Silver Jubilee Edition of
National Award for
Excellence in Energy Management 2024

10th - 12th September 2024

Bhilai Steel Plant
Steel Authority of India Ltd.

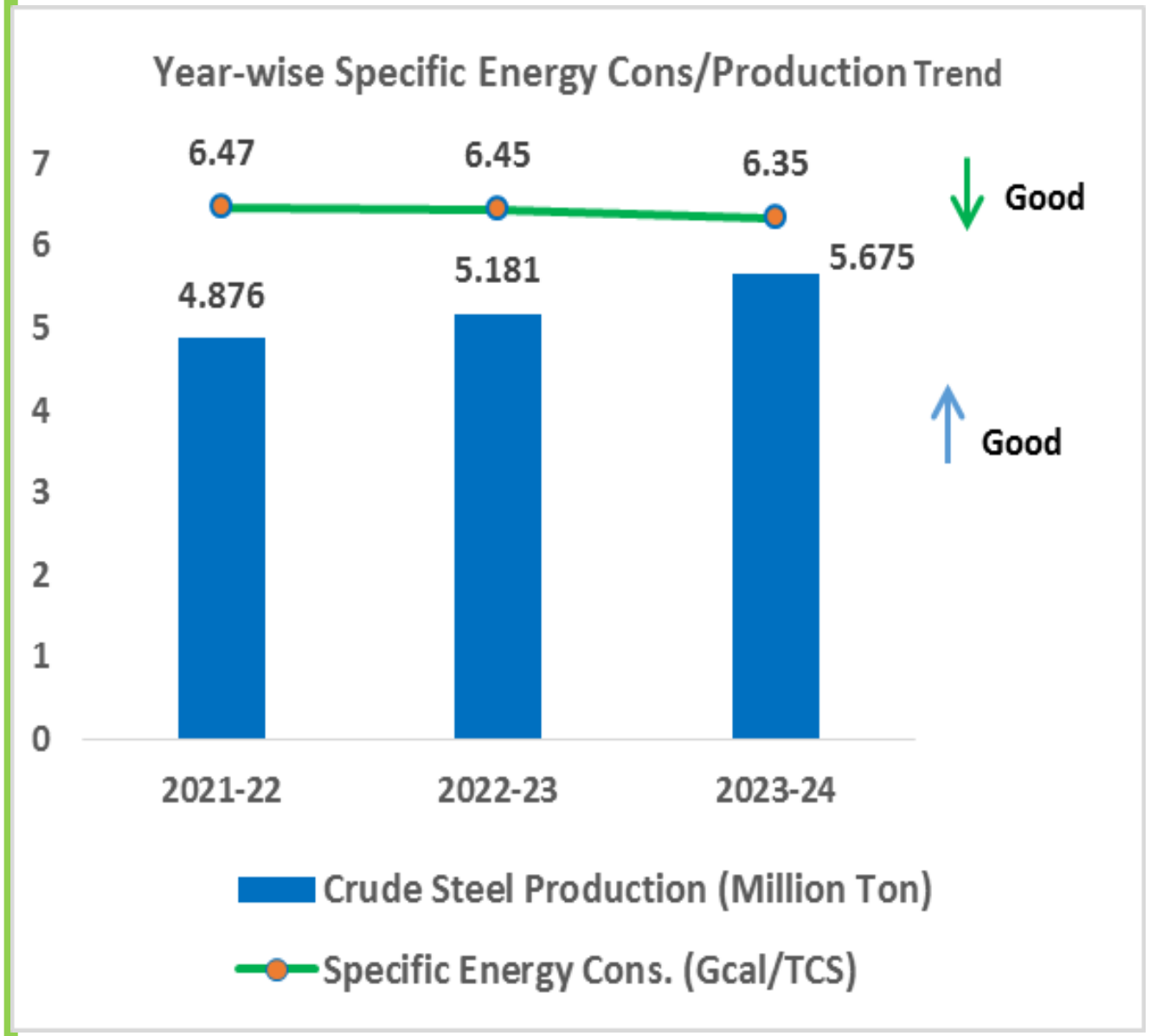
Presented By

1. *Shri Nikunj Kumar, AGM,(PSD)*
2. *Ms. Parul Diwan, Senior Manager(EMD)*

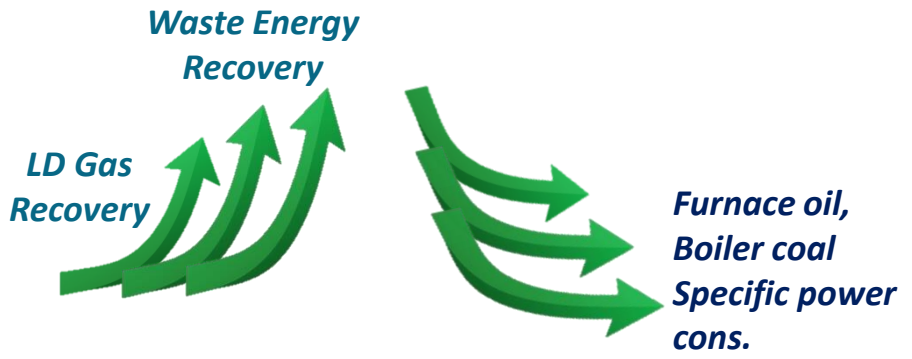
Company Profile

- Set up in 1959 with 1 MT crude steel production capacity, Bhilai Steel Plant is the flagship unit of SAIL
- BSP has completed 7 MT Expansion and Modernization and is India's largest producer and supplier of world class rails for the Indian Railways, including **World's longest 130 metres rails in single piece and 260 metres long rails in welded panel**
- **BSP is also a major producer of head hardened rails, asymmetric rails, a wide variety of plates, wire rods, merchant products** and heavy structurals, TMT Bars & Rods
- Some of the **major energy efficient technologies** installed in BSP are
  - Coke Dry Cooling Plant with Back Pressure Turbo Generator for waste heat and power recovery
  - Coal Chemical Dept. with Claus process for desulphurization of Coke Oven gas
  - Top Pressure Recovery Turbine of 14 MW capacity in one of India's biggest BFs of 8000 TPD capacity (BF-8) with torpedo ladle facility for hot metal transfer
  - Waste heat recovery system in BF stoves of new BF-8
  - Sinter cooler heat recovery system and curtain flame burners in sinter machines
  - 3 x 120 T BOFs equipped with 24000 NM^3 storage capacity wet type LD gas holder
  - 3 x 180 T BOFs equipped with 80000 NM^3 storage capacity dry type LD gas holder
  - Continuous bloom, billet and slab casters with hot charging facility
  - Walking Beam Furnaces and fully automated efficient mills in URM and BRM
  - By-product gas fired twin shaft regenerative kilns in calcination plants
  - By-product gas fired efficient boilers and 25 MW capacity Turbo-generator in captive Power & Blowing Station

