



SQAC CERTIFICATION PVT.LTD.

Verification Report for

Project : SBPIL Waste Heat to Power Project, Tilda, India.

UCR Project ID : 396

Name of Verifier	SQAC Certification Pvt. Ltd.
Date of Issue	February 03, 2024
Project Proponent	M/s Shri Bajrang Power and Ispat Limited (SBPIL)
UCR Project Aggregator	M/s Carbon Equalizers.
Work carried by	Mr. Santosh Nair
Work reviewed by	Mr. Praful Shinganapurkar

Summary:

SQAC Certification Pvt. Ltd. has performed verification of the “SBPIL Waste Heat to Power Project, Tilda, India”. The project activity is the utilisation of waste heat of flue gases generated in Direct Reduced Iron (DRI) kilns of sponge iron plants of SBPIL (Project Proponent or PP hereafter) in power generation. The power produced is used actively at the sponge iron interconnected plants of the PP within the project boundary. Apart from the utilization of the power at the sponge iron plant, the surplus power generated by the Waste Heat Recovery Boilers (WHRB) plant is consumed by the adjoining steel plant owned by SBPIL which is within the same boundary as the WHRB plant. The project activity results in reduced carbon emissions by displacing equivalent amount of power generation in Chhattisgarh State Electricity Board (CSEB) grid.

The project activity meets the following UN SDG's:



Verification for the period: **01/04/2013 - 31/12/2022** (9 years 9 months)

The GHG emission reductions were calculated on the basis of UCR Protocols which draws reference from, UCR Protocol Standard Baseline, CDM UNFCCC Methodology, ACM0012 Waste energy recovery Version 6.0. The verification was done was done remotely by way of video calls / verification, phone

Accredited by 5 Jupiter House, Callera Park, Aldermaston, Reading Berkshire RG7 8NN, United Kingdom (UK).

India Office: Off. No. 4, Fifth Floor, Buildmore Business Park, New Canca Bypass Road, Khorlim, Mapusa, Goa – 403 507

Web: www.sqac.in

Email: info@sqac.in Tel: 7219716786 / 87





calls and submission of documents for verification through emails.

SQAC is able to certify that the emission reductions from SBPIL Waste Heat to Power Project, Tilda, India, (UCR ID – 396) for the period **01/04/2013** to **31/12/2022** amounts to **8,30,253 CoUs (8,30,253 tCO₂eq)**

Detailed Verification Report:

Purpose:

Shri Bajrang Power and Ispat Limited (“SBPIL”) belongs to GOEL GROUP of Industries based out of central India and is one of the players in India in terms of capacity for iron ore pellets, iron ore beneficiation and sponge iron.

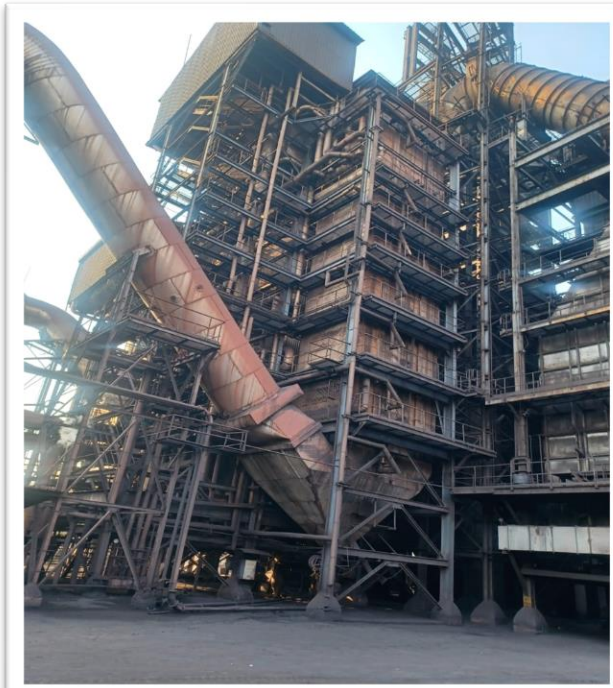
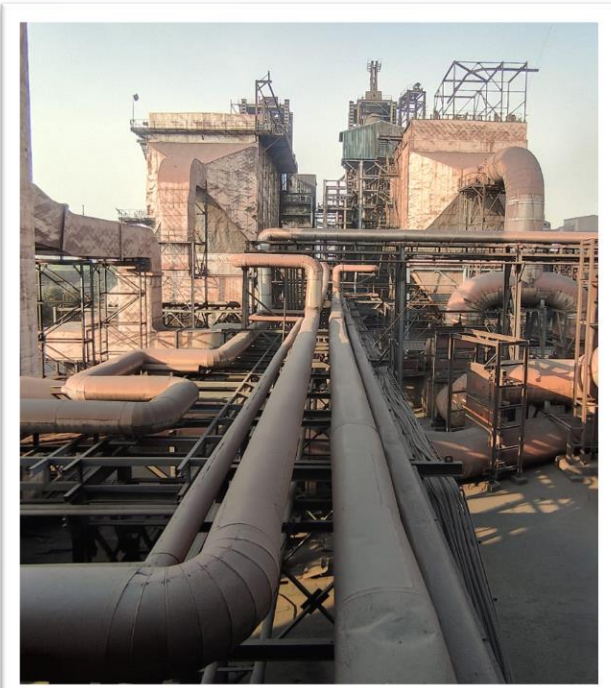
The project activity entails utilisation of waste heat of flue gases generated in Direct Reduced Iron (DRI) kilns of sponge iron plants of SBPIL in power generation. DRI, is a type of kiln used in the production of sponge iron, where iron ore is reduced to sponge iron using coal & Iron ore through a rotary kiln at high temperature (1000°C). The reduction process yields carbon di-oxide and carbon monoxide. The power produced is used actively at the sponge iron interconnected plants of the PP within the project boundary.

