Verification Report for

Project : TEIL Biomass Grid Supply Power Project, Sabitgarh, Uttar Pradesh.

UCR Project ID : 267

Name of Verifier	SQAC Certification Pvt. Ltd.
Date of Issue	October 09, 2023
Project Proponent	Triveni Engineering and Industries Ltd. (TEIL)
UCR Project Aggregator	Carbon Equalizers, Katni
Work carried by	Mr. Santosh Nair
Work reviewed by	Mr. Praful Shinganapurkar

Summary:

SQAC Certification Pvt. Ltd. has performed verification of the "TEIL Biomass Grid Supply Power Project, Sabitgarh, Uttar Pradesh, India". The purpose of the project activity is to generate electricity using renewable biomass and thereby reduce GHG emissions by displacing fossil fuel dominated grid-based electricity with biomass based renewable electricity. The Project Proponent exports the surplus power to the grid after meeting its captive and auxiliary power requirements at the project activity site.

Verification for the period**: 01/11/2014 to 31/12/2022** (08 years and 02 months)

The GHG emission reductions were calculated on the basis of UCR Standard for Baseline Grid Emission Factor, CDM UNFCCC Small-scale Methodology, AMS-ID: Grid connected renewable electricity generation, Ver 18. The verification was done remotely by way of video calls / verification, phone calls and submission of documents for verification through emails.

SQAC is able to certify that the emission reductions from TEIL Biomass Grid Supply Power Project, Sabitgarh, Uttar Pradesh, India, (UCR ID – 267) for the period **01/11/2014 to 31/12/2022** amounts to **98,875 tCO_2 (98,875 CoUs)**

Detailed Verification Report:

Purpose:

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

The total installed power generation capacity in the project activity is 13.5 MWh and the project activity was commissioned on 23/12/2005 for captive heat and power generation using renewable biomass.

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

As per the power purchase agreement (PPA) between the state electricity board (UPPCL) and Project Proponent, dated 04/08/2014, the project activity, which has an installed total power generation capacity of 13.5 MWh, is contracted to supply approximately 6 MWh of this bagasse based power to the grid.

The power synchronization is to the 132/133 KV Khurja-II, Palrajhal Tehsil-Khurja grid substation owned by UPPCL and was first completed in October 2014, and UCR carbon credits are being claimed from this date onwards. The power generation is 11 KV, stepped up and evacuated to the 33 KV high voltage switchyard and exported to the UPPCL grid system. All the biomass used at the site qualifies under the definition of biomass residues as outlined in the UNFCCC CDM methodology, i.e., the biomass residue is a by-product of agricultural activities and no other types of biomass is used. In the case of the project activity, the biomass residue is bagasse, which is

generated from the crushing of sugar cane.

Location of project activity:

Country : India
Village : Sabitgarh,
Tehsil : Khurja,
District : Bulandshahar,
State : Uttar Pradesh (UP)
Latitude : 28° 11' 47.22'' N
Longitude : 78° 0' 19.44'' E

Scope:

The scope covers verification of emission reductions from the project - TEIL Biomass Grid Supply Power Project, Sabitgarh, Uttar Pradesh, India, (UCR ID – 267).

Criteria:
Verification criteria is as per the requirements of UCR Standard.

Description of project:

The project TEIL Biomass Grid Supply Power Project, Sabitgarh, Uttar Pradesh is located at Village: Sabitgarh, Tehsil: Khurja, District: Bulandshahar, State: Uttar Pradesh (UP), Country: India (Pin: 203129).

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

Description	**Boiler #1**	**Boiler #2**	**Turbine #1**	**Turbine #2**	**Turbine #3**
Capacity	80 TPH	25 TPH	6 MW	1.5 MW	6 MW
Temp (^oC)	440	315	440	315	440
Pressure (kg/cm^2)	45	11.6	45	11.6	45
Commissioning Year	2005	2008	2005	2008	2014

The use of high-pressure system allows for increased efficiency levels for electricity generation.

INSTRUMENT DETAILS	
Energy Meter:	
Location	132 KV Sub-station, Khurja-II.
Make/ Sr. No/Model	Secure Meters Ltd/ UPP43258/APEX 100
Accuracy Class	0.25
Energy Meter:	
Location	132 KV Sub-station, Khurja-II.
Make/ Sr. No/Model	Secure Meters Ltd/ UPP68184/APEX 100
Accuracy Class	0.25
Energy Meter:	
Location	132 KV Sub-station, Khurja-II.
Make/ Sr. No/Model	Secure Meters Ltd/ UPP43257/APEX 100
Accuracy Class	0.25

Level of Assurance:

The verification report is based on the information collected through interviews conducted over video calls / phone calls, supporting documents provided during the verification, Project Concept Note (PCN) / Monitoring Report (MR), submitted to SQAC. The verification opinion is assured provided the credibility of all the above.

Review of the following documentation was done by SQAC Verifier, Mr. Santosh Nair, who is experienced in such projects.

