Verification Report for

Project : Biomass based power project by Shri Shyam Warehousing and Power Pvt. Ltd, Banari, Chhattisgarh

UCR Project ID : 352

Name of Verifier	SQAC Certification Pvt. Ltd.
Date of Issue	November 21, 2023
Project Proponent	Shri Shyam Warehousing and Power Pvt. Ltd (SSWPPL)
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 "Biomass based power project by Shri Shyam Warehousing and Power Pvt. Ltd, Banari, Chhattisgarh, India". The project activity achieves GHG emission reductions by supplying the net electricity generated to the Northern, Eastern, Western, and North-Eastern (NEWNE) grid which is predominantly dependent on fossil fuel-based power plants.

Verification for the period**: 01/01/2013 to 31/12/2022** (10 Years, 00 Months)

The GHG emission reductions were calculated on the basis of UCR Standard for Baseline Grid Emission Factor, CDM UNFCCC Methodology, AMS-I.C. Small-scale Methodology Thermal energy production with or without electricity Version 22.0. 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 Biomass based power project by Shri Shyam Warehousing and Power Pvt. Ltd, Banari, Chhattisgarh, India, (UCR ID – 352) for the period **01/01/2013 to 31/12/2022** amounts to **4,21,157 tCO_2 (4,21,157 CoUs)**

Detailed Verification Report:

Purpose:

The project activity involves the installation of a 10 MW biomass (rice husk) based cogeneration power plant to generate electricity by utilising the renewable biomass potential available in the region, thereby reducing GHG emissions.

The commissioning date or start date of this UCR project activity is 19/12/2007 (the date on which long term power purchase agreement (PPA) with the Chhattisgarh State Power Distribution Company Limited (CSPDCL). Though the project is a co-generation project, the PP is entitled to claim UCR CoUs based only on the renewable electrical energy supplied/exported to grid as per the UCR CoU program policy and guidelines related to small scale biomass to grid power projects. In the absence of project activity, the PP would have continued operating its existing two (2) units of rice husk fired boilers and the grid would have purchased fossil electricity from other power plants.

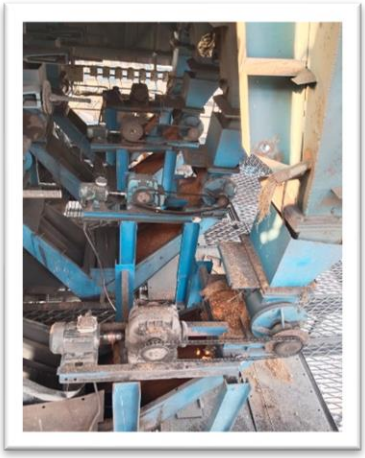
The project activity uses rice husk which is collected within a 75 km radius of the plant as the source of fuel for the generation of electricity, which qualifies as a renewable source of electricity and does not add any net carbon-dioxide to the atmosphere because of the carbon recycling during growth of rice. The project activity comprises the installation of a high-pressure boiler of 50 tonnes per hour capacity (68 kg/cm2, 490±5 °C) and an extraction bleed cum condensing type steam turbine generator set of 10 MW capacity. The project activity also involves the installation of ancillary equipment to generate electricity for the grid from a renewable energy source (rice husk).

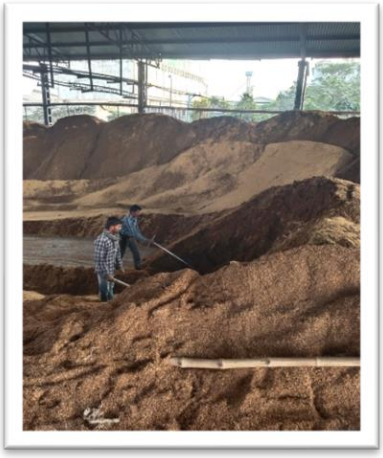
The project activity generates and exports 10 MW of electrical power at 11 kV and supply to the Chhattisgarh State Electricity Board (part of the NEW NE regional grid) at 33 kV through the local substation. The necessary transmission lines from the power plant to the substation is laid by the project activity.

The project activity supplies and displaces approximately 700673 MWh of fossil energy (coal) fired with renewable (biomass) power from the grid each year.

The export of electricity hence reduces GHG emissions by replacing the fossil fuel dominated grid-based electricity with a renewable source of electricity. The high-pressure boilers are fired by rice husk, a byproduct from the rice manufacturing process to generate steam, which in turn powers the steam turbine to generate electricity. Consent to establish the project activity issued by