Apart from the utilization of the power at the sponge iron plant, the surplus power generated by the Waste Heat Recovery Boilers (WHRB) plant is consumed by the adjoining steel plant owned by SBPIL which is within the same boundary as the WHRB plant.

Commissioning dates of WHRBs (dd/mm/yyyy)	
WHRB-1	31/03/2013
WHRB-2	25/06/2019
WHRB-3	11/10/2023

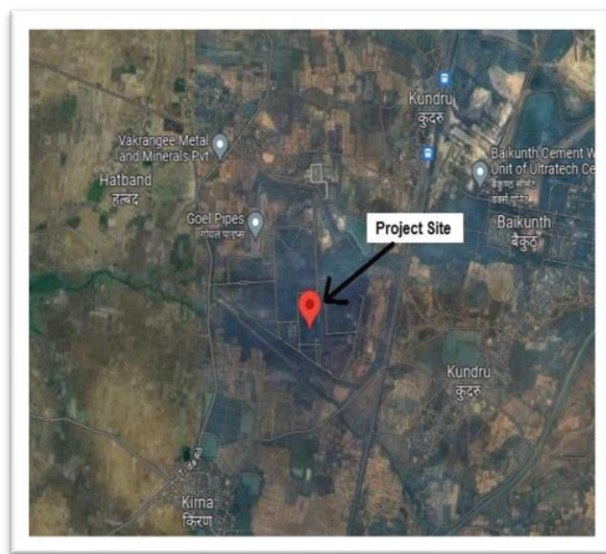
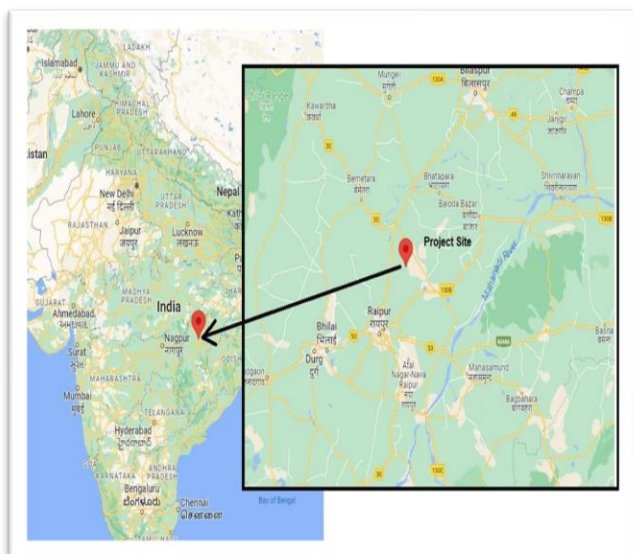
The start date of the project activity is the commissioning date of the initial WHRB which is 31/03/2013.

Thus, the power from the WHRB plant, displaces equivalent amount of power from the Chhattisgarh State Electricity Board (CSEB) grid. The project activity results in reduced carbon emissions by avoiding generation of this power in grid connected power stations. The grid emission factor for Western Region grid is as the recommended UCR conservative estimate for the years 2013-2022.



Location of project activity:

Village : Tandawa and Kundru,
 Tehsil : Tilda,
 District : Raipur,
 State : Chhattisgarh,
 Country : India.
 Latitude : 21°29'10.4"N
 Longitude : 81°46'11.5"E



Scope:

The scope covers verification of emission reductions from the project - SBPIL Waste Heat to Power Project, Tilda, India, (UCR ID – 396).

Criteria:

Verification criteria is as per the requirements of UCR Standard.

Description of project:

SBPIL has set up 03 nos. WHRBs of 63 TPH each at its sponge iron production unit. The DRI gas, as it comes out after burning chamber, contains sufficient quantity of heat energy that if not recovered would be wasted. A 600 TPD DRI Kiln for sponge iron production emits normally around 1,45,000



Nm³/hour of hot gas at a temperature of 950°C -1000°C.

This waste heat of flue gases is utilised in the generation of steam in (WHRB), which is further expanded in two turbines with total installed capacity 46 MW (16 MW+ 30 MW) to generate power. Steam from 03 nos. WHRBs is taken to the turbines through a common header.