Documentation Verified:

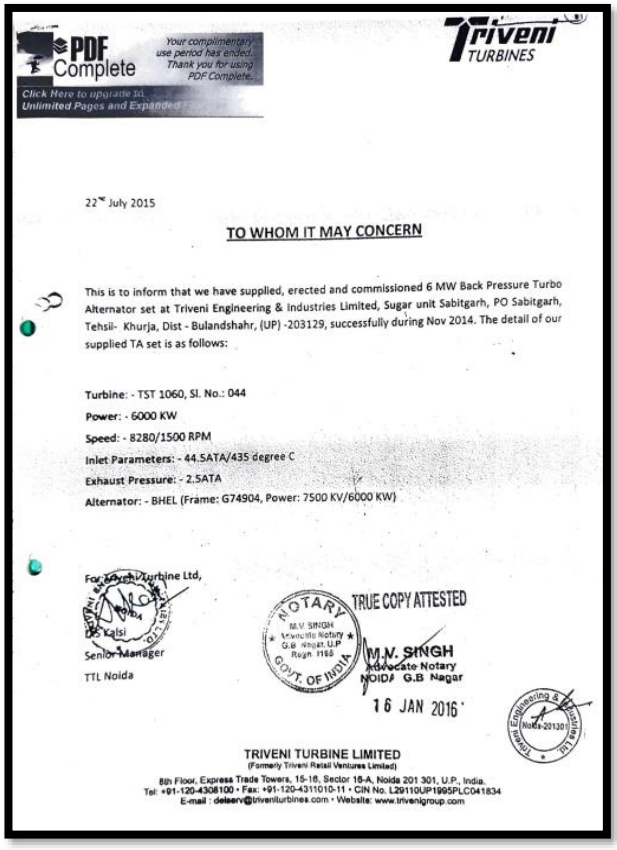
- Project Concept Note (PCN)
- Monitoring Report (MR)
- JMR's
- Month wise Quantity of biomass residue combusted in the project plant.
- Commissioning Certificate
- Calibration Certificates
- Data provided upon request of all the documents of the related project.
- Power Purchase Agreement

Sampling:

Not applicable

Person interviewed:

1. Mr. Ashish Awasti : Triveni Engineering and Industries Ltd.
   Group General Manager - Technical & Coordination
2. Mr. Manish Saxena - Corporate Planning : Triveni Engineering and Industries Ltd.
3. Mr. Vipin Jindal - Addl. GM : Triveni Engineering and Industries Ltd.
4. Mr. Mukesh Giri - GM Engineering : Triveni Engineering and Industries Ltd.
5. Mr. S.P. Singh - Electrical head : Triveni Engineering and Industries Ltd.



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Triveni TURBINES

22nd July 2015

TO WHOM IT MAY CONCERN

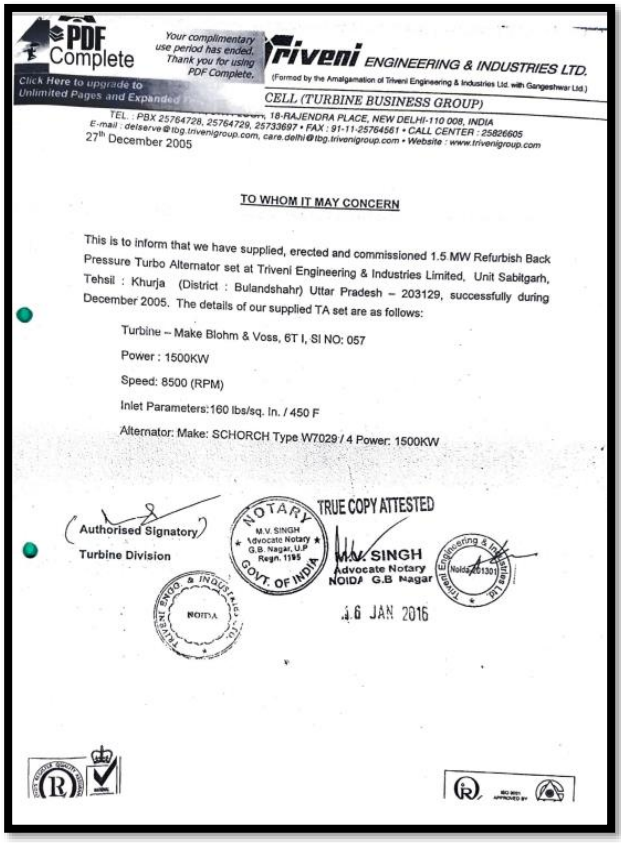
This is to inform that we have supplied, erected and commissioned 6 MW Back Pressure Turbo Alternator set at Triveni Engineering & Industries Limited, Sugar unit Sabitgarh, PO Sabitgarh, Tehsil- Khurja, Dist - Bulandshahr, (UP) -203129, successfully during Nov 2014. The detail of our supplied TA set is as follows:

Turbine: - TST 1060, Sl. No.: 044
Power: - 6000 KW
Speed: - 8280/1500 RPM
Inlet Parameters: - 44.5ATA/435 degree C
Exhaust Pressure: - 2.5ATA
Alternator: - BHEL (Frame: G74904, Power: 7500 KV/6000 KW)

For Triveni Turbine Ltd,
D.S. Kalsi
Senior Manager
TTL Noida

NOTARY M.V. SINGH Advocate Notary G.B. Nagar, U.P. Regn. 1195 GOVT. OF INDIA
TRUE COPY ATTESTED
M.V. SINGH
Advocate Notary
NOIDA G.B Nagar
16 JAN 2016