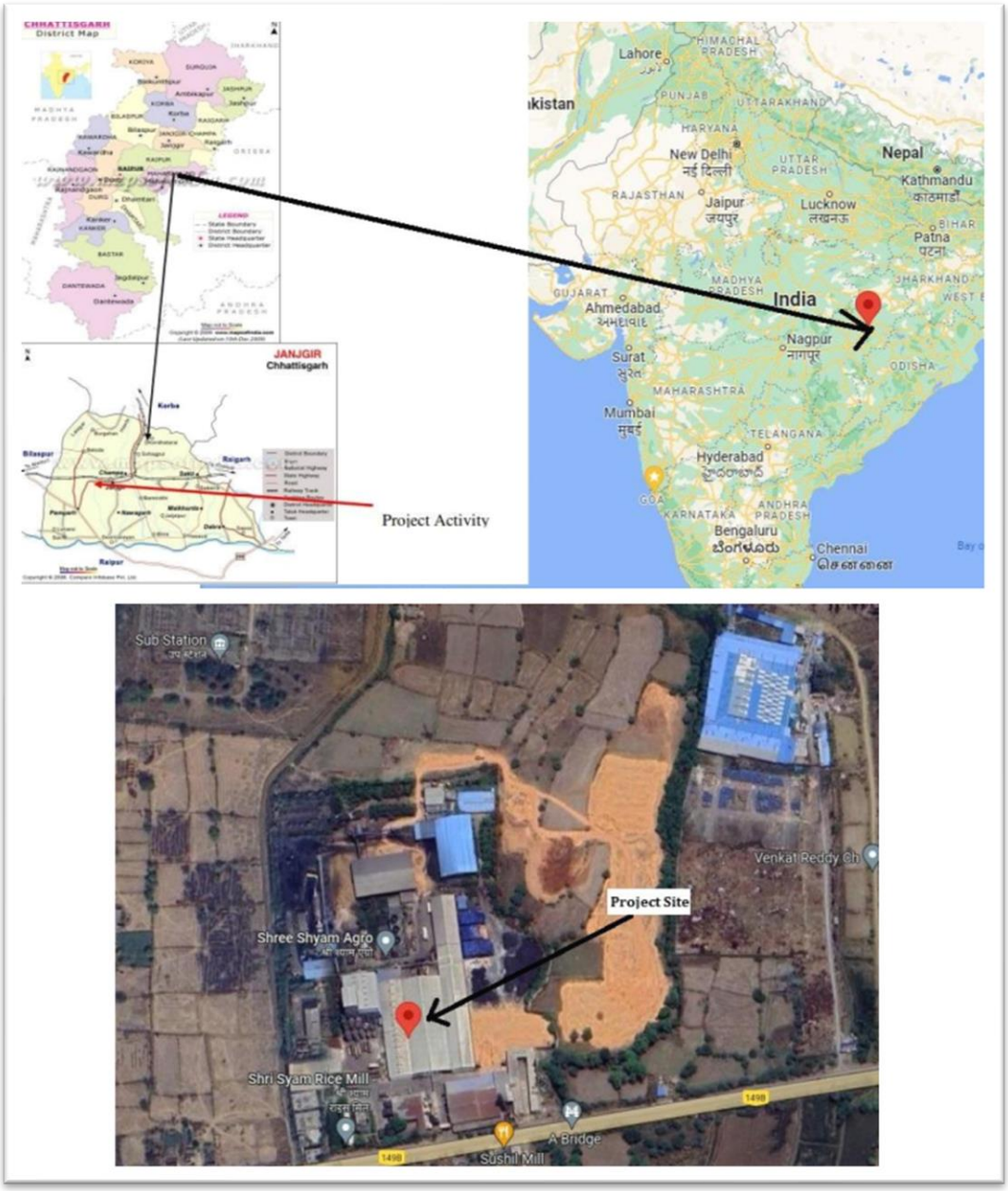
Chhattisgarh Environment Conservation Board dated 06/05/2010. No Objection Certificate issued by Boiler Inspectorate dated 08/11/2010.





Location of project activity:

Country : India
Village : Banari,
District : Janjgir,
State : Chhattisgarh,
Latitude : 21^0 59’ 51.83” N
Longitude : 82^0 31’ 04.59”E



Scope:

The scope covers verification of emission reductions from the project - Biomass based power project by Shri Shyam Warehousing and Power Pvt. Ltd, Banari, Chhattisgarh, India, (UCR ID – 352).

Criteria:

Verification criteria is as per the requirements of UCR Standard.

Description of project:

The UCR project activity is the construction and operation of a power plant/unit that uses renewable energy sources 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.

The project activity produces renewable energy from the combustion of a renewable biomass. The technology employed is a biomass fired plant which consists mainly of a boiler and turbine generator.

The project generates electricity using a 50 TPH (tonnes per hour) AFBC boiler and a 10000 kWh (10 MWh) capacity extraction bleed cum condensing type steam turbo-generator. The technical parameters of boiler and turbo-generator are given below:

Travelling grate boiler		Turbo-generator	
MCR (Maximum Continuous Rating)	50 TPH	Steam parameters at turbine inlet	65 kg/cm^2(A), 485°C
Steam outlet parameters	68 kg/cm^2(A), 490±5°C	Generator rating	10 MW, 50Hz, 11 kV

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 rice husk consumed in the boiler.
- Commissioning Certificate
- Calibration Certificates
- Data provided upon request of all the documents of the related project.
- Power Purchase Agreement
- Meter Test Reports
- Invoices

Sampling:

Not applicable

Person interviewed:

1. Mr. Tejashwar Kothia – Electrical HOD : Shri Shyam Warehousing and Power Pvt. Ltd.
2. Mr. Dinesh Singh – Plant Head : Shri Shyam Warehousing and Power Pvt. Ltd.
3. Mr. Ravi Marikar – HR Incharge : Shri Shyam Warehousing and Power Pvt. Ltd.

Corrective Action Requests (CARs)

Corrective Action Requests (CARs) and their resolutions are listed below:

There is only 1 CAR:

CAR 1:

The Net quantity of electricity supplied to the grid as per JMR & Invoice is not matching with the ER statement.

Response from Project Participant

The correction has been made in the ER sheet and accordingly Monitoring Report (V02) has been released after incorporating the related corrections.

Conclusion by Verification Team

Verified Monitoring Report (V02) for correction and found to be matching as per requirement. Hence Corrective Action Request CAR-1 is closed.

CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD R-32(A)

(Successor Company of CSEB)

MONTHLY METER READING PERFORMA

(Report Type:export)

Name of Consumer	SHRI_SHYAM_WEREHOUSING	Consumer No :-	1005503
Date of Reading	01/01/2016 12:00:00AM	Division Name :-	O&M_CHAMPA
Meter Serial No	CSE38387	Meter CTR :-	100.00
ME CTR	200.00	Meter PTR :-	11.00
ME PTR	33.00		
Supply Voltage	33 KV	Contract Demand :-	1,176
EMF	6.0000		

PARTICULARS	KWH	KVARH		KVA(MD)	KVAH
		LAG	LEAD		
Current Reading	33897270.000	671410.000	1154840.000	1526.000	33982300.000
Previous Reading	32783410.000	582630.000	1154840.000	1528.000	32864170.000
Diffrence	1113860.000	88780.000	0.000	1526.000	1118130.000
Diffrence *EMF	6683160.000	532680.000	0.000	9156.000	6708780.000
Assessment if any					
Total	**6683160.000**	**532680.000**	**0.000**	**9156.000**	**6708780.000**
Power Factor(%)	**99.62**				

TOD KWH	Current	Previous	Difference *EMF	RESET COUNT		CMD(KVA)	
				Previous	Present	Previous	Present
C1	18335960.000	17732910.000	3618300.000		83		55508.000
C2	7070330.000	6838250.000	1392480.000				
C3	8490970.000	8212250.000	1672320.000				
Total	**33897260.000**	**32783410.000**	**6683100.000**				

TOD KVAH	Current	Previous	Difference *EMF
C1	18,380,190.00	17,774,900.00	3,631,740.00
C2	7,087,500.00	6,854,480.00	1,398,120.00
C3	8,514,600.00	8,234,790.00	1,678,860.00
Total	**33,982,290.00**	**32,864,170.00**	**6,708,720.00**

REMARKS:-

METER DISPLAY VOLTAGE			METER DISPLAY CURRENT(A)		
R	Y	B	R	Y	B
6.81 kV	6.863 kV	6.848 kV	73.964 A	72.78 A	72.11 A

1)This is an electronically generated report and doesn't require signature.

SHRI SHYAM WAREHOUSING AND POWER PVT. LTD.

VILLAGE – BANARI, DISTT. - JANJGIR-CHAMPA CHHATTISGARH 495-668
MOBILE NO. 081203-50035, 094252-23035, 099263-18851
CIN U63021CT2002PTC015342, TIN 22574702277

Ref : SSWPL/CSPDCL/2015-16/10 **Date: 01/01/2016**

To,

The Superintending Engineer (Commercial) - I
Office of the Executive engineer (Commercial)
Chhattisgarh State Power Distribution Corporation Limited
"Vidyut Sewa Bhavan", Danganiya,
Raipur – 492013. (C.G.)
Ph. No. : 2574441
Fax No. : 2574442

Dear Sir,

Sub : Statement of fuel used, breakup of biomass and fossil fuel separately

With reference to the above, please find below the statement of fuel, breakup of biomass and fossil fuel used in our Plant separately for the month of:

Month	Monthly consumption of rice husk in the boiler in MT	Monthly consumption of Coal in MT	Ratio of the fuel mixed for boiler operation during the month Husk : Coal	Generation of Bio Mass Power in KWH	Export of Bio Mass Power in KWH
DECEMBER 2015	7760.279	1358.733	85:15	7474600	6683160

Thanking you Sir,

Yours faithfully,

Shri Shyam Ware housing & Power Pvt. Ltd. Banari Naila (C.G.)

Shri Shyam Ware housing & Power Pvt. Ltd. Banari Naila (C.G.)

CHHATTISGARH STATE POWER DISTRIBUTION CO.LTD.

(A Government of Chhattisgarh Undertaking)
(A Successor Company of CSEB)

OFFICE OF CHIEF ENGINEER (COMMERCIAL)
Phone (0771) 2574441 (Fax) 2574442

No.02-02/SE-I/ 220 Raipur, Dt: 20.4.12

M/s Shri Shyam Warehousing & Power (P) Ltd.,
Main Road, Naila,
Distt.- Janjgir-Champa (C.G.)

Sub: Declaration of commercial operation date.

Ref:- Your letter Dt. 29.03.12.

Dear Sirs,

Please refer to the letter cited under reference vide which you have intimated that you have achieved full capacity of 10 MW power on dt. 25.03.12 and declared the date of commercial operation from 25.03.12. It is to convey that the competent authority has considered the date of commercial operation of your 10 MW Biomass based power plant installed at village Banari, Tehsil & Distt. Janjgir-Champa from 00:00 hrs of 27.03.12.

Thanking you,

Yours faithfully

Addl. Chief Engineer (Comml)-I
O/o Chief Engineer (Comml)
CSPDCL: Raipur

CSPDCL

CHHATTISGARH STATE POWER DISTRIBUTION COMPANY LTD
Office Of The Executive Engineer, Central Testing Lab Dn. Bhilai
220 KV. Sub-Station Road, Bijafi Nagar, Bhilai-3, Durg (C.G.) 490021
(NABL Accreditated Laboratory Certificate No. TC-8192)
Email ID : eectlbhilai@gmail.com, Phone no.- 0788-2281013
(A Government of Chhattisgarh undertaking) (Successor Company of CSEB)

No./EE/CTLD/Report/ 980 Date: 20 SEP 2021

To,

M/S. SHRI SHYAM WAREHOUSING & P. LTD.
VILL.- BANARI, H.O. MAIN ROAD NAILA,
DISTT- JANJGIR - CHAMPA (C.G.), 495668
(BP-1005503)

Sub:- *Test report of 01 no. ABT meter tested in CTLDn.Bhilai.*
Ref:- *Your letter no.NIL, DTD. 11.09.2021.*

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This has reference to your letter cited above, wherein it is desired to test the following energy meter.

Sr. No	Meter make	Sr. No.	Model	Type	V ref.	CTR	PTR	Date of testing	REMARK
01	SECURE	CSE52170	APEX 100	R3E	3*63.5	200/5	33KV/ 110V	18.09.2021	PASS

Accordingly, the above energy meter have been tested in Central Testing Lab Dn. The test report is enclosed herewith for information and necessary action at your end please.

S.K.BAND
(EMP CODE-91515493)
Executive Engineer (CTL)
Head of the laboratory (NABL)
Central Testing Lab, Division.
C.S.P.D.C.L. Bhilai

Encls:-
Test Report no. CSPDCL/CTLD/LAB/TR/09-21/4109 Date 20.09.2021.

COPY TO-
1 S.E. (CITY) Circle, C.S.P.D.C.L, JANJGIR CHAMPA FOR INFORMATION.

