate Cogeneration Boiler) , The IL & FS Financial centre, Plot C 22, G Block Bandra kurla complex Bandra east,Mumbai-400051
Consultant	M/s. Avant garde engineers and consultants (P) Ltd.
Job No.	JP0001
IWT No.	6224
Boiler Type	Single-drum, Water tube, Membrane wall, Natural circulation, Balanced draught, Top supported, Outdoor, Traveling Grate boiler Suitable for firing 100% Bagasse , 100% Imported Coal of MCR capacity generation.
Installation	Outdoor
Design Code	IBR 1950 and its latest amendments upto April 2009
No. of boiler	One

2.0 DESIGN BASIS

	Bagasse	Imported Coal
Net Steaming capacity at MCR(Kg/hr) for Bagasse firing	180,000	180,000
Steam Pressure at main steam stop valve (Kg/cm2)(g)	109	109
Peak capacity of Boiler (Kg/hr.)	198,000	198,000
Minimum possible duration for peak capacity /Shift (8 hrs)	30 minutes	30 minutes
Minimum stable operating load	54000	54000
Steam temperature at super heater outlet (Deg C)	540 ± 5	540 ± 5
Steam temperature control range	60-100%	60-100%
Boiler design pressure	128.5 Kg/cm²(g)	128.5 Kg/cm²(g)
Feed water temperature at economizer inlet (operating)	210 °C	210 °C
De-aerator operating pressure	2.01 Kg/cm²(g)	2.01 Kg/cm²(g)
De-aerator design temperature	160 °C	160 °C
Dissolved oxygen in feed water (max.)	0.007 ppm	0.007 ppm



TECHNICAL DATA SHEET

FORM No.009/0
Chap-I Sheet 7 of 7

6.6 ASH DATA

Description	Unit	100 % MCR Bagasse.	100% MCR Imported coal.
Fuel Fired	Kg/hr.	68674	24835
Ash in fuel	%	1.5	5.0
Fly ash	%	70	30
Bottom ash	%	30	70

SA →

6.3.4 Drum Pressure

Pressure	Unit	
Drum operating pressure at MCR	Kg/cm^2g	119.14
Drum design pressure	Kg/cm^2g	128.5

6.4 VELOCITY PROFILE :

6.4.1 Gas(Average)

Locations	Unit	100 % MCR Bagasse.	100% MCR Imported coal
Combustion chamber.	m/s.	4.86	4.61
Superheater zone.	m/s.	5.3	5.03
Evaporator.	m/s.	5.45	5.16
Economiser	m/s.	6.6	6.2
Air pre heater.	m/s.	9.3	8.5

FLOW DATA

Description	Unit	100 % MCR Bagasse.	100% MCR Imported coal.
Steam flow at MS link	Kg/hr.	180,000	180,000
Total air flow	Kg/hr.	260479	259241
FD air flow	Kg/hr.	136287	139545
SA air flow	Kg/hr.	104192 (74892) 120	119696
Fuel flow	Kg/hr.	68674	24835
Flue Gas flow	Kg/hr.	327911	322158
Attemperator - I spray water flow	Kg/hr.	4746	2423
Attemperator - II spray water flow	Kg/hr.	7092	5378

6.5 HEAT TRANSFER AREAS

6.5.1 PROVIDED HEATING SURFACE AREAS (IBR)

Zone	Unit	AREA
Furnace	m^2	766
Evaporator.	m^2	1448
Forced Flow Section	m^2	4104
Total heating surface area excluding Forced Flow	m^2	3986

6.5.2. EFFECTIVE HEATING SURFACE AREAS.

Zone	Unit	AREA
1st stage superheater	m^2	1040
2nd stage superheater	m^2	1223
3rd stage superhenter	m^2	611
Air heater	m^2	9762