TRIVENI TURBINE LIMITED
(Formerly Triveni Retail Ventures Limited)
8th Floor, Express Trade Towers, 15-16, Sector 16-A, Noida 201 301, U.P., India.
Tel: +91-120-4308100 • Fax: +91-120-4311010-11 • CIN No. L29110UP1995PLC041834
E-mail : deleerv@triveniturbines.com • Website: www.trivenigroup.com



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Triveni ENGINEERING & INDUSTRIES LTD.
(Formed by the Amalgamation of Triveni Engineering & Industries Ltd. with Gangeshwar Ltd.)
CELL (TURBINE BUSINESS GROUP)
TEL. : PBX 25764728, 25764729, 25733697 • FAX : 91-11-25764561 • CALL CENTER : 25826605
E-mail : delserve@tbg.trivenigroup.com, care.delhi@tbg.trivenigroup.com • Website : www.trivenigroup.com
18-RAJENDRA PLACE, NEW DELHI-110 008, INDIA

27th December 2005

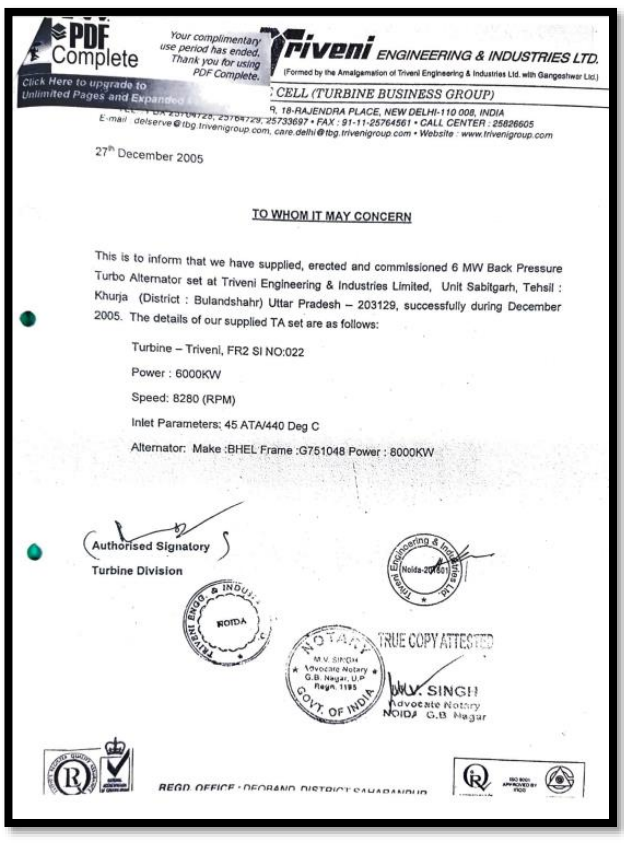
TO WHOM IT MAY CONCERN

This is to inform that we have supplied, erected and commissioned 1.5 MW Refurbish Back Pressure Turbo Alternator set at Triveni Engineering & Industries Limited, Unit Sabitgarh, Tehsil : Khurja (District : Bulandshahr) Uttar Pradesh – 203129, successfully during December 2005. The details of our supplied TA set are as follows:

Turbine – Make Blohm & Voss, 6T I, Sl NO: 057
Power : 1500KW
Speed: 8500 (RPM)
Inlet Parameters: 160 lbs/sq. In. / 450 F
Alternator: Make: SCHORCH Type W7029 / 4 Power: 1500KW

Authorised Signatory
Turbine Division

NOTARY M.V. SINGH Advocate Notary G.B. Nagar, U.P. Regn. 1195 GOVT. OF INDIA
TRUE COPY ATTESTED
M.V. SINGH
Advocate Notary
NOIDA G.B Nagar
16 JAN 2016



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Triveni ENGINEERING & INDUSTRIES LTD.
(Formed by the Amalgamation of Triveni Engineering & Industries Ltd. with Gangeshwar Ltd.)
CELL (TURBINE BUSINESS GROUP)
18-RAJENDRA PLACE, NEW DELHI-110 008, INDIA
E-mail : delserve@tbg.trivenigroup.com, care.delhi@tbg.trivenigroup.com • Website : www.trivenigroup.com