Chhattisgarh State Power Distribution Company Limited

Central Testing Laboratory Division

220 KV, Sub-Station Road, Bijli Nagar, Bhilai-3, Durg (C.G.) 490021
Email ID : eectlbhilai@gmail.com, Phone no.- 0788-2281013

TC-8192

GST NO : 22AADCC6047K1ZR | CIN NO U40108CT2003SGC01582Z | Page No.1 of 3

ULR	Test Report No.	Date of issue
TC819221000003060F	CSPDCL/CTLD/LAB/TR/09-21/4109	20.09.2021

1	Customer Details	Name	M/S. SHRI SHYAM WAREHOUSING & P. LTD. (BP-1005503)	
		Address	VILL- BANARI, H.O. MAIN ROAD NAILA, DISTT- JANJGIR - CHAMPA (C.G.), 495668	
		Reference No.	NIL/11.09.2021	
2	Letter receipt no. & date of receipt :		1608/16.09.2021	
3	Location of test performed :		Central Testing Laboratory Dn., BHILAI-3 (C.G.)	
4	Description of sample			
	Nature of Sample	3PH-4W ABT METER	Reference Voltage (V_{ref})	3*63.5 V
	Make	SECURE	Basic current (Ib)	5A
	Serial number	CSE52170	Rated maximum current (I_{max})	10A
	Type /Model	R3E/APEX 100	CTR	200/5A
	Constant	2560 imp/mwh	PTR	33KV/110V
	Accuracy class	0.2s	Frequency	50 Hz
	Sample receiving date	16.09.2021	Test completion date	18.09.2021

5	Description of Equipment used for testing			
	Reference meter	EPZ303-08	Serial number	050023786
	Make	ZERA GmbH, Germany	Current range	10 mA - 120 A
	Accuracy class	0.02	Voltage range	60 V - 320 V
	Calibration certificate	No.ZIPL/2021/ECL/032	Calibration valid upto	10.03.2023

6	Testing specification	Reference Standard (Name of IS)	IS 14697 : 1999 (Reaffirmed 2014)

7	Environmental conditions	Temperature	27 ± 2°C
		Relative Humidity	< 75%
		Illumination	> 500 (lx)

8 Disclaimer:
(1) Result mentioned in this report only belongs to the above mentioned sample as received in the laboratory.
(2) The contents of the report shall not be reproduced either in full or in part without prior written consent of the laboratory head.
(3) The sample after test will be retained for maximum 30 days from the date of issue of the certificate.
(4) This tests are valid in the environment of testing, maintained in the laboratory.
(5) Reporting statements of conformity- As per decision rule.
(6) Star marked field indicate: Not under NABL scope.
(7) Sampling and preparation of sample not done by laboratory.
(8) Sample information supplied by customer only which may affect the validity of results.
(9) Reporting opinions and interpretations- NA.

CSPDCL/CTLD/LAB/FM/41

authorized signatory
(Avinash Chauhan)
Assistant Engineer(Tech. Manager)
CENTRAL TESTING LABORATORY DIVISION
CSPDCL, BHILAI

Chhattisgarh State Power Distribution Company Limited

Central Testing Laboratory Division

220 KV, Sub-Station Road, Bijli Nagar, Bhilai-3, Durg (C.G.) 490021
Email ID : eectlbhilai@gmail.com, Phone no.- 0788-2281013

TC-8192

GST NO : 22AADCC6047K1ZR | CIN NO U40108CT2003SGC01582Z | Page No.2 of 3

ULR	Test Report	Date of issue
TC819221000003060F	CSPDCL/CTLD/LAB/TR/09-21/4109	20.09.2021

Serial Number : CSE52170 | Make : SECURE

Sr. No.	Particulars of Test in Meter according to Reference IS Clause	Limits (Results should not Exceed as per Reference IS	Results Obtained	Remark
1	Limits of Error (IMPORT)	(% Error)		
	(Active) - (Confering to the test as per Clause No. 11.1 of IS 14697:1999)			
a	1% Ib at UPF	± 0.4%	0.046%	PASS
b	2% Ib 0.5 Lag	± 0.5%	0.016%	
c	2% Ib 0.8 Lead	± 0.2%	0.024%	
d	5% Ib UPF	± 0.2%	0.009%	
e	5% Ib 0.5 Lag	± 0.5%	0.070%	
f	5% Ib 0.8 Lead	± 0.2%	-0.014%	
g	10% Ib UPF	± 0.2%	0.005%	
h	10% Ib 0.5 Lag	± 0.3%	0.001%	
i	10% Ib 0.8 Lead	± 0.2%	-0.041%	
j	100% Ib UPF	± 0.2%	0.019%	
k	100% Ib 0.5 Lag	± 0.3%	0.031%	
l	100% Ib 0.8 Lead	± 0.2%	0.022%	
m	Imax UPF	± 0.2%	-0.031%	
n	Imax 0.5 Lag	± 0.3%	-0.023%	
o	Imax 0.8 Lead	± 0.2%	-0.015%	
	Reactive			
a	2% Ib 0.5 lag	± 0.5%	-0.028%	
b	2% Ib 0.8Lead	± 0.2%	0.020%	
c	10% Ib 0.5Lag	± 0.3%	-0.035%	
d	10% Ib 0.8Lead	± 0.2%	-0.040%	
e	100% Ib 0.5Lag	± 0.3%	-0.010%	
f	100% Ib 0.8Lead	± 0.2%	0.014%	
g	Imax 0.5Lag	± 0.3%	-0.038%	
h	Imax 0.8Lead	± 0.2%	-0.031%	
2	Test of meter Constant (Imax,UPF) (IMPORT)			
	(Confering to the test as per Clause No. 12.14 of IS 14697)			
(a)	Dosage Energy (kwh)	602.5824	-0.03%	
(b)	IR (Kwh): 778.547	±0.2%		
(c)	FR (Kwh): 1380.953			
(d)	Pulses / mwh	2560	2688	