The project activity is the installation of WHRBs and turbine generators to generate electrical power from the waste heat gases produced during the manufacture of sponge iron. In the absence of the project activity, SBPIL would draw power from CSEB grid, which in turn generates power from fossil fuel power plants. The project activity thus displaces equivalent amount of power generation in Western Region grid connected power stations.

As per the approved UNFCCC CDM methodology, the useful energy generated from the utilization of waste energy carried in the project activity is for - Generation of electricity.




The project activity has displaced ~922506 MWh in net electricity over the monitored period generation from the Indian grid system, which otherwise would have been generated by the operation of fossil fuel-based grid-connected power plant.

The calculated CO₂e emission reductions by the project activity are 8,30,253 tCO₂e, during the first CoU period.

United Nations Sustainable Development Goals:

The project activity displaces CSEB grid power, part of WR grid, which is predominantly fossil fuel based. In the absence of the project activity equivalent amount of power generation would have taken place through fossil fuel dominated power generating stations.

Positive contribution of the project to the following Sustainable Development Goals:

Development Goals	Targeted SDG	Target Indicator (SDG Indicator)
13 CLIMATE ACTION  SDG 13: Climate Action	13.2: Integrate climate change measures into national policies, strategies and planning Target: 830253 tCO₂ for this monitored period	13.2.1: Number of countries that have communicated establishment or operationalization of an integrated policy/ strategy/ plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)
7 AFFORDABLE AND CLEAN ENERGY  SDG 7: Affordable and Clean Energy	By 2030, increase substantially the share of non fossil energy in the global energy mix Target: 922506 MW_h supplied for this monitored period	The project activity helps reducing GHG emission in power generation in the grid, which is primarily fossil fuel based
8 DECENT WORK AND ECONOMIC GROWTH  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, O&M staff	8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities The project activity provides direct employment to over 2150 people. The employment involves tribal people also who are more than 40% in population and also are now well qualified as well as competent to take the employment in the steel industry

**Level of Assurance:**

The verification report is based on the 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 Lead Verifier, Mr. Santosh Nair, who is experienced in such projects.

Documentation Verified:

- Project Concept Note (PCN)
- Monitoring Report (MR)
- Commissioning Certificate
- Calibration report
- Data provided upon request of all the documents of the related projects.

Sampling:

Not applicable

Persons interviewed:

1. Mr. Y K Aditya - GM Electrical : M/s Shri Bajrang Power and Ispat Limited (SBPIL).
2. Mr. Sandeep Sharma – AGM (Energy & Carbon Credit Management) M/s Shri Bajrang Power and Ispat Limited (SBPIL).

Documentation Verified:

- Project Concept Note (PCN)
- Monitoring Report (MR)
- Calibration Reports
- Commissioning Certificates
- Energy Meter Log Sheets



F. No. J-11011/394/2009- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi - 110 003
E-mail: shuja.rao@nic.in
Tele/fax: 011 - 2436 3973
Dated: 23rd May, 2012

To,
The Director,
M/s Shri Bajrang Power and Ispat Ltd
Village Borjhara, Urla Gumma Road
Raipur- 493221, Chhattisgarh

Fax: 0771- 2232601 / 602

Sub: Expansion of Iron Ore Beneficiation Plant and Pelletization Plant (Integrated Steel Plant) at Villages Tandwa & Kundru, Tehsil Tilda, District Raipur, Chhattisgarh by M/s Shri Bajrang Power and Ispat Limited - regarding environmental clearance

Sir,
This has reference to your letter no. nil dated 11th January, 2012 along with copies of EIA/EMP and Public hearing reports and subsequent communication dated 7th March, 2012 seeking environmental clearance under the provisions of EIA Notification, 2006.

2. The Ministry of Environment and Forests has examined your application. It is noted that M/s Shri Bajrang Power & Ispat Ltd. have proposed to expand the Iron Ore Beneficiation Plant from 0.6 MTPA to 2.0 MTPA and Pelletization Plant from 0.6 MTPA to 1.4 MTPA within the integrated steel plant at Villages Tandwa & Kundru, Tehsil Tilda, District Raipur, Chhattisgarh for which environmental clearance was accorded on 6th October 2010. The land requirement for the pelletization plant is about 15 acres and beneficiation plant is about 21.6 acres. The expansion will be carried within the existing project area of 348.89 acres. No additional land is required for the proposed expansion. The existing plant is at the construction stage. Rivers Shivnath & Khanur are flowing at a distance of 13.5 km & 15 km respectively from the project site. Bilari Reserve Forest is at a distance of 10 km from the project site. No national park/wild life sanctuary is located within 10 km radius of the project site. The raw material requirement will be iron ore fines, coke breeze, dolomite, and limestone. The iron ore fines will be obtained from the NMCC/captive iron mine and open market. Other raw materials will be purchased from the open market. Total cost of the Integrated Steel Plant project is Rs.1,500.00 Crores. Rs. 6 Crores and Rs. 0.6 Crore are earmarked towards total capital cost and recurring cost/annum for environmental pollution control measures.