27th December 2005

TO WHOM IT MAY CONCERN

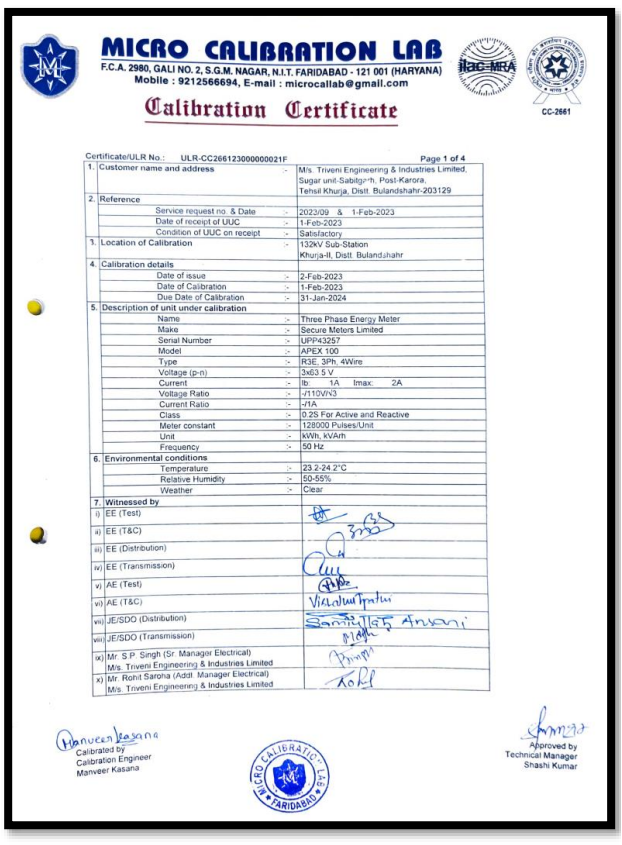
This is to inform that we have supplied, erected and commissioned 6 MW Back Pressure Turbo Alternator set at Triveni Engineering & Industries Limited, Unit Sabitgarh, Tehsil : Khurja (District : Bulandshahr) Uttar Pradesh – 203129, successfully during December 2005. The details of our supplied TA set are as follows:

Turbine – Triveni, FR2 Sl NO:022
Power : 6000KW
Speed: 8280 (RPM)
Inlet Parameters: 45 ATA/440 Deg C
Alternator: Make :BHEL Frame :G751048 Power : 8000KW

Authorised Signatory
Turbine Division

NOTARY M.V. SINGH Advocate Notary G.B. Nagar, U.P. Regn. 1195 GOVT. OF INDIA
TRUE COPY ATTESTED
M.V. SINGH
Advocate Notary
NOIDA G.B Nagar

REGD. OFFICE : DEOBAND, DISTRICT SAHARANPUR



MICRO CALIBRATION LAB
F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)
Mobile : 9212566694, E-mail : microcallab@gmail.com
CC-2661

Calibration Certificate

Certificate/ULR No.: ULR-CC266123000000021F — Page 1 of 4

1.	Customer name and address	:-	M/s. Triveni Engineering & Industries Limited, Sugar unit-Sabitgarh, Post-Karora, Tehsil Khurja, Distt. Bulandshahr-203129
2.	Reference		
	Service request no. & Date	:-	2023/09 & 1-Feb-2023
	Date of receipt of UUC	:-	1-Feb-2023
	Condition of UUC on receipt	:-	Satisfactory
3.	Location of Calibration	:-	132kV Sub-Station Khurja-II, Distt. Bulandshahr
4.	Calibration details		
	Date of issue	:-	2-Feb-2023
	Date of Calibration	:-	1-Feb-2023
	Due Date of Calibration	:-	31-Jan-2024
5.	Description of unit under calibration		
	Name	:-	Three Phase Energy Meter
	Make	:-	Secure Meters Limited
	Serial Number	:-	UPP43257
	Model	:-	APEX 100
	Type	:-	R3E, 3Ph, 4Wire
	Voltage (p-n)	:-	3x63.5 V
	Current	:-	Ib 1A Imax: 2A
	Voltage Ratio	:-	/110V/V3
	Current Ratio	:-	-/1A
	Class	:-	0.2S For Active and Reactive
	Meter constant	:-	128000 Pulses/Unit
	Unit	:-	kWh, kVArh
	Frequency	:-	50 Hz
6.	Environmental conditions		
	Temperature	:-	23.2-24.2°C
	Relative Humidity	:-	50-55%
	Weather	:-	Clear
7.	Witnessed by		
i)	EE (Test)		
ii)	EE (T&C)		
iii)	EE (Distribution)		
iv)	EE (Transmission)		
v)	AE (Test)		
vi)	AE (T&C)		
vii)	JE/SDO (Distribution)		
viii)	JE/SDO (Transmission)		
ix)	Mr. S.P. Singh (Sr. Manager Electrical) M/s. Triveni Engineering & Industries Limited		
x)	Mr. Rohit Saroha (Addl. Manager Electrical) M/s. Triveni Engineering & Industries Limited		

Manveer Kasana
Calibrated by
Calibration Engineer
Manveer Kasana

Approved by
Technical Manager
Shashi Kumar

MICRO CALIBRATION LAB

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

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4.	Calibration details		
	Date of issue	:-	2-Feb-2023
	Date of Calibration	:-	1-Feb-2023
	Due Date of Calibration	:-	31-Jan-2024
5.	Description of unit under calibration		
	Name	:-	Three Phase Energy Meter
	Make	:-	Secure Meters Limited
	Serial Number	:-	UPP43258
	Model	:-	APEX 100
	Type	:-	R3E, 3Ph, 4Wire
	Voltage (p-n)	:-	3x63.5 V
	Current	:-	Ib: 1A Imax: 2A
	Voltage Ratio	:-	-/110V/√3
	Current Ratio	:-	-/1A
	Class	:-	0.2S For Active and Reactive
	Meter constant	:-	128000 Pulses/Unit
	Unit	:-	kWh, kVArh
	Frequency	:-	50 Hz
6.	Environmental conditions		
	Temperature	:-	23.2-24.2°C
	Relative Humidity	:-	50-55%
	Weather	:-	Clear
7.	Witnessed by		
i)	EE (Test)		
ii)	EE (T&C)		
iii)	EE (Distribution)		
iv)	EE (Transmission)		
v)	AE (Test)		
vi)	AE (T&C)		Vishal Tripathi
vii)	JE/SDO (Distribution)		Samiullah Ansari
viii)	JE/SDO (Transmission)		
ix)	Mr. S.P. Singh (Sr. Manager Electrical) M/s. Triveni Engineering & Industries Limited		
x)	Mr. Rohit Saroha (Addl. Manager Electrical) M/s. Triveni Engineering & Industries Limited		Rohit