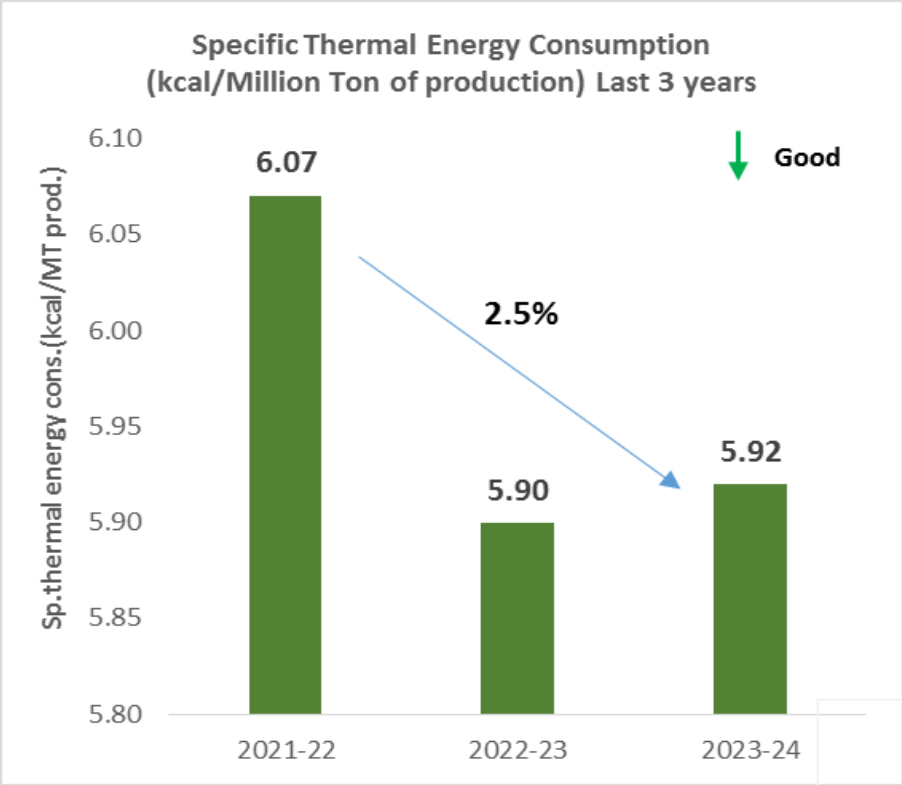
Energy performance – Past 3 Years

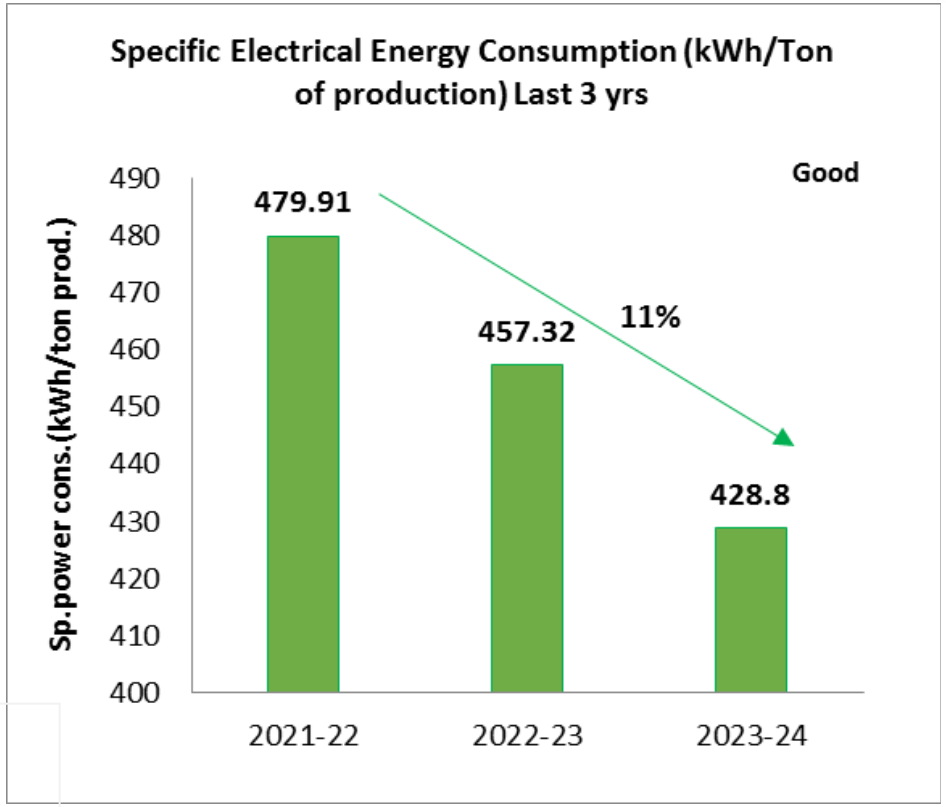


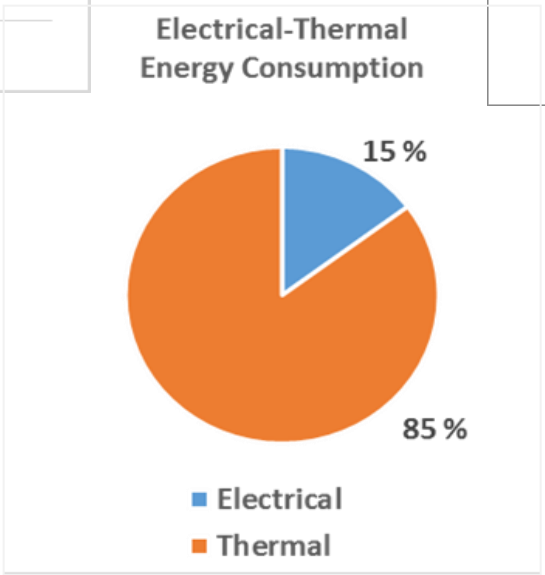
- **Energy Rate decreased by 1.5 % in FY:23-24 YOY while crude steel production increased by 9.5 %**
- **This has been achieved through efficient conversion of coking coal to crude steel**