6.2.4 Steam Temperature Profile	Unit	100 % MCR Bagasse.	100% MCR Imported coal
Entering 1st Stage Superheater	°C	323	323
Leaving 1st Stage Superheater	°C	362	358
Entering 2nd Stage Superheater	°C	348	351
Leaving 2nd Stage Superheater	°C	464	460
Entering 3rd Stage Superheater	°C	427	432
Leaving 3rd Stage Superheater	°C	540	540

6.3 PRESSURE PROFILE	Unit	100 % MCR Bagasse.	100% MCR Imported coal
6.3.1 Air Pressures at :			
FD fan outlet	mmwc	129	170
Scaph I/L	mmwc	122	160
Scaph O/L	mmwc	103	135
Air heater inlet	mmwc	80	105
Air heater outlet	mmwc	42	55
Grate air plenum	mmwc	27	35
SA fan inlet	mmwc	13	20
SA fan outlet	mmwc	352	585
6.3.2 Flue Gas Pressures at :			
Furnace outlet	mmwc	-5	-5
Superheater inlet	mmwc	-5	-5
Superheater outlet	mmwc	-15	-15
Evaporator inlet	mmwc	-15	-15
Evaporator outlet	mmwc	-30	-30
Economiser inlet	mmwc	-30	-30
Economiser outlet	mmwc	-55	-45
Air heater inlet	mmwc	-110	-107
Air heater outlet	mmwc	-135	-131
ESP inlet	mmwc	-145	-141
ESP outlet	mmwc	-170	-165
Chimney inlet	mmwc	+10	+10

6.3.3 Steam side Pressure drop	Unit	100 % MCR Bagasse.	100% MCR Imported coal
1st stage superheater	Kg/cm2	2.3	2.3
2nd stage superheater	Kg/cm2	1.9	1.9
3rd stage superheater	Kg/cm2	3.7	3.7
Desuperheater Link-I	Kg/cm2	0.5	0.5
Desuperheater Link-II	Kg/cm2	0.5	0.5

3.3 Plant Air	
Pressure	7 Kg/cm²
Temperature	40°C
Dew Point	No free moisture
Oil content	Traces
3.4 Cooling Water	
Temperature	Ambient °C
Pressure	3.0 Kg/cm²
3.5 Auxiliary Steam	
Deserator auxiliary Steam Pressure (Kg/cm²g)	2.5
Temperature (°C)	138
Deserator steam quantity (kg/hr)	7000

	TECHNICAL DATA SHEET	FORM Nr Chap-I Sh

2.1 Ultimate Fuel Analysis % by mass provided by the Purchaser

Elements Ultimate Analysis	Bagasse % weight	Imported Coal % weight
Carbon	23.5	56.28
Hydrogen	3.25	5
Oxygen	21.75	7.37
Nitrogen	0	0.8
Sulphur	0	0.35
Ash	1.5	5
Moisture	50	25
GCV Kcal/ Kg	2272	5500

	Bagasse	Imported Coal
Gas temperature leaving air heater	150°C	140°C
Dust content in flue gases leaving the dust collection system	100 mg/n.cu.m.	100 mg/n.cu.m.

The above guarantee is based on 30°C ambient temperatures, 70 % relative humidity and feed water inlet to economizer temperature of 210 °C.

3.UTILITIES DATA	
3.1 Electrical system	
LT distribution system	
Volts	415 ± 10%
Phase	3
Frequency Tolerance Permissible	± 5%
Control & Instrumentation	
Voltage	230
Phase	Single
Frequency	50HZ
3.2 Compressed Air (Instrument air)	
Pressure	7 Kg/cm²
Temperature	40°C
Dew Point	-20°C

Sample Fuel Consumption Data on File (Year 2022)