Manveer Kasana
Calibrated by
Calibration Engineer
Manveer Kasana

MICRO CALIBRATION LAB FARIDABAD

Approved by
Technical Manager
Shashi Kumar

MICRO CALIBRATION LAB

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

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CC-2661

Certificate/ULR No.: ULR-CC266123000000023F

Page 1 of 4

1.	Customer name and address	:-	M/s. Triveni Engineering & Industries Limited, Sugar unit-Sabitgarh, Post-Karora, Tehsil Khurja, Distt. Bulandshahr-203129
2.	Reference		
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4.	Calibration details		
	Date of issue	:-	2-Feb-2023
	Date of Calibration	:-	1-Feb-2023
	Due Date of Calibration	:-	31-Jan-2024
5.	Description of unit under calibration		
	Name	:-	Three Phase Energy Meter
	Make	:-	Secure Meters Limited
	Serial Number	:-	UPP68184
	Model	:-	APEX 100
	Type	:-	R3E, 3Ph, 4Wire
	Voltage (p-n)	:-	3x63.5 V
	Current	:-	Ib: 1A Imax: 2A
	Voltage Ratio	:-	-/110V/√3
	Current Ratio	:-	-/1A
	Class	:-	0.2S For Active and Reactive
	Meter constant	:-	256000 Pulses/Unit
	Unit	:-	kWh, kVArh
	Frequency	:-	50 Hz
6.	Environmental conditions		
	Temperature	:-	23.2-24.2°C
	Relative Humidity	:-	50-55%
	Weather	:-	Clear
7.	Witnessed by		
i)	EE (Test)		
ii)	EE (T&C)		
iii)	EE (Distribution)		
iv)	EE (Transmission)		
v)	AE (Test)		
vi)	AE (T&C)		Vishal Tripathi
vii)	JE/SDO (Distribution)		Samiullah Ansari
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ix)	Mr. S.P. Singh (Sr. Manager Electrical) M/s. Triveni Engineering & Industries Limited		
x)	Mr. Rohit Saroha (Addl. Manager Electrical) M/s. Triveni Engineering & Industries Limited		Rohit

Manveer Kasana
Calibrated by
Calibration Engineer
Manveer Kasana

MICRO CALIBRATION LAB FARIDABAD

Approved by
Technical Manager
Shashi Kumar

Bill Meter Reading of Generating Mill on 02-May -2022

Reading should be taken on 1st of every month at 12 Noon

Name of the Mill : Triveni Engineering & Industries Ltd, Unit-Sabitgarh

Place	Taluka	District	State
(132/33KV S/S Khurja-II)	Khurja	Bulandshahar	UP

CT Ratio: Available/Connected : 150A/ 1A

PT Ratio: Available/Connected : 33 KV/√3/110V/√3

Scale Factor (MF) : 45000

Billing Meter Make/Number : Secure Meter Ltd./ UPP43257

Meter Reading:-

	UPPCL Import Meter Reading (Mill To UPPCL)	UPPCL Export Meter Reading (UPPCL To Mill)
(A) Current Reading (02/05/2022)	0678.0109	0016.9175
(B) Previous Reading (24/04/2022)	0658.0705	0016.9168
(C) Difference	19.9404	0.0007
(D) Difference X MF(45000for KWH)	897318	31.5

Old seal No (MRI Port) - 21-0802(T&C), 003484(Tr.)

New seal No (MRI Port) - 21-0822(T&C), 003485(Tr.)

Old seal No (Meter Chamber) – 21-0804(T&C), 003486(Tr.)

New seal No (Meter Chamber) - 21-0824(T&C), 003451(Tr.)

Old seal No (Room Lock) - 21-0805(T&C), 003427(Tr.)

New seal No (Room Lock) - 21-0825(T&C), 003488(Tr.)

Authorized Rep. (Mill)	EE (DISTRIBUTION)	EE (T&C)	EE (TRANSMISSION)

ELECTRICITY TEST DIVISION
PVVNL- BULANDSHAHR (U.P)
METER CHECKING REPORT

S.No............

Comparison of consumption of M/S Triveni Engineering & Industries Ltd, Sugar Unit- Sabitgarh, Khurja, Distt- Bulandshahr (U.P.).