Tested By :
ARVIND KUMAR VERMA
(TA Gr.II)LAB TECHNICIAN

Checked and Approved By :
Er. AVINASH CHAUHAN
TECHNICAL MANAGER

Chhattisgarh State Power Distribution Company Limited

Central Testing Laboratory Division

220 KV, Sub-Station Road, Bijli Nagar, Bhilai-3, Durg (C.G.) 490021
Email ID : eectlbhilai@gmail.com, Phone no.- 0788-2281013

TC-8192

GST NO : 22AADCC6047K1ZR | CIN NO U40108CT2003SGC01582Z | Page No.3 of 3

ULR	Test Report	Date of issue
TC819221000003060F	CSPDCL/CTLD/LAB/TR/09-21/4109	20.09.2021

Serial Number : CSE52170 | Make : SECURE

Sr. No.	Particulars of Test in Meter according to Reference IS Clause	Limits (Results should not Exceed as per Reference IS	Results Obtained	Remark
3	Limits of Error (EXPORT)	(% Error)		
	(Active) - (Confering to the test as per Clause No. 11.1 of IS 14697:1999)			
a	1% Ib at UPF	± 0.4%	0.036%	PASS
b	2% Ib 0.5 Lag	± 0.5%	0.053%	
c	2% Ib 0.8 Lead	± 0.2%	0.002%	
d	5% Ib UPF	± 0.2%	0.005%	
e	5% Ib 0.5 Lag	± 0.5%	0.092%	
f	5% Ib 0.8 Lead	± 0.2%	-0.034%	
g	10% Ib UPF	± 0.2%	0.012%	
h	10% Ib 0.5 Lag	± 0.3%	0.001%	
i	10% Ib 0.8 Lead	± 0.2%	-0.008%	
j	100% Ib UPF	± 0.2%	0.013%	
k	100% Ib 0.5 Lag	± 0.3%	0.032%	
l	100% Ib 0.8 Lead	± 0.2%	0.010%	
m	Imax UPF	± 0.2%	-0.038%	
n	Imax 0.5 Lag	± 0.3%	-0.013%	
o	Imax 0.8 Lead	± 0.2%	-0.033%	
	Reactive			
a	2% Ib 0.5 lag	± 0.5%	-0.049%	
b	2% Ib 0.8Lead	± 0.2%	0.021%	
c	10% Ib 0.5Lag	± 0.3%	-0.074%	
d	10% Ib 0.8Lead	± 0.2%	-0.026%	
e	100% Ib 0.5Lag	± 0.3%	-0.004%	
f	100% Ib 0.8Lead	± 0.2%	0.019%	
g	Imax 0.5Lag	± 0.3%	-0.034%	
h	Imax 0.8Lead	± 0.2%	-0.022%	
4	Test of meter Constant (Imax,UPF) (EXPORT)			
	(Confering to the test as per Clause No. 12.14 of IS 14697)			
(a)	Dosage Energy (kwh)	602.5872	-0.03%	
(b)	IR (Kwh): 2168.325	±0.2%		
(c)	FR (Kwh): 2770.730			
(d)	Pulses / mwh	2560	2688	

Tested By :
ARVIND KUMAR VERMA
(TA Gr.II)LAB TECHNICIAN

Checked and Approved By :
Er. AVINASH CHAUHAN
TECHNICAL MANAGER

---End of test report---

अनुसूची-VIII

पुस्तक क्रमांक : 092022 | नियम 16(3) देखिये | अनुक्रमांक : 0883

छत्तीसगढ़ शासन

कार्यालय नियंत्रक विधिक मापविज्ञान

सत्यापन का प्रमाणपत्र

दिनांक 23/09/2022

विधिक मापविज्ञान अधिकारी का नाम **Mr Kamal Kumar Jain** क्र. **23**

मैं एतद द्वारा प्रमाणित करता हूँ की मैंने आज नीचे दर्शाये बाट माप इत्यादि को सत्यापित तथा स्टाम्पित कर दिया है ।

मेसर्स/श्री : **SHRI SHYAM WAREHOUSING & POWER PVT. LTD** , पता:- **Village/Post - Banari,Dist. Janjgir-Champa 495668,** तहसील:- नवागढ़, जिला:- जांजगीर-चाम्पा

क्रमांक	गैर स्वचालित तौल उपकरण									परिवहन,वहन समायोजन व्यय इत्यादि
	वर्ग/उपकरण का प्रकार(क्षमता)	अधिमान अधिकतम(टन में)	अधिमान न्यूनतम(किलोग्राम में)	स्केल भेणी	स्केल अंतराल(किलोग्राम में)	कंपनी का नाम(मेक)	मशीन का मॉडल नं.	उपकरण का सरल क्रमांक.	सत्यापन शुल्क	
1	गैर-स्वचालित तौल उपकरण- इलेक्ट्रानिक वर्ग 3 तथा 4/(100 टन)	100	200	III	10/20	KANAN WEIGHING MACHINE	KWS/CK	60711A	5000	

कुल जमा रू : **5000** चालान/ममी रसीद क्रमांक : **66290922000478** भुगतानकर्ता का नाम : **RAMESH SULTANIA** दिनांक : **16/09/2022** द्वारा सुधार किया गया/उपयोग किया गया ।

अन्य शुल्क रु : **NA** , अन्य शुल्क का रसीद क्रमांक : **NA** , अन्य शुल्क का कारण : **NA**