3. The details of the facilities and production capacities are given below:

Facilities	Phase-I	Phase-II	Proposed Expansion	Total
Sponge Iron	4 X 0.15 MTPA	-	-	0.60 MTPA
Hot Re-rolling Mill	2 X 0.20 MTPA	-	-	0.40 MTPA
Coal Washery	2 X 1.20 MTPA	-	-	2.40 MTPA
Captive Power Plant (WHRB)	5 X 10 MW	25 MW using coke oven gas	-	75 MW
Power Plant (AFBC)	2 X 25 MW	-	-	50 MW
Steel Melting	2 X 0.25 MTPA	0.50 MTPA	-	1.00 MTPA

C/DPCL

Chhattisgarh State Power Distribution Company Limited
Central Testing Laboratory Division
220 KV, Sub-Station Road, Bili Nagar, Bhamra, Distt. Raipur (C.G.) 491001
Email ID: cec@bhamra@gmail.com, Phone no. - 0778-2281013



GST NO : 22AADCC6047K12R CIN NO U40108CT2003SGC01582Z Page No.1 of 3

ULR TC819222000000214F Test Report No. CSPOCL/CTLD/LAB/TR/03-22/6377 Date of Issue 04.03.2022

1	Customer Details	Name Address Reference No.	M/S. SHRI BAJRANG POWER & ISPAT LTD. (BP NO. - 1006433) VILL. - TANDWA, TILDA, DISTT. - RAIPUR (C.G.) 14487030202
2	Letter receipt no. & date of receipt	2006/01.03.2022	
3	Location of test performed	Central Testing Laboratory Dn., Bhamra-3 (C.G.)	
4	Description of sample	Nature of Sample Make Serial number Type / Model Complaint Accuracy class Sample receiving date	3PH - 4W BIDIREC. ENERGY METER SECURE X1389773 E3M024/PREMIER 300 400 Imp/Imp/h 0.2s 01.03.2022

5	Description of Equipment used for testing	Serial number Make Accuracy class Calibration certificate	050023786 ZERA GmbH, Germany 0.02 No-ZPL/2021/EC/032
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6	Testing specification	Reference Standard (Name of IS)	IS 14697 : 2021
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7	Environmental conditions	Temperature Relative Humidity Illumination	27 ± 2°C < 75% > 500 lx
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8. Declaration:
(i) Result mentioned in this report only belongs to the above mentioned sample as received in the laboratory.
(ii) The contents of the report shall not be reproduced either in full or in part without prior written consent of the laboratory head.
(iii) The sample after test will be retained for maximum 30 days from the date of issue of the certificate.
(iv) This tests are valid in the environment of testing, maintained in the laboratory.
(v) Reporting statements of conformity As per division rule.
(vi) Star marked field indicates: Not under NABL scope.
(vii) Sampling and preparation of sample not done by laboratory.
(viii) Sample information supplied by customer only which may affect the validity of results.
(ix) Reporting options and interpretation: NA.

CSPOCL/CTLD/LAB/FM/41

Authorized signatory

(Rakesh Chaudhary)

Assistant Engineer(Tech. Manager)
CENTRAL TESTING LABORATORY DIVISION
CSPOCL, BHILAI

Certificate of Boiler/Economizer under scheme of Government of Chhattisgarh 'Self Certification of Boiler'

Self Certification No. - 224131737559
Udayam Aakanksha No. - 11503293353051

Ref No. - 0900045502

- Enterprise Name - *Shri Bajrang Power and Ispat Limited*
- Name of Owner - *Shri C K Puthak*
- Designation of Owner - *Sr GM PP*
- Registry number of Boiler/Economizer - *CG/760*
- Type of Boiler/Economizer - *WHRB*
- Boiler/Economizer Rating (M²) - *3755*
- Place & Year of Manufacture - *Pune, Year 2012*
- Maximum Continuous Evaporation - *63*
- Location of Boiler/Economizer - *Tilda*
- Details of repairs carried out - *NA*
- Hydraulically tested on - *11/07/2021 to 100 kg/cm²*
- Inspection Date - *01/07/2022*
- Approved working pressure - *80 kg/cm²*

I have inspected the above boiler/economizer as required under Notification No - *F-8-22011/11/6* dated *20/03/2015* of Government of Chhattisgarh and I hereby, certify that the boiler/ economizer is fit for further use at the approved working pressure i.e. - *80 Kg/cm²* for twelve months i.e. from *01/07/2022 to 30/06/2023*

Countersigned by Repairer
(In case of repairs only)

Signature - *SD/-*
Name -
Class of Recognition -
Validity -
Address -

Signature - *SD/-*
Name of Boiler operation Engineer - *MURLI DHAR*
Certificate Number and issuing authority - *38*
Endorsement Number in Chhattisgarh (if applicable) - *NA*
Address - *Shri Bajrang Power & Ispat Ltd, Housing Colony Tandwa, Tilda, Raipur*