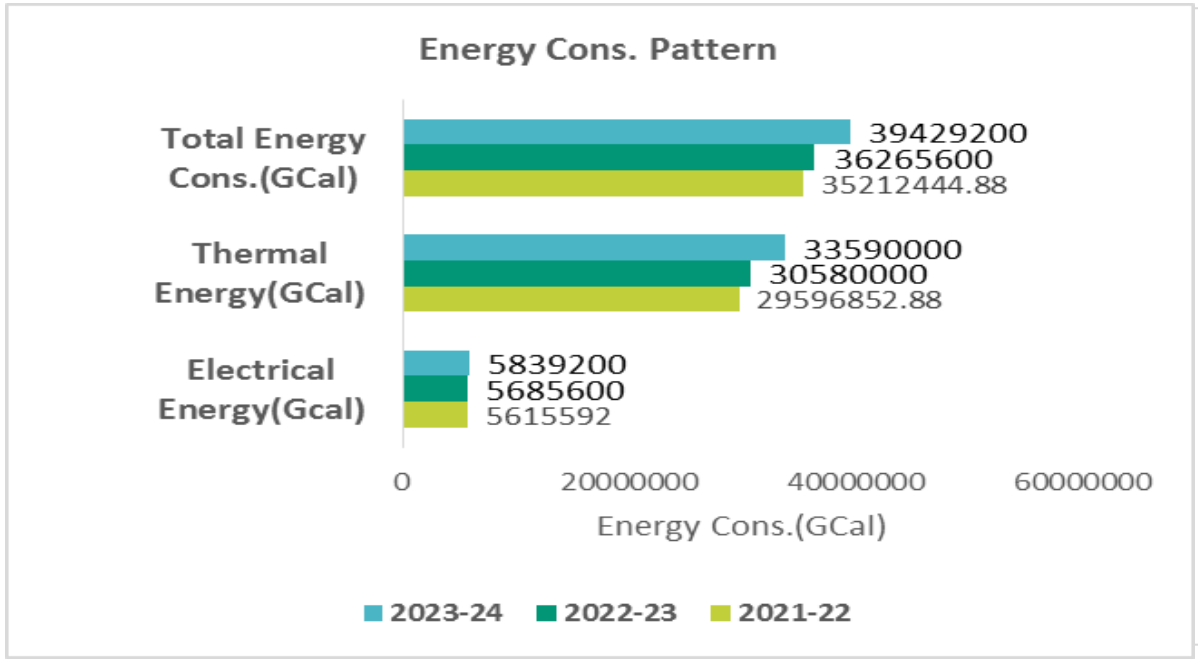
Energy performance – Past 3 Years

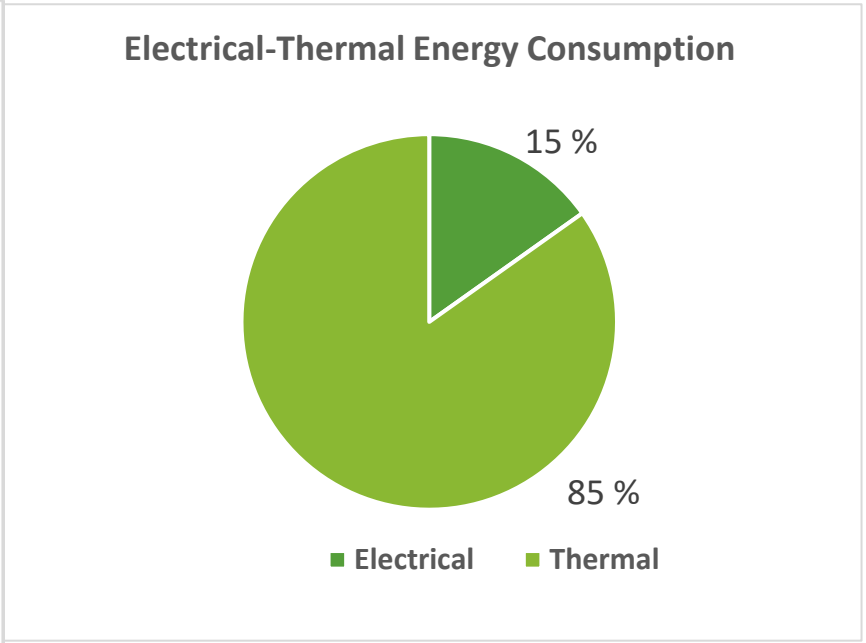


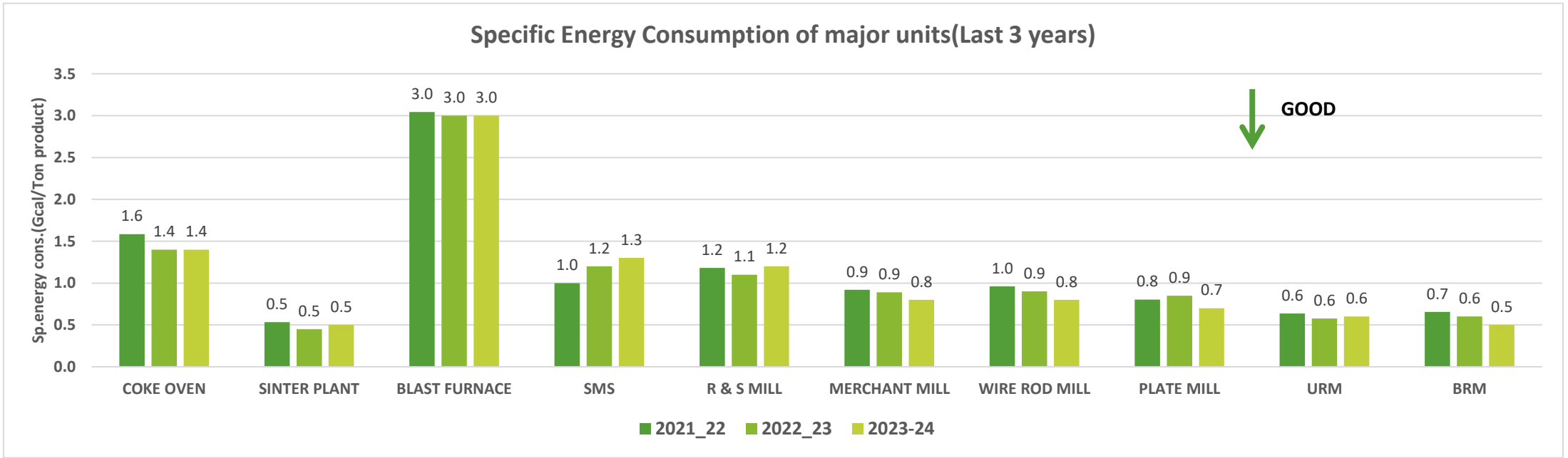




Energy performance – Past 3 Years







Our Competitors, National & Global benchmark, Targets

BSP

National

TATA STEEL

RASHTRIYA ISPAT NIGAM LIMITED
VIZAG STEEL
Pride of Steel

Global

WSA Reference Plant

	TATA STEEL (Jamshedpur)	RINL	WSA Reference Plant	BSP	BSP's TARGET
Specific Energy Cons. For FY:22-23	5.433 Gcal/Ton of crude steel prod.	6.24 Gcal/Ton of crude steel prod.	4.85 Gcal/Ton of crude steel prod.	6.35 Gcal/Ton of crude steel prod. (for FY:23-24)	5.95 Gcal/Ton of crude steel prod.

Major ENCON projects planned for FY:2024-25

S NO	PROJECT	INVESTMENT	SAVING	CURRENT STATUS
1	**Gas firing in place of furnace oil in lime kilns of Refractory Material Plant no.2**	370.00	114320 million kcal	Technical Specification Freezed.Stage 2 mgmt. approval in process for initiating tender process
2	**Firing of coke oven gas in stoves of Blast Furnace no. 5 to increase Hot blast temperature in addition to existing stove heating facility through Blast Furnace gas**	6	Expected increase in HBT is 50 deg C and expected reduction in coke rate is 0.6%	Under Progress
3	**Installation of 15 MW floating solar power plant in collaboration with NTPC**	1090	Expected savings in boiler coal is around 6000 Tons per year and expected reduction in imported power cost is around 26 Million Rupees	Contract Awarded. Preliminary work initiated in July 2024
4	**Improvement of insulation in Power & Blowing Stations (approx. 370 square meters area) to minimize heat losses**	0.55	5985 million kcal	Continuous Process. Under execution.

Major ENCON projects planned for FY:2024-25

S NO	PROJECT	INVESTMENT	SAVING	CURRENT STATUS
5	**Periodical cleaning of the cooling tower fan of STG & Turbo Blower - 1 & 3 to achieve desired effectiveness & temperature.**	0.45	0.924 million kwh	Continuous Process. Under execution.
6	**Installation of VVVF Drive for Energy Saving in Plant De-dusting Fan Motors 2 X 1760 KW in Sinter Plant-3 (2 Nos.) of Sinter Machine-2 in SP-3**	60	56.32 million kwh	Under process
7	**Providing VFD for the combustion air blowers of BF-7**	15.64	0.6 million kwh	VVVF drives have been Installed. Trials completed successfully. Likely to be commissioned in October 2024.