अगले सत्यापन का दिनांक **21/09/2023**

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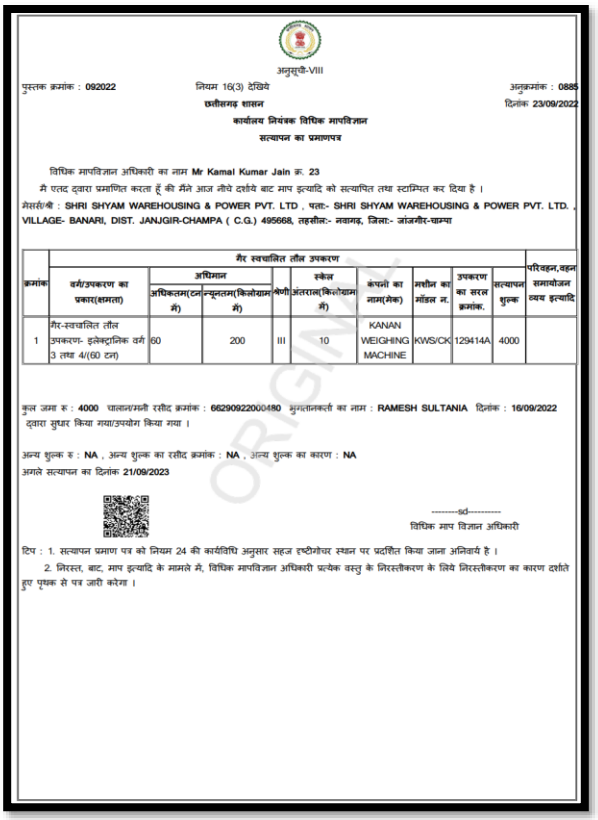
विधिक माप विज्ञान अधिकारी

टिप : 1. सत्यापन प्रमाण पत्र को नियम 24 की कार्यविधि अनुसार सहज दृष्टीगोचर स्थान पर प्रदर्शित किया जाना अनिवार्य है ।

2. निरस्त, बाट, माप इत्यादि के मामले में, विधिक मापविज्ञान अधिकारी प्रत्येक वस्तु के निरस्तीकरण के लिये निरस्तीकरण का कारण दर्शाते हुए पृथक से पत्र जारी करेगा ।



अनुसूची-VIII

पुस्तक क्रमांक : 092022 नियम 16(3) देखिये अनुक्रमांक : 0885

छत्तीसगढ़ शासन दिनांक: 23/09/2022

कार्यालय नियंत्रक विधिक मापविज्ञान

सत्यापन का प्रमाणपत्र

विधिक मापविज्ञान अधिकारी का नाम Mr Kamal Kumar Jain क्र. 23

मैं एतद द्वारा प्रमाणित करता हूँ की मैंने आज नीचे दर्शाये बाट माप इत्यादि को सत्यापित तथा स्टाम्पित कर दिया है ।

मेसर्स/श्री : SHRI SHYAM WAREHOUSING & POWER PVT. LTD , पता:- SHRI SHYAM WAREHOUSING & POWER PVT. LTD. , VILLAGE- BANARI, DIST. JANJGIR-CHAMPA (C.G.) 495668, तहसील:- नवागढ़, जिला:- जांजगीर-चाम्पा

क्रमांक	गैर स्वचालित तौल उपकरण									परिवहन,वहन समायोजन व्यय इत्यादि
	वर्ग/उपकरण का प्रकार(क्षमता)	अधिमान अधिकतम(टन में)	अधिमान न्यूनतम(किलोग्राम में)	श्रेणी	स्केल अंतराल(किलोग्राम में)	कंपनी का नाम(मेक)	मशीन का मॉडल नं.	उपकरण का सरल क्रमांक.	सत्यापन शुल्क	
1	गैर-स्वचालित तौल उपकरण- इलेक्ट्रानिक वर्ग 3 तथा 4/(60 टन)	60	200	III	10	KANAN WEIGHING MACHINE	KWS/CK	129414A	4000	

कुल जमा रु : 4000 चालान/मनी रसीद क्रमांक : 66290922000480 भुगतानकर्ता का नाम : RAMESH SULTANIA दिनांक : 16/09/2022 द्वारा सुधार किया गया/उपयोग किया गया ।

अन्य शुल्क रु : NA , अन्य शुल्क का रसीद क्रमांक : NA , अन्य शुल्क का कारण : NA

अगले सत्यापन का दिनांक 21/09/2023

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विधिक माप विज्ञान अधिकारी

टिप : 1. सत्यापन प्रमाण पत्र को नियम 24 की कार्यविधि अनुसार सहज दृष्टीगोचर स्थान पर प्रदर्शित किया जाना अनिवार्य है ।

2. निरस्त, बाट, माप इत्यादि के मामले में, विधिक मापविज्ञान अधिकारी प्रत्येक वस्तु के निरस्तीकरण के लिये निरस्तीकरण का कारण दर्शाते हुए पृथक से पत्र जारी करेगा ।

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

SCALE - Large Scale

CATEGORY - ***UNFCCC CDM AMS-I.C. Small-scale Methodology***
Thermal energy production with or without electricity Version 22.0

Typical project(s): Thermal energy production using renewable energy sources including biomass-based cogeneration and/or trigeneration. Projects that seek to retrofit or modify existing facilities for renewable energy generation are also applicable.

Type of GHG emissions mitigation action: Renewable energy. Displacement of more-GHG-intensive thermal energy production, displacement of more-GHG-intensive thermal energy and/or electricity generation. 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 (capacity expansion projects).

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

Applicability: Biomass-based cogeneration and trigeneration systems are included in this category. Emission reductions from a biomass cogeneration or trigeneration system can accrue from the following activities:
(a) Electricity supply to a grid

For project activities that do not displace captive electricity generated by an existing plant but displace grid electricity import and/or supply electricity to a grid, the emission factor of the grid shall be calculated as per the procedures detailed in AMS-I.D.

UCR CoU Standard is used to determine the baseline grid emission factor for the 2013-2022 period for conservativeness has been considered.