Signature - *SD/-*
Name of Owner under Section 2(d) of the Boiler Act, 1923 -
Address -

Date - *01/07/2022*
Place - *Tandwa, Tilda, Raipur (C.G.)*

ACKNOWLEDGMENT

Details of certificate and challan recorded in Memorandum Of Inspection Book and one copy of certificate returned to owner.
Date - *01/07/2022*
Place - *Tandwa, Tilda, Raipur (C.G.)*



Generated On- 10/07/2022 00:10:25

Gunjan Shukla
Chief Inspector Of Boilers
Chhattisgarh

This is computer generated certificate and does not require seal and signature. This certificate can be verified online at <http://eg.nic.in/boiler> through Ref No. and Self Certification No.

Certificate of Boiler/Economizer under scheme of Government of Chhattisgarh 'Self Certification of Boiler'

Self Certification No. - 224131738540
Udayam Aakanksha No. - 11503293353051

Ref No. - 1019717983

- Enterprise Name - *Shri Bajrang Power and Ispat Limited*
- Name of Owner - *Shri C K Puthak*
- Designation of Owner - *AI/P PP*
- Registry number of Boiler/Economizer - *CG/1169*
- Type of Boiler/Economizer - *WHRB*
- Boiler/Economizer Rating (M²) - *6011*
- Place & Year of Manufacture - *Bamuna Nagar, Year 2018*
- Maximum Continuous Evaporation - *63.2*
- Location of Boiler/Economizer - *Tilda*
- Details of repairs carried out - *NA*
- Hydraulically tested on - *14/01/2023 to 104 kg/cm²*
- Inspection Date - *14/01/2023*
- Approved working pressure - *82.5 kg/cm²*

I have inspected the above boiler/economizer as required under Notification No - *F-8-22011/11/6* dated *20/03/2015* of Government of Chhattisgarh and I hereby, certify that the boiler/ economizer is fit for further use at the approved working pressure i.e. - *82.5 Kg/cm²* for twelve months i.e. from *14/01/2023 to 13/01/2024*

Countersigned by Repairer
(In case of repairs only)

Signature - *SD/-*
Name -
Class of Recognition -
Validity -
Address -

Signature - *SD/-*
Name of Boiler operation Engineer - *MURLIDHAR*
Certificate Number and issuing authority - *38*
Endorsement Number in Chhattisgarh (if applicable) - *NA*
Address - *SBPL COLONY TANDWA, NEAR TILDA, RAIPUR*

Signature - *SD/-*
Name of Owner under Section 2(d) of the Boiler Act, 1923 -
Address -

Date - *14/01/2023*
Place - *Tilda, Raipur*

ACKNOWLEDGMENT

Details of certificate and challan recorded in Memorandum Of Inspection Book and one copy of certificate returned to owner.
Date - *14/01/2023*
Place - *Tilda, Raipur*



Generated On- 16/01/2023 13:31:31

Gunjan Shukla
Chief Inspector Of Boilers
Chhattisgarh

This is computer generated certificate and does not require seal and signature. This certificate can be verified online at <http://eg.nic.in/boiler> through Ref No. and Self Certification No.



CIN-U40108CT2003SGC015820

CHHATTISGARH STATE POWER TRANSMISSION COMPANY LIMITED
(A Govt. of Chhattisgarh Undertaking)

OFFICE OF THE S. E. (S/S-O&M) CIRCLE

Daganiya : Raipur-492013, Telephone / Fax no. 2574749, E-Mail - SE.TnC@cseeb.gov.in

NO.10-60/Synchro-Shri Bajrang/ 704

Raipur, Dtd : 21/08/2019

To

The Executive Director (S/s O&M),
CSPTCL, Raipur.

Sub :- Synchronization & parallel running of 30 MW VHR generating set of M/s Shri Bajrang Power & Ispat Limited at village Tandwa, Dharsiva-Tilda Road, Tahsil-Tilda, Distt : Raipur with CSPTCL grid on 132 KV from 220/132 KV Substation, Kuthrel.

Ref :- (1) CE(C&RA), CSPTCL, Raipur's letter no. 02-12/C&P/SBPIL/371, Dtd : 22-07-2019.
(2) Your office letter no.02-07/SE/933, Dtd : 25-07-2019.

In the above context, it is to intimate that 30 MW VHR (over & above 16 MW) generator set of M/s Shri Bajrang Power & Ispat Limited, Tilda Dn. at Villi-Tandwa, Dharsiva-Tilda Road, Tahsil-Tilda, Distt : Raipur has been synchronized successfully with CSPTCL grid on 132KV from 220/132 KV Substation Kuthrel on dtd : 20-08-2019 at 15:25 hrs. The synchronization was witnessed by SE(S/S O&M), CSPTCL, Raipur and SE(O&M) Circle, CSPDCL, Raipur. It is to mention that 132 KV metering arrangement of CSPDCL was already installed at M/s Shri Bajrang Power & Ispat Limited, Tilda for consumer metering.