8	**Installation of MV drives in Combustion air fan of 200 KW in BF-6**	4	3.2 million kwh	Under process
	Total	1645		

Total Investment in FY:24-25 in energy saving projects = Rs 1645 million

Major ENCON projects planned for FY:2024-25-Floating Solar Plant

BSP


ion stone for
wer Plant

dependence on fossil fuels" highlighted His speech in supporting NSPCL's role in India's ambitious renewable energy targets and its contribution to a cleaner, greener future.

Director In-charge of SAIL Anirban Dasgupta in his address said, "This 15 MW plant will be a flagship project among all SAIL plants across India, leading the way towards renewable energy sources. SAIL is dedicated to energy conservation and monstrating its commit- ent to combating global ming". The floating solar er plant at BSP shall prove e a cutting-edge project showcases the potential ewable energy in indus- pplications.

(Contd on page 6)

Energy Saving Projects implemented in last 4 years

BSP

Year	No. of energy saving projects	Investment (INR Million)	Electrical Savings (Million kWh)	Thermal savings (Million Kcal)	Savings (INR Million)	Payback Period (in months)
2020-21	10	44.82	7.691	89961	151.69	The payback period depends on nature of project implemented and varies from case to case basis.
2021-22	10	41.02	50.2	193391	515.81	
2022-23	8	4051.723	33.91	282346	534.94	
2023-24	10	83.8	21.5	80001	481.54	

Top Three Energy Saving Projects implemented in last 3 years – FY:2023-24

S No.	Name of energy saving projects	Investment (INR Million)	Electrical Savings (Million kWh)	Thermal savings (Million Kcal)	Savings (INR Million)	Payback Period (in months)
1	Reduction in Furnace Oil consumption in RMP-2 vertical lime kilns by stopping one lime kiln, production of stopped Kiln was adjusted by increasing the efficiency of 5kilns running in RMP3 which are operated by By-Product gas of plant.	NA	NA	42000	273	NA
2	Replacement of conventional lighting fixtures with LED lighting fixtures in BSP	64	17.51	0	120	6
3	Developing dual LD gas injection facility in both COG line and BFG line resulting in increased recovery and utilization of LD gas from SMS-2. The modification was carried out in the month of February 2024	10	NA	1336	1.93	60