Application of methodologies and standardized baselines

- The project activity involves the generation of electricity from the combustion of rice husk, a renewable biomass and the electricity is supplied to the grid. Since the project activity utilises biomass (rice husk) 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 a biomass-based cogeneration plant producing both heat and electricity. The total installed capacity of project activity is 10 MW which is below the small scale specified limit of 15MW. The project is a biomass based co-generating system that supplies electricity (i) to the grid, (ii) thermal energy to the existing facilities. The project activity claims for emission reductions only from the supply of electricity to the grid.

- The project activity involves the installation of 10MW biomass cogeneration system at the adjacent rice mill. It is physically distinct from the existing units as a new set of equipment has been installed as part of the project activity which are not connected to the existing equipment, thus meeting the criteria of the methodology.

- There is no CDM registered project of the same category & technology as the project activity within 1 km of the project boundary.

- The project activity is a new power plant and does not involve retrofit or modification of an existing facility. The steam produced is used for captive consumption by the adjacent rice mill and not delivered to another facility or facilities within the project boundary.

- 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 is not using biomass fuel in briquette form.

- The Project Activity uses biomass residues from a production process (e.g., production of rice in mill), 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., rice) or in other substantial changes (e.g., product change) in this process.

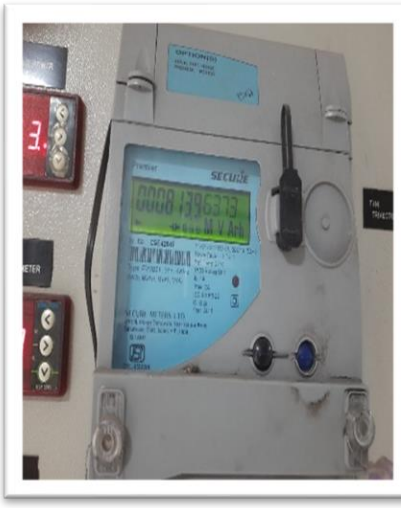
- The project activity is not charcoal based biomass energy generation. The project activity unit does not exceed the limit of 25% co-firing fossil fuel criteria as per the UCR Protocol for such projects. Co-firing with rice husk is limited to 15% with coal fines within the project activity.

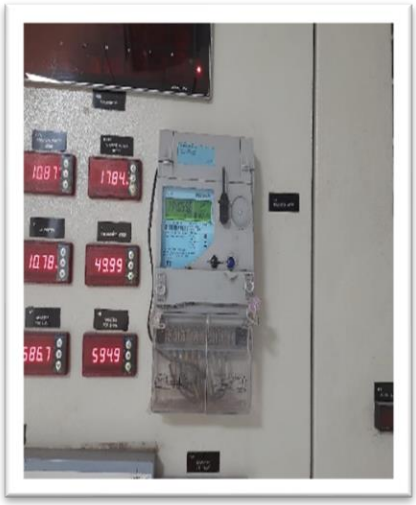
- Biomass generated power is used for direct grid supply and for meeting the captive needs at the facility. The project activity involves the grid-connected rice husk-based electricity generation capacity involving the installation of facilities for allowing the export of electricity to the regional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

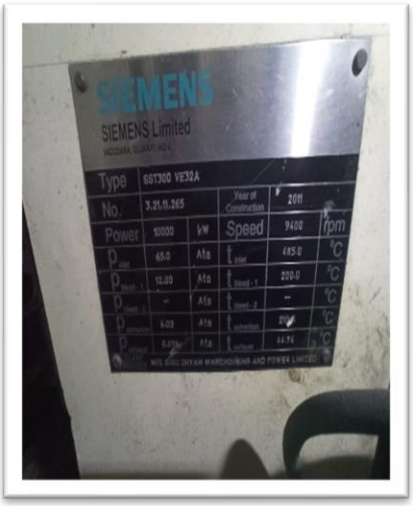
- The project activity also does not include any GHG emissions related to the decomposition or burning of biomass. The baseline heat emissions for the project activity are not included in the project boundary nor does it claim for emission reductions from heat.

- The project activity is a co-fired system uses both fossil and renewable fuel in the production of electricity with the total thermal installed capacity of 39.5MWh which is

less than the 45MWh. As the project activity is claiming the emission reductions solely on account of the electrical energy production, the small-scale limit for the project activity was confirmed since the project activity involves the installation of 10MW biomass cogeneration system at the adjacent rice mill. It is physically distinct from the existing units as a new set of equipment has been installed as part of the project activity which are not connected to the existing equipment, thus meeting the criteria of the methodology.







Applicability of double counting emission reductions

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

The UCR project activity had been validated and registered as a prior UNFCCC CDM project activity under the title: Biomass based power project by Shri Shyam Warehousing and Power Pvt. Ltd. (Project ID 7261). Details as below:

CDM Registration Date	13/12/2012
Crediting Period	13/12/2012-12/12/2019 (Renewable – Expired) Renewal under CDM no longer possible
CERs Issued (Period 1)	None
Monitoring Report (Period 1)	13/12/2012 to 31/12/2015. Displayed on the CDM Registry

The PP has indicated that they would not be pursing the CDM program for carbon credits from 01/01/2013 onwards and since the project activity has never been issued voluntary carbon credits for the 2012-2015 period, the current (1st) UCR monitored period is for 2013-2022 vintage years.

Hence the UCR project activity has never been issued voluntary carbon credits for the current 2013-2022 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 the PP dated 17/11/2023.

Project boundary, sources and greenhouse gases (GHGs)

As per the methodology, the spatial extent of the project boundary encompasses:

(a) All plants generating electricity and/or thermal energy located at the project site, whether 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;
(c) Industrial, commercial or residential facility, or facilities, consuming energy generated by the system and the processes or equipment affected by the project activity;
(d) The project power plant and all power plants connected physically to the electricity system that the project activity is connected to.