S.C. No.
Sanction Load
Metering Voltage 33KV
Process Co-Gen (चीनी मिल सह विद्युत उत्पादन)
Date of Present Reading 01.02.2020
Name of Division EDD Khurja Bulandshahr
Date of previous Reading
Consumption Days
Date 01.02.2020

Reading	Main Meter /CTR/MF			Check Meter /CTR/MF		
Meter No.	APEX UPP43255			APEX UPP43256		
WH	Imp 1886.16 / Exp 78.50			Imp 1884.11 / Exp 75.43		
VAH	Imp 1948.96 / Exp 87.03			Imp 1946.56 / Exp 86.95		
KVARH LAG						
KVARH LEAD						
UC KVA						
UHI KVA						
CMD KVA						
COUNT						
	R-Phase	Y-Phase	B-Phase	R-Phase	Y-Phase	B-Phase
All Voltage	67.58	67.43	67.21	67.21	67.60	67.62
All Current	0.43	0.41	0.45	0.49	0.47	0.51

MF : 45000(KWH)
CTR : 150/1A
PTR : 33KV/110V
CTR and PTR Checked on 16.10.2019 before starting Cogen

	Bill Meter	Check Meter	% Diff
KWH	0.00912709	0.00911251	-0.16%
KVAH	0.00931215	0.00929820	-0.15%

MRI Calibration Duration : 5min

	Old Seal			New Seal		
	Plastic	Paper	Other	Plastic	Paper	Other
Meter Room Seal.	PL: 003127, 141063			PL: 003134, 141189		
T.P.Cover						
Meter Chember	PL: 003126, 141187			PL: 003133, 141193		
Meter (MRI Port) Main	PL: 003124, 141194			PL: 003131, 141186		
Meter (MRI Port) Check	PL: 003125, 141195			PL: 003132, 141151		
CT Chamber/Junction	Not opened					
PT Chamber/Junction	Not opened					

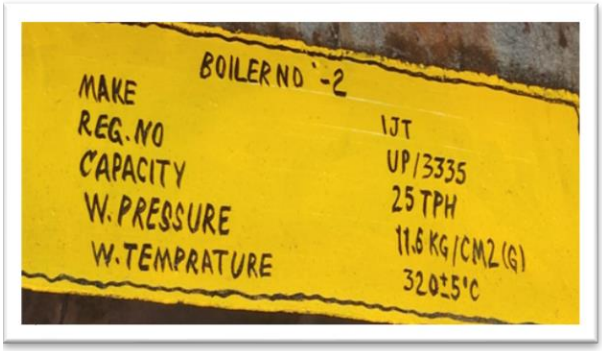
Remarks: अधीक्षण अभियन्ता विद्युत आयात एवं निर्यात एवं भुगतान मण्डल शक्ति भवन लखनऊ के पत्र संख्या: 3002 दिनांक 7.11.2017 के अनुसार मे Cogen प्रारम्भ होने के पूर्व स्थापित सी०टी० एवं पी०टी० का परीक्षण करने पर सभी परिणाम संतोषजनक पाये गये थे। आज दिनांक 01.02.2020 को बिलिंग मीटर एवं चेक मीटरों का एम०आर०आई० द्वारा Calibration करने पर तुलनात्मक प्रतिशत अन्तर सामान्य पाया गया। MRI द्वारा मेन एवं चेक मीटर की रीडिंग की गयी।

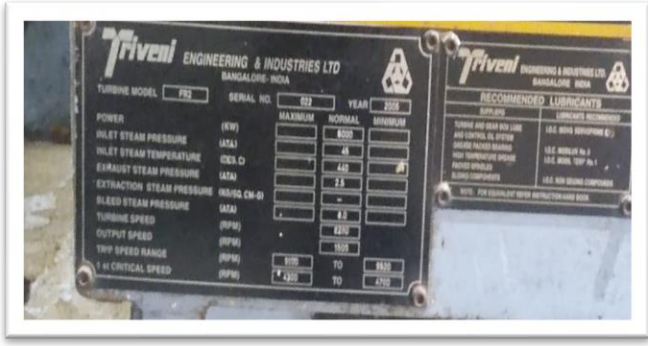
AE (Test)
Engineer (Meter)
Electricity Test Lab
U.P.P.C.L.
KHURJA

E.E.(Test)
Executive Engineer
Electricity Test Division-Ist
BULANDSHAHR

E.E.(Distribution)
Executive Engineer
Electricity Distribution Division
Khurja

Signature Consumer
Triveni Engineering & Industries Ltd. SABITGARH





Applied methodologies and standardized baselines:

UCR Protocol Standard Baseline

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

TYPE I - Renewable Energy Projects (Small Scale)
UCR Positive List Environmental Additionality

CATEGORY - ***AMS I.D. Small Scale Consolidated Methodology***
"Grid connected renewable electricity generation", version 18.
This methodology is applicable to project activities that comprises renewable energy generation units, such as renewable biomass involving:
(a) Supplying electricity to a national or a regional grid;

UCR CoU Standard is used to determine the baseline grid emission factor from 2014 to 2022 period.

Application of methodologies and standardized baselines

- The project activity is a power generation project using a biomass (bagasse) and displaces CO_2 emissions from electricity generation in power plants that are displaced due to the project activity. Since the project activity utilises biomass (bagasse) for the generation of power and supplies it to the local grid, it displaces fossil fuel (coal), and hence it meets the primary applicability criteria of the methodology.

- The project activity is included in the Positive List of UCR Approved Scope under the UCR CoU Standard.