Top Three Energy Saving Projects implemented in last 3 years –FY:2022-23

S No.	Name of energy saving projects	Investment (INR Million)	Electrical Savings (Million kWh)	Thermal savings (Million Kcal)	Savings (INR Million)	Payback Period (in months)
1	Installation of LD gas holder of Steel Melting Shop- 3 of 80000 NM3 capacity resulting in recovery and utilization of LD gas	4000	0	239915.9	277.34	173
2	Increased waste energy recovery in the form of power generation from BPTG of CDCP of Coke Oven Battery - 11 by improving in Process	0	17.34	0	93.13	0
3	Replacement of conventional lighting fixtures with LED lighting fixtures in BSP	42.82	15.63	0	83.91	6

Top Three Energy Saving Projects implemented in last 3 years –FY:2021-22

S No.	Name of energy saving projects	Investment (INR Million)	Electrical Savings (Million kWh)	Thermal savings (Million Kcal)	Savings (INR Million)	Payback Period (in months)
1	Increased power generation from energy efficient STG-4 and TRT of BF-8	0	43.82	0	249.77	NA
2	Reduction in boiler coal consumption over previous year by judicious use of by-product gases in power plant boilers	0	0	193391	229.62	NA
3	Replacement of conventional lights with LEDs - 31385 Nos.	36.45	5.272	0	30.05	15

INNOVATIVE PROJECTS IMPLEMENTED - 1

Utilization of LD-Slag for Manufacturing of Paver Blocks

BSP

Project Brief Description/Trigger for innovation

Bhilai Steel Plant(BSP) has two Steel Melting shop SMS-II and SMS –III with total production capacity of 7 MTPA . For every ton of crude steel generation about 130 Kg of LD slag is being generated (Solid Waste)

Conventional methods of using LD slag

- **Recycling of LD slag back in to the process (Sintering Plant and Blast furnaces)**
- **Pathway making, filling of pot holes, levelling etc.**
- **Sale to external customers**

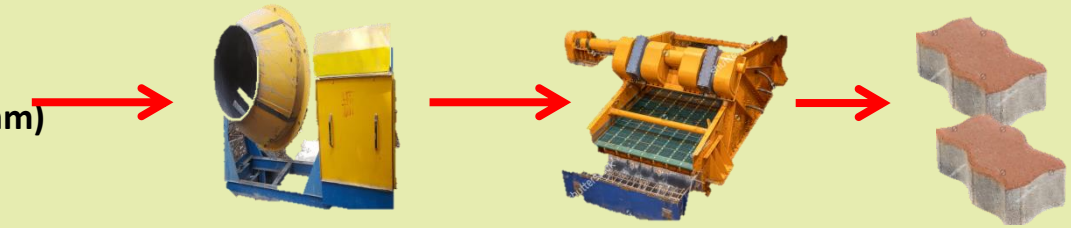
Current utilization : 50-55%

BSP's target - To use 100% of the LD-slag by 28-29

In order to increase the utilization percentage of slag for achieving 100 percent waste utilization, an innovation for producing pavers blocks out of LD slag was done by BSP team. This use of LD slag has been discovered for the first time , hence innovative.

Type of LD-slag Required:
5- 15 mm (Scrap free) LD-slag

Mixer Composition of Paver Blocks: 1:2:4
1 Part Cement ,
2 parts River sand
4 parts LD-slag (5-15 mm)
Water 12-15%
Colouring



Input **Mixer Machine** **Vibration Table** **Paver Blocks**

Manufacturing cost = much more cheaper than market cost (Rs 27 per sq. feet vis-à-vis market price of Rs 35-55 per sq. feet)

INNOVATIVE PROJECTS IMPLEMENTED -1

Utilization of LD-Slag for Manufacturing of Paver Blocks

BSP

Benefits:

- **Manufacturing Capacity**: BSP has a current manufacturing capacity of 1,700 paver blocks per day, amounting to 620,500 paver blocks annually. BSP plans to enhance the manufacturing capacity to 5,000 paver blocks per day, totaling 1,825,000 paver blocks annually

- **About 57% of material used in making of slag paver block is LD Slag, replacing equivalent amount of natural stone chips**.

- **CO2 Reductions/Credits**: Utilizing these paver blocks results in a CO2 reduction of 745 tons per year. Additionally, LD-Slag is used as a base material before laying the paver blocks. The paver blocks manufactured annually will cover approximately 354,571 sq ft.