Hence, the project boundary of the project activity includes the following:

- Adjacent rice mill
- Biomass storage area
- Steam and power generating equipment i.e., boiler and turbine
- Regional grid

Leakage Emissions (LE_Y)

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

Hence **$LE_Y = 0$**

	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.
Project Activity	On-site fossil fuel co-firing and electricity consumption due to the project activity (stationary or mobile) Cultivation of biomass	CO_2	**Included**	Fossil fuel co-fired with biomass is included as a project emission source. For microscale and small-scale project activities, a default emission factor for accounting cultivation of rice husk is recommended and applied. Diesel CO_2 emissions are negligible and neglected. This is conservative. Consumption of diesel in DG set is for catering for emergency start-up requirements.
		CH_4	Excluded	Excluded for simplification. This is conservative.
		N_2O	Excluded	Excluded for simplification. This is conservative.

Project Emissions (PE_y)

The project emissions (PE_y) under the methodology may include:

- CO_2 emissions from transportation of biomass residue to the project site,
- CO_2 emissions from on-site consumption of fossil fuels due to project activity,

The project activity derives energy from co-fired (biomass and coal) co-generation system that provides thermal & electrical energy (the ratio of coal does not exceed 25% as per the UCR guidelines). The net electricity supplied to the grid displaces an equivalent quantity of electricity from the grid system which is predominantly fossil fuel based. Thus the project activity displaces fossil fuel. However, project emissions arise from the CO_2 emissions due to the on-site consumption of fossil fuels due to the project activity. As the project activity uses between 5-15% coal fines, we consider project emissions due to the consumption of coal. These emissions are

calculated as per the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion".

where

$PE_{FC,j,y}$ = 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 CO_2 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:"

$$COEF_{iy} = NCV_{iy} \text{ X } EF_{CO2,I,y}$$
$$COEF_{iy} = 0.0142358 \text{ x } 0.09970$$
$$COEF_{iy} = 0.001419305$$

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:	$COEF_{I,y} = NCV_{i,,y} \times EFCO_{2\,i\,y}$	= 0.0142358 GJ/kg x 0.09970 tCO2e/GJ = 0.001419305 tCO2e/kg

Establishment and description of baseline scenario (UCR Protocol)

The approved 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.

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."

For project activities that do not displace captive electricity generated by an existing plant but displace grid electricity import and/or supply electricity to a grid, the emission factor of the grid shall be calculated as per the procedures detailed in AMS-I.D

The applicable baseline scenario is:
"Displacement of more-GHG-intensive electricity generation in grid."

PE_y = Project activity emissions

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 (rice husk) transportation, PP 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)

Leakage due to transport of the biomass to the project site: PP conducted a biomass assessment study in the study area of 75 kilometres around the project boundary. This biomass assessment study was performed by an independent party and was approved by the nodal agency 'Chhattisgarh State Renewable Energy Development Agency' (CREDA). As all the biomass fuel will be available from within 75 km radius of project site and is in surplus of more than 25%, there are no leakage emissions to be considered. In accordance with the footnote of the methodology AMS I.C, since the transport of biomass is from within 200 kilometres, the emissions related to transport of biomass can be neglected. Hence leakage emissions in this case can be neglected.
LEy = Leakage emissions = 0

For this methodology, it is assumed that transmission and distribution losses in the electricity grid are not influenced significantly by the project activity and are therefore not accounted for and also the UCR grid emission factor results in conservative estimates of the carbon credits.

Baseline emissions in year y (tCO_{2eq}):

BEy = EGpj,y * EF grid,y

Where:

EG grid,y = Quantity of net electricity generation that is fed into the local grid as a result of the

implementation of the project activity in year y (MWh)

EFgrid,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).

PEy = Project activity emissions/yr = 0.0142 x Biomass Consumption (MT)/year

Quantity of Fuel Consumed and Power Exported:

Year	Biomass Quantity Consumed (Tonnes)	Coal Quantity Consumed (Tonnes)	Net Power Exported KWh
2013	85748.166	15132.034	69495620
2014	91652.436	15076.897	71581200
2015	92482.737	15247.843	73661460
2016	90132.400	14463.879	72554940
2017	95121.372	16654.624	72513617
2018	90706.585	14798.512	72187128
2019	77943.711	10392.955	60085950
2020	102218.342	11442.743	72731750
2021	92734.381	15189.233	62441800
2022	108513.001	9889.996	73420475
TOTAL	**927253.13**	**138288.72**	**700673940**

Emission Reductions:

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 i.e., coal and biomass:

$ER_y = BE_y - (PE_{coal} + PE_{biomass})$

$ER_y = 630603 – (196275 + 13171) = 4,21,157\ tCO_2$

Year	Net Power Exported MWh	Baseline Emission Reductions tCO_{2eq}	Project Emissions (Coal) tCO_{2eq}	Project Emissions Biomass Cultivation tCO_{2eq}	Emission Reduction tCO_{2eq}
2013	69495.620	62546	21477	1218	39851
2014	71581.200	64423	21399	1302	41722
2015	73661.460	66295	21641	1314	43340
2016	72554.940	65299	20529	1280	43490
2017	72513.617	65262	23638	1351	40273
2018	72187.128	64968	21004	1289	42675
2019	60085.950	54077	14751	1107	38219
2020	72731.750	65458	16241	1452	47765
2021	62441.800	56197	21558	1317	33322
2022	73420.475	66078	14037	1541	50500
TOTAL	**700673.940**	**630603**	**196275**	**13171**	**421157**

Total Emission Reductions (ER_y) = **4,21,157** tCO_2 (**4,21,157** 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 AMS-I.C. Small-scale Methodology Thermal energy production with or without electricity Version 22.0, 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 - Biomass based power project by Shri Shyam Warehousing and Power Pvt. Ltd, Banari, Chhattisgarh, India (UCR ID – 352) for the period **01/01/2013 to 31/12/2022** amounts to **4,21,157 tCO_2 (4,21,157 CoUs)**

SQAC Certification Pvt. Ltd. Mapusa-Goa

Santosh Nair
Lead Verifier (Signature)

Praful Shinganapurkar
Senior Internal Reviewer (Signature)

Date: 21/11/2023