- The total installed capacity of project activity is 13.5 MW, of which 6 MW is supplied to the grid, which is acceptable as per the applied small-scale methodology, since the eligibility limit of 15 MW has been applied under this methodology.

- The installation of a new biomass residue fired power generation unit, which replaces or is operated next to existing power generation capacity fired with either fossil fuels or the same type of biomass residue as in the project plant (power capacity expansion projects) is also included in this methodology.

- The project activity is not a hydro power project. The project activity does not recover methane from landfill gas, waste gas, wastewater treatment and agro-industries.

- For the purposes of this methodology, heat does not include waste heat, i.e., heat that is transferred to the environment without utilization, for example, heat in flue gas, heat transferred to cooling towers or any other heat losses.

- The biomass used by the project plant is not stored for more than one year. The biomass used by the project plant is not processed chemically or biologically (e.g., through esterification, fermentation, hydrolysis, pyrolysis, bio- or chemical degradation, etc.) prior to combustion.

- The Project Activity uses biomass residues from a production process (e.g., production of sugar), and the implementation of the project does not result in an increase of the processing capacity of (the industrial facility generating the residues) raw input (e.g., sugar) or in other substantial changes (e.g., product

change) in this process.

- The project activity unit does not co-fire fossil fuel and/or does not exceed the limit of 25% co-firing fossil fuel criteria as per the UCR Protocol for such projects.

- Biomass generated power is used for direct grid supply and for meeting the captive needs at the facility. The project activity involves the grid-connected bagasse-based electricity generation capacity involving the installation of facilities for allowing the export of electricity to the regional grid.

- Biomass is not sourced from dedicated plantations. The existing installed boilers are fired by bagasse, a byproduct of the sugarcane processing and a biomass residue.

- Bagasse is burnt in boilers as generated 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.

Applicability of double counting emission reductions

The biomass boilers and turbines are constructed by the project proponent within the project boundary. The biomass boiler and condensing turbo-generator unit have unique IDs, which are visible on the unit.

There is no double accounting of emission reductions in the project activity due to the following reasons:

- Project is uniquely identifiable based on its location coordinates
- Project has dedicated commissioning certificate and connection point,
- Project is associated with energy meters which are dedicated to the generation / feeding point with the grid.

Hence the UCR project activity has never been issued voluntary carbon credits for the current 2014 to 2022 vintage years and there is no double counting of the credits envisioned. Additionally,

the same has been stated in the undertaking provided in the Double Counting Avoidance Assurance Document (DAA) by TEIL dated 25.09.2023.

Project boundary, sources and greenhouse gases (GHGs)

The project boundary includes the physical, geographical site(s) of the project power plant and all power plants connected physically to the electricity system that the project activity is connected to.

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

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected fossil fuel-based electricity Generation	**CO_2**	**Yes**	**Major emission source.**
		CH_4	No	Minor emission source.
		N_2O	No	Minor emission source.
		Other	No	No other GHG emissions were emitted from the project.
Project	Greenfield Biomass Power Project Activity	CO_2	No	No CO_2 emissions are emitted from the project.
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Other	No	No other emissions are emitted from the project.

Leakage Emissions (LE_y)

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

Hence $\mathbf{LE_y} = 0$

Project Emissions (PE_y)

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 and also the UCR grid emission factor results in conservative estimates of the carbon credits.

Direct off-site emissions in the project activity arise from the biomass transport. The biomass and/or biomass residues may be used as either fuel or feedstock in the project activity as per the Tool16 for project and leakage emissions from biomass. However, the biomass is generated from the in-house processes pertaining to the sugar processing industry, hence, biomass transport is only accounted if biomass 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 (sugarcane) is weighed on the electronic weighbridge and the corresponding readings are noted in the plant logbooks.

Project emissions (PE_y) involve emissions resulting from the cultivation of biomass, transportation of biomass, processing of biomass, transportation of biomass residues and processing of biomass residues. As an alternative to the monitoring of the parameters needed to calculate the emissions from the biomass (sugarcane) transportation, Project Proponent is allowed to apply the following option:

(a) For microscale and small-scale project activities, a default emission factor of 0.0142 tCO_2/tonne of biomass. (Source: TOOL16 Methodological tool Project and leakage emissions from biomass Version 05.0)

Establishment and description of baseline scenario (UCR Protocol)

The baseline scenario identified is:

> *Renewable energy technologies that displace technologies using fossil fuels, wherein the simplified baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity, times an emission factor for the fossil fuel displaced.*
>
> The baseline emissions due to displacement of electricity are determined by net quantity of electricity generation as a result of the project activity (incremental to baseline generation) during the year y in MWh, times the CO_2 emission factor for the electricity displaced due to the project activity during the year y in tons CO_2/MWh

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

Emission Reductions (ERy) is the emission reduction due to the project activity is calculated as the difference between the baseline emissions and the sum of the project emissions and the leakage:

$$\mathbf{ER_y = BE_y - (PE_y + LE_y)}$$

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

Baseline emissions are calculated as follows:

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

Where:

$\mathbf{EG_{grid,y}}$ = Quantity of net electricity generation that is fed into the local grid as a result of the implementation of the project activity in year y (MWh)

$\mathbf{EF_{grid,y}}$ = The CO_2 emission factor for grid connected power generation in year y calculated using UCR Standard emission factor (0.9 tCO_2/MWh).