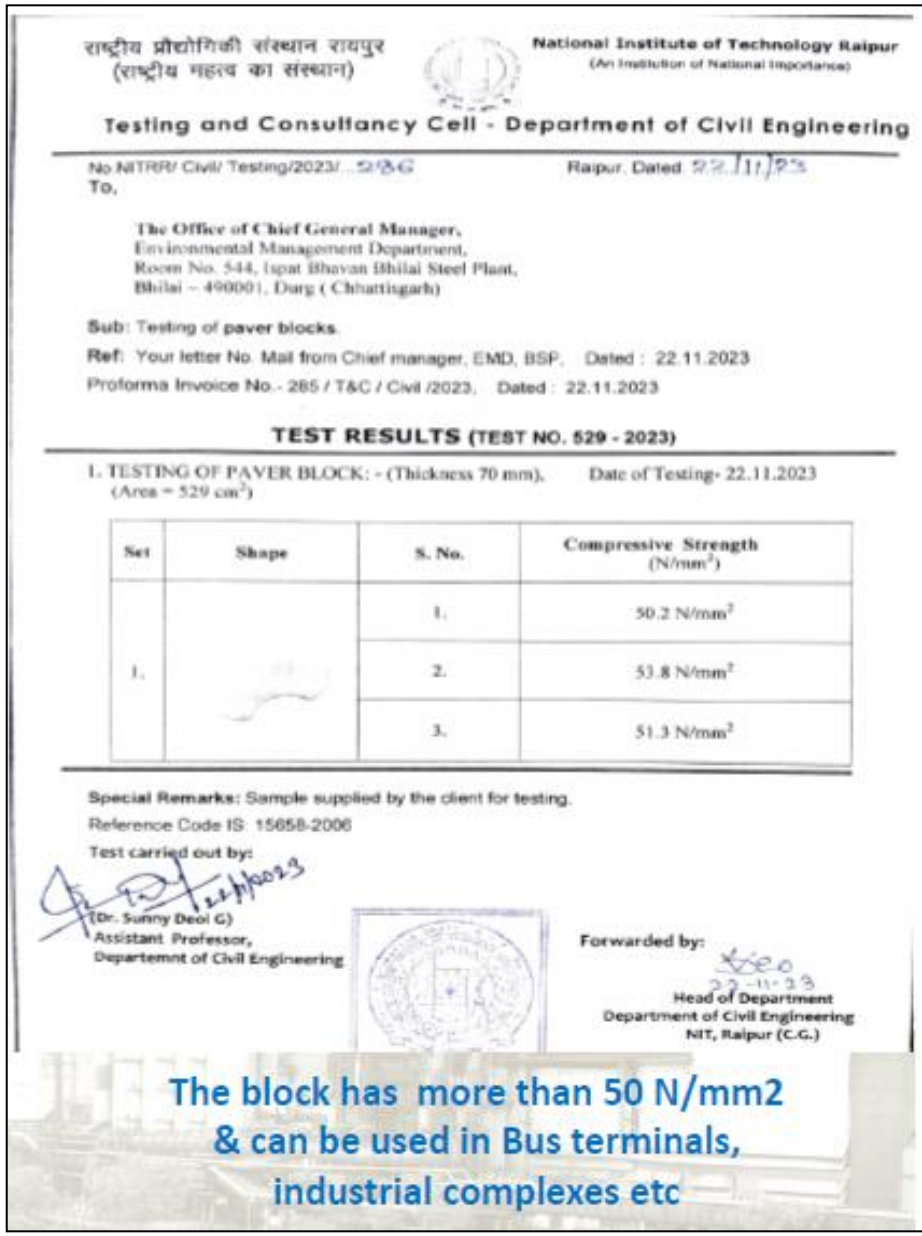
- Thus**, at the current manufacturing capacity of 1,700 blocks per day, the total expected CO2 reductions are 1,800 tons per year**

- **Future Scenario:**

  Approximate CO2 Emission Credits: With the enhanced capacity, the CO2 emission credits are expected to be approximately **5,300 tons per year.**

- **100% Slag Utilization Trials**:
- Trials are currently underway at NIT-Raipur for using 100% slag in paver blocks.When including the CO2 reductions due to the use of LD-Slag as a base material (with the paver blocks covering approximately 1,050,000 sq ft annually), **the total CO2 benefits are projected to be 6982 tons per year.**

- **This can be easily replicated in any of BF-BOF integrated steel plant**



राष्ट्रीय प्रौद्योगिकी संस्थान रायपुर
(राष्ट्रीय महत्व का संस्थान)

National Institute of Technology Raipur
(An Institution of National Importance)

Testing and Consultancy Cell - Department of Civil Engineering

No.NITRP/ Civil/ Testing/2023/...586 Raipur, Dated 22/11/23

To,

The Office of Chief General Manager,
Environmental Management Department,
Room No. 544, Ispat Bhavan Bhilai Steel Plant,
Bhilai – 490001, Durg (Chhattisgarh)

Sub: Testing of paver blocks.

Ref: Your letter No. Mail from Chief manager, EMD, BSP, Dated : 22.11.2023

Proforma Invoice No.- 285 / T&C / Civil /2023, Dated : 22.11.2023

TEST RESULTS (TEST NO. 529 - 2023)

1. TESTING OF PAVER BLOCK: - (Thickness 70 mm), (Area = 529 cm²) Date of Testing- 22.11.2023

Set	Shape	S. No.	Compressive Strength (N/mm²)
1.		1.	50.2 N/mm²
		2.	53.8 N/mm²
		3.	51.3 N/mm²

Special Remarks: Sample supplied by the client for testing.