Submitted for information and necessary action please.

Superintending Engineer (S/s-O&M)
CSPTCL : Raipur

Copy to :-

- 1) The Executive Director (C & RA), CSPTCL, Raipur.
- 2) The Executive Director (RR), CSPDCL, Raipur
- 3) The Chief Engineer (SLDC) / (EHT C&LM), CSPTCL, Raipur.
- 4) The Suptdg. Engineer (EHT C&LM) / (O&M) Circle / (City Circle-II) / (MT) Circle, CSPTCL / CSPDCL, Raipur.
- 5) The Executive Engineer (S/S) Dn-I, CSPTCL, Raipur.
- 6) The Executive Engineer (MRT) Dn-I, CSPTCL, Raipur.
- 7) The Sr. Accounts Officer, CSPTCL, Raipur.

OFFICE OF THE SUPERINTENDING ENGINEER (METER TESTING) CIRCLE, CSPDCL, RAIPUR
(A GOVT. OF CHHATTISGARH UNDERTAKING) (A SUCCESSOR COMPANY OF CSEB)

No. 051-0600/W-01/ 203

Raipur, dtd 15/08/2019

To,

M/s Shri Bajrang Power and Ispat Ltd. (Tilda Division)
Tilda Road, Villi. Tandwa,
Teh.- Tilda, Distt.- Raipur (C.G.)

Sub:- Request for issuance of synchronization certificate.

Ref:- Your letter No. SBPIL-TLD/2013-14/510 dtd 13.05.2013

Dear Sirs,

As requested vide above cited letter, a copy of this office letter bearing No. 051-0600/W-01/92 dtd. 09/05/2013 addressed to the Chief Engineer (Comm), CSPDCL, Raipur regarding synchronization of your 16 MW captive power plant with CSPDCL, grid on dt 26/04/2013 is enclosed herewith.

Thanking You

Yours faithfully

Superintending Engineer
(MT) Circle, CSPDCL, Raipur

Encl - As above.

Copy to:-

The Chief Engineer (Comm) CSPDCL, Raipur.

FORM G

(See Rule 7(a))

Monthly statement showing total units of electrical power sold or transmitted by Distributor or Manufacturer OR total units of electrical power captive consumed or by their employee

1	Name of Manufacturer or Distributor	Shri Bajrang Power & Ispat Ltd. (Tilda Division)
2	Address	Village- Tandwa, Dharsiva-Tilda Road, Tehsil: Tilda, Raipur (CHHATTISGARH)
3	Category of Business	Manufacturing of Pellet, Sponge Iron & Generation of Electrical Power
4	Statement of month ending on	30.09.2018 : Sep-18
5	Total units generated	5955000
6	Total units purchased	751600
7	Total units generated & purchased	6706600
8	Total duty passed units	6706600
9	Those total units for which service given	Not applicable
10	Those units for which service not given	6706600
11	Those total units for which duty not payable	6706600

Meter Reading

	Closing reading	Opening reading	Differential units	Meter coefficient	Total units
1)	DG NO./Capacity				
2)	DG NO./Capacity				
	As per Annexure enclosed				
	Total units for which Electricity duty is payable				
	Challan No. / alongwith date				
A)	Total export on Grid		95640		
	i) Units injected into grid, but No Sale		0		
	ii) Unschedule Units sold to CSPDCL.		95640		
B)	Total own consumption		6610960		
	i) Auxiliary consumption		556500		
	ii) Power import from CSEB		751600		
	iii) Power from own CPP		5302860		
	Power Factor (in %)		96.96		

Seal & Signature

FORM-1

FOR THE MONTH OF SEPTEMBER 2018

PART -1

DETAILS OF TOTAL ELECTRICITY UNITS GENERATED

S.No.	TG/DG No.	Cap. Of / TG.DG	Total Electricity Units generated in the month	Electricity units consumed by Auxiliaries	Balance Electricity Units
1	D.G.-1	1010 KVA	0		
2	D.G.-2	2000 KVA	200		
3	D.G.-3	2000 KVA	25800	556500	
4	T.G.-1	20000 KVA	5929000		
	Total		5955000	556500	5398500

PART -2

DETAILS OF TOTAL ELECTRICITY UNITS CONSUMED

S.No.	TG/DG No.	Cap. Of / TG.DG	Own Electricity consumption	Units injected into grid, but No sale	Unschedule Electricity units sold to CSPDCL	Other Electricity consumption if any (Auxiliaries)	Total units generated
1	D.G.-1	1010 KVA					
2	D.G.-2	2000 KVA	5302860	0	95640	556500	5955000
3	D.G.-3	2000 KVA					
4	T.G.-1	20000 KVA					