$\mathbf{PE_y}$ = Project activity emissions/yr = 0.0142 x Biomass Consumption (MT)/year

However, as per paragraph 31 under Section 5.2 of the given methodology, the PP must "For microscale and small-scale project activities, apply a default emission factor of 0.0142 tCO2/tonne of biomass.

$\mathbf{LE_y}$ = Leakage emissions = 0

Year	The quantity of bagasse used to generate steam in the boilers (*Plant records and log books receipts*)								
2013	**(MTs)**	**2014**	**(MTs)**	**2015**	**(MTs)**	**2016**	**(MTs)**	**2017**	**(MTs)**
Jan	37595.00	Jan	31964.27	Jan	23464.500	Jan	30322.90	Jan	34698.40
Feb	30714.80	Feb	32214.95	Feb	30069.400	Feb	33953.50	Feb	29032.60
Mar	36342.10	Mar	29502.72	Mar	6595.000	Mar	7855.10	Mar	36337.40
Apr	11012.21	Apr	7814.03	Apr	0	Apr	0	Apr	13456.20
May	0	May	0	May	0	May	0	May	0
Jun	0	Jun	0	Jun	0	Jun	0	Jun	0
Jul	0	Jul	0	Jul	0	Jul	0	Jul	0
Aug	0	Aug	0	Aug	0	Aug	0	Aug	0
Sep	0	Sep	0	Sep	0	Sep	0	Sep	0
Oct	0	Oct	Start Date	Oct	0	Oct	0	Oct	0
Nov	0	Nov	3870.30	Nov	4637.64	Nov	15838.00	Nov	34888.00
Dec	26997.13	Dec	38072.30	Dec	28497.67	Dec	38512.00	Dec	35820.00
2018	**(MTs)**	**2019**	**(MTs)**	**2020**	**(MTs)**	**2021**	**(MTs)**	**2022**	**(MTs)**
Jan	36567.00	Jan	33601.69	Jan	37098.87	Jan	36934.76	Jan	37605.02
Feb	34868.00	Feb	33097.60	Feb	35041.09	Feb	36033.60	Feb	35458.99
Mar	35724.00	Mar	34449.82	Mar	35548.98	Mar	40178.53	Mar	38833.39
Apr	32241.96	Apr	32755.15	Apr	36841.90	Apr	37835.47	Apr	37449.99
May	8716.00	May	6397.76	May	11079.30	May	37837.99	May	15698.34
Jun	0	Jun	0	Jun	0	Jun	0	Jun	0
Jul	0	Jul	0	Jul	0	Jul	0	Jul	0
Aug	0	Aug	0	Aug	0	Aug	0	Aug	0
Sep	0	Sep	0	Sep	0	Sep	0	Sep	0
Oct	0	Oct	0	Oct	563.72	Oct	0	Oct	0
Nov	23227.29	Nov	31386.51	Nov	37995.81	Nov	29980.57	Nov	40266.76
Dec	36775.79	Dec	36242.50	Dec	37518.82	Dec	41534.71	Dec	44300.04

ear	Project Emissions (tCO2e) PEy	Total Bagasse Consumed (T) MT	Total Power Generated (MWh) MWh	Total Power Exported (MWh) MWh
2014 (Oct onwards)	596	41942.60	14299.11	1732.90
2015	1325	93264.21	26457.70	10765.45
2016	1797	126481.50	33095.01	13881.01
2017	2617	184232.60	47380.10	18745.29
2018	2956	208120.04	51517.63	19630.69
2019	2953	207931.04	51912.27	18680.97
2020	3290	231688.50	52343.36	19428.05
2021	3697	260335.61	42545.11	15338.85
2022	3545	249612.52	53415.31	16972.16
Total	**22776**	**1603608.61**	**372965.60**	**135175.36**

Emission Reductions:

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Baseline Emissions BEy (tCO_2)	1559	9688	12492	16870	17667	16812	17485	13804	15274	**121651**
Project Emissions PEy (tCO_2)	596	1325	1797	2617	2956	2953	3290	3697	3545	**22776**
Emission Reductions ERy (tCO_2) (BEy - PEy)	963	8363	10695	14253	14711	13859	14195	10107	11729	**98875**

Total emission reductions (ER_y) = **98,875** tCO_2 (**98,875** CoUs)

Conclusions:

Based on the audit conducted on the basis of UCR Protocol, which draws reference from UCR Standard for Baseline Grid Emission Factor, CDM UNFCCC Methodology Small-scale Methodology AMS-ID: Grid connected renewable electricity generation, Ver 18, the documents submitted during the verification including the Data, Project Concept Note (PCN) / Monitoring Report (MR), SQAC is able to certify that the emission reductions from the project - TEIL Biomass Grid Supply Power Project, Sabitgarh, Uttar Pradesh, India (UCR ID – 267) for the period **01/11/2014 to 31/12/2022** amounts to **98,875 tCO_2 (98,875 CoUs)**

SQAC Certification Pvt. Ltd. Mapusa-Goa

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Santosh Nair	Praful Shinganapurkar
Lead Verifier (Signature)	Senior Internal Reviewer (Signature)

Date: 09/10/2023