Shree Datta Shetkari Sahakari Sakhar Karkhana Ltd Shirol

36 MW Bagasse Based Cogeneration Power Plant

Fuel Consumption

YEAR	MONTH	Biomass Fuel - 1 (Bagasse) (In Tonnes)		Biomass Fuel- 2 (Cane Trash) (In Tonnes)		Biomass Fuel- 3 (In Tonnes)		Biomass Fuel- 4 (In Tonnes)		Biomass Fuel- 5 (In Tonnes)		Biomass Fuel- 6 (In Tonnes)		Fossil Fuel Consumption in Tones		% Fossil Fuel Consumption of Total fuel Consumption	Energy generation (kWh)during month	Total Energy Export	Cumulative energy generation (kWh)	
		Fuel Type	Fuel Consumed (In Tonnes)	Fuel Type	Fuel Consumed (In Tonnes)	Type of Fuel	During Current Month	Type of Fuel	During Current Month	Type of Fuel	During Current Month	Type of Fuel	During Current Month	Grade of coal used	During current month	During Current Month	Gross	Net	Gross	Net
2022.00	January	Bagasse	58397.26	Cane Trash	0.00									Imported coal	137.60	0.24	24584392.50	16023481.88	24584392.50	16023481.88
2022.00	February	Bagasse	54569.78	Cane Trash	0.00									Imported coal	64.80	0.12	22774035.00	14878597.50	47358427.50	30902079.38
2022.00	March	Bagasse	53005.78	Cane Trash	0.00									Imported coal	149.00	0.28	22691340.00	15967018.13	70049767.50	46869097.51
2022.00	April	Bagasse	38758.73	Cane Trash	0.00									Imported coal	55.80	0.14	19957725.00	17477538.75	90007492.50	64346636.26
2022.00	May	Bagasse	30160.33	Cane Trash	0.00									Imported coal	60.80	0.19	15899032.50	14137363.13	105906525.00	78483999.39
2022.00	June	Bagasse	0.00	Cane Trash	0.00									Imported coal	0.00	0.00	0.00	0.00	105906525.00	78483999.39
2022.00	July	Bagasse	0.00	Cane Trash	0.00									Imported coal	0.00	0.00	0.00	0.00	105906525.00	78483999.39
2022.00	August	Bagasse	0.00	Cane Trash	0.00									Imported coal	0.00	0.00	0.00	0.00	105906525.00	78483999.39
2022.00	September	Bagasse	0.00	Cane Trash	0.00									Imported coal	0.00	0.00	0.00	0.00	105906525.00	78483999.39
2022.00	October	Bagasse	982.64	Cane Trash	0.00									Imported coal	136.00	12.16	334192.50	242055.00	106240717.50	78726054.39
2022.00	November	Bagasse	42398.87	Cane Trash	0.00									Imported coal	411.30	0.96	18823530.00	12732305.63	125064247.50	91458360.02
2022.00	December	Bagasse	59861.97	Cane Trash	0.00									Imported coal	432.00	0.72	24806115.00	15052404.38	149870362.50	106510764.40

Urjankur Shree Datta Power Company Ltd Shirol

Note: All Readings are in kwh/Units

Month	Generation	Auxillary Consumption	Sugar Consumption	Export to MSEDCL
Jan-22	24584392.50	1936908.00	6488925.75	16023481.88
Feb-22	22774035.00	1839216.00	5930334.00	14878597.50
Mar-22	22691340.00	1907457.00	4680461.25	15967018.13
Apr-22	19957725.00	1648536.00	679070.25	17477538.75
May-22	15899032.50	1383930.00	260484.75	14137363.13
Jun-22	0.00	0.00	0.00	0.00
Jul-22	0.00	0.00	0.00	0.00
Aug-22	0.00	0.00	0.00	0.00
Sep-22	0.00	0.00	0.00	0.00
Oct-22	334192.50	42559.50	47430.00	242055.00
Nov-22	18823530.00	1587387.00	4485350.25	12732305.63
Dec-22	24806115.00	1996783.50	7526376.00	15052404.38
Total	149870362.50	12342777.00	30098432.25	106510764.38