GENERATOR UNITS PRODUCTION STATEMENT					
Date of Reading: 01.10.2018			TIME: 00.00hrs		
S.no.	PARTICULARS	DG-1	DG-2	DG-3	TG-1
1	GENERATOR BRIEF DETAIL				TOTAL UNITS GENERATED
	CAPACITY IN KVA	1010	2000	2000	20000
	Sr.No.	L49.110109	603792/2	P121898190	T-01581
	MAKE	LERDY SOMER	LERDY SOMER	STAMFORD	TOPS
	Date of Synch	***	09-03-2013	12-02-2014	26/04/2013
2	METER BRIEF DETAILS				
	CTR	2000/5	150/1	200/1	1300/1
	PTR	3*240	11000/110	11000/110	11000/110
3	METER BRIEF DETAILS				
	Sr.No.	34121340063	34121312296	34130321506	GU/66798
	MAKE	CONZERV	CONZERV	CONZERV	SECURE
	DI				
4	OVER ALL MF	1000	1000	1000	1000
5	READING DETAILS				
	A. PRESENT READING	270.6	1706.1	558.8	388959
	B. PREVIOUS READING	270.6	1705.9	533	383030
	C. DIFF.	0	0.2	25.8	5929
	D. CONSUMPTION	0	200	25800	5929000
					5955000

SHRI BAJRANG POWER AND ISPAT LTD. (TILDA DIVISION)

GENERATOR UNITS PRODUCTION STATEMENT					
Date of Reading: 01.08.2015			TIME: 00.00hrs		
S.no.	PARTICULARS	DG-1	DG-2	DG-3	TG-1
1	GENERATOR BRIEF DETAIL				TOTAL UNITS GENERATED
	CAPACITY IN KVA	1010	2000	2000	20000
	Sr.No.	L49.110109	603792/2	P121898190	T-01581
	MAKE	LERDY SOMER	LERDY SOMER	STAMFORD	TOPS
	Date of Synch	***	09-03-2013	12-02-2014	26/04/2013
2	METER BRIEF DETAILS				
	CTR	2000/5	150/1	200/1	1300/1
	PTR	3*240	11000/110	11000/110	11000/110
3	METER BRIEF DETAILS				
	Sr.No.	34121340063	34121312296	34130321506	GU/66798
	MAKE	CONZERV	CONZERV	CONZERV	SECURE
	DI				
4	OVER ALL MF	1000	1000	1000	1000
5	READING DETAILS				
	A. PRESENT READING	264.33	1190	190.5	159168
	B. PREVIOUS READING	264.23	1157.4	181.3	153508
	C. DIFF.	0.1	22.6	9.2	5668
	D. CONSUMPTION	109	22600	8200	5670000
					5691900

SHRI BAJRANG POWER AND ISPAT LTD. (TILDA DIVISION)

Applied methodologies and standardized baselines:

UCR Protocol Standard Baseline

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

04 Manufacturing industries

TYPE III - Energy Efficiency

CATEGORY - **ACM0012** Large-scale Consolidated Methodology - Waste energy recovery Version 06.0

The consolidated methodology is applicable to project activities implemented in an existing or Greenfield waste energy generation (WEG) facility converting waste energy carried in identified waste energy carrying medium (WECM) stream(s) into useful energy (i.e. power, mechanical or thermal) consumed in an existing or Greenfield recipient facility(ies) and/or supplied to the grid in the case of electricity generation. The WEG facility may be one of the recipient facilities.

Applicability of methodologies and standardized baselines

- This project is included under this methodology since it applies to project activities that generate electricity from waste heat or the combustion of waste gases in industrial facilities. It's also included within the UCR Standard Positive List of technologies (updated) and is within the large -scale CDM thresholds under the applied methodology.
- Project activity involves power generation with installed capacity of 46 MW. Regulations do not require the project activity to recover and/or utilize the waste energy prior to the implementation of the project activity; The methodology is applicable where waste pressure is used to generate electricity only and the electricity generated from waste pressure is measurable.



- The proposed project activity is a power generation project from waste heat from DRI kilns in a sponge iron plant. The project activity displaces Chhattisgarh State Electricity Board (CSEB) grid power, part of WR grid, which is predominantly fossil fuel based.
- The methodology allows for the recipient facility to be same as the waste energy generation facility. The project site is the waste energy generation facility and the facility itself receives useful energy generated using waste energy under the project activity.

Applicability of double counting emission reductions

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 and plant operation data on power generation in project activity is taken from energy meters installed at project site.
- Project is associated with distinct and unique energy meters which are dedicated to the consumption point for PP.

Agreement for Double Counting Avoidance from Proponent has been provided duly signed on 02/02/2024

Project boundary, sources and greenhouse gases (GHGs)

The spatial extent of the project boundary comprises the waste heat or gas sources, captive power generating equipment, any equipment used to provide auxiliary heat to the waste heat recovery process, and the power plants connected physically to the electricity grid that the proposed project activity will affect.



	Source	GHG	Included?	Justification/Explanation
Baseline	Grid-connected electricity	CO ₂	Included	Major source of emission
		CH ₄	Excluded	Excluded for simplification. This is conservative.
		N ₂ O	Excluded	Excluded for simplification. This is conservative.
Project Activity	On-site fossil fuel consumption due to project activity	CO ₂	Excluded	Project activity entails use of waste heat of the flue gases from DRI kilns for power generation. Project activity does not entail use of fossil fuels in the project activity. The emissions from onsite diesel consumption are negligible and are excluded for simplification. This is conservative.
	Combustion of waste gas for electricity generation	CH ₄	Excluded	Excluded for simplification. This is conservative.
		N ₂ O	Excluded	Excluded for simplification. This is conservative.

Net GHG Emission Reductions and Removals

$$\text{Thus, } ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year y (tCO₂/y)

BE_y = Baseline Emissions in year y (t CO₂/y)

PE_y = Project emissions in year y (tCO₂/y)

LE_y = Leakage emissions in year y (tCO₂/y)

Establishment and description of baseline scenario

Baseline emissions include only CO₂ emissions from electricity generation in power plants that are displaced due to the project activity. The case established for the power required by the project activity, since it requires 4~4.6 MWh for its captive use, is less than the installed capacity of the equipment as per the methodology and its associated emissions quantification formula to be selected. The baseline emissions corresponding to electricity supplied by the project activity to recipient



facilities is estimated for each recipient facility in accordance with the case established as above and in the case of the project activity is as follows:

- (a) Case 1a: recipients whose project level electricity consumption is less than or up to the maximum capacity of the existing pre-project equipment at the recipient facility to use Equation (4)

$$BE_{EL,j,y} = \sum_i (EG_{i,j,y} \times EF_{Elec,i,j,y}) \quad \text{Equation (4)}$$

Where:

$EG_{i,j,y}$ = The power supplied by the project activity to the recipient facility j , which in the absence of the project activity would have been sourced from baseline source i (e.g. 'gr' for the grid or 'is' for an identified source) during the year y as per the identified baseline scenario for recipient facility j (MWh)

$EF_{Elec,i,j,y}$ The CO₂ emission factor for the baseline electricity source i (e.g. 'gr' for the grid, and 'is' for an identified source), corresponding to baseline scenario for the recipient facility j , during the year y (t CO₂/MWh)

- (b) If the electricity displaced by the project activity in the recipient facility is supplied by a connected grid system, the CO₂ emission factor of the electricity is modified from the UNFCCC CDM methodology and instead shall be determined following the guidance provided by the UCR CoU protocol for conservativeness.

Power Gen Cap Capacity	MW	46
Auxiliary Power Consumption	%	10%

Annual Baseline Emission Reductions: $BE_{EL,j,y} = EG_{BL,y} \times EF_{CO_2,GRID,y}$

$BE_{EL,j,y}$ = Baseline emission reductions in a year y at project site/recipient plant (j).

where:

$EG_{BL,y}$ is calculated based on daily gross power generation and auxiliary power consumption in the power generation plant (recipient plant)

$$EG_{BL,y} = EG_{GEN,y} - EG_{AUX,y}$$

where:

$EG_{BL,y}$ = Net power generation from turbine in year y (MWh/yr)



$EG_{GEN,y}$ = Gross power generation from turbine in year y (MWh/yr)

$EG_{AUX,y}$ = Auxiliary power consumption in power generation plant in year y (MWh/yr)

$EF_{Grid,CO_2,y}$ = CO₂ emission factor of the grid in year y (t CO₂/MWh) as determined by the UCR Standard for the 2013-2022 period

A "grid emission factor" refers to a CO₂ emission factor (tCO₂/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO₂/MWh for the 2013-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021-22, the combined margin emission factor calculated from CEA database in India results into same emission factors as that of the default value. Hence, the same emission factor has been considered to calculate the emission reduction.

No leakage is applicable under this methodology, hence, $LE_y = 0$

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Gross Generation Power MWh	35865.8	72374	81422	70636	68712	73095	119009	143368	151457	198470.6	1014409
Auxiliary Consumption (In MWh)	5445.6	8886.8	8405.3	6292.2	6391.9	6558	9900.8	10880	12859.2	16282.9	91902.7
Net Generation (In MWh)	30420.2	63487.2	73016.7	64343.8	62320.1	66537	109108.2	132488	138597.8	182187.7	922506.7



Issuance Period: 01/04/2013 to 31/12/2022

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Baseline Emission Reductions (In CO ₂ eq) [Net Generation x 0.9]	27378	57138	65715	57909	56088	59883	98197	119239	124738	163968	830253

Total Emission Reductions for the current crediting period = **8,30,253 tCO₂eq (8,30,253 CoUs)**

Conclusions:

Based on the audit conducted on the basis of UCR Protocol, which draws reference from UCR Protocol Standard Baseline, ACM0012 Waste energy recovery Version 6.0, 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 - SBPIL Waste Heat to Power Project, Tilda, India (UCR ID – 396) for the period **01/04/2013 to 31/12/2022** amounts to **8,30,253 CoUs (8,30,253 tCO₂eq)**

Santosh Nair
Lead Verifier (Signature)



Praful Shinganapurkar
Senior Internal Reviewer
(Signature)

Date: 03/02/2024