Reference Code IS 15658-2006

Test carried out by:

(Dr. Sunny Deol G)
Assistant Professor,
Departemnt of Civil Engineering

Forwarded by:

Head of Department
Department of Civil Engineering
NIT, Raipur (C.G.)

The block has more than 50 N/mm2
& can be used in Bus terminals,
industrial complexes etc

INNOVATIVE PROJECTS IMPLEMENTED - 2

BSP

Use of Coke oven gas with Blast Furnace gas to increase Hot Blast Temperature of Blast Furnace no.7 Stoves

Project Brief Description:

- *Hot Blast Temperature(HBT) is crucial for improving furnace efficiency. With increase in HBT, coke rate can be reduced which has positive environmental and economic repercussions.*
- *Hence, In order to improve the Hot Blast Temperature of Blast Furnace and simultaneously reduction of coke rate, the innovation of using coke oven gas in stoves of Blast Furnace for heating was thought of.*
- *The project is innovative because Coke Oven gas is being utilized to increase HBT by boosting the pressure of Coke Oven gas to match the network pressure of Blast Furnace(BF) gas and then mixing with BF gas so that the CV of the mixed gas going to the stoves is around 1100 - 1200 KCal/NM3 which does not adversely affect the refractory lining of the stoves.*
- *If Coke Oven gas is used directly for stove heating, then the refractory lining of the stoves tends to get damaged because of the high CV of Coke Oven gas.*

Benefits:

- *HBT has increased from 970 degree celsius to 1030 degree celsius.*
- *Coke rate has been reduced by 2 kg/ton of hot metal(THM). Pulverized coal injection has been increased from 94.2 kg/THM to 110.6 kg/THM*
- *Total fuel rate has been reduced from 606.1 kg/THM to 600.2 kg/THM*
- *Specific energy consumption has reduced by 0.003 GCal/TCS reduction, recurring annual saving of Rs 8.4 crores with investment of Rs 40 lacs*
- *It is planned to replicate the project in BF-5 in 2024-25*

INNOVATIVE PROJECTS IMPLEMENTED - 3

BSP

Utilization of LD Slag as a Blast Furnace Runner Material

Project Brief Description:

- *Runner Sand is a regular requirement in Blast Furnace and used in runner dressing.*
- *It helps in easy cleaning of jams from runner after the completion of casting and in between the running casting*
- *It also protects the runner castable from damage caused by the sparks or spitting of metal and slag during casting*

Trigger for innovation:

- *For effective utilization of LD slag and for reduction in consumption of runner sand*

Main Job: *The granular and elemental composition of runner sand were analysed and LD slag was mixed with runner sand in varying ratios.*

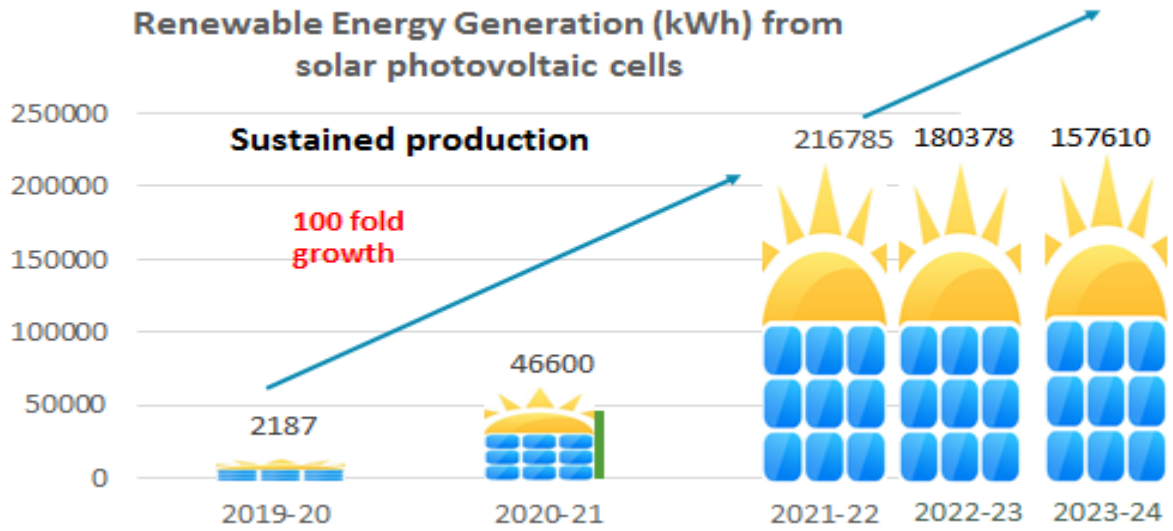
- *After several trials, an ideal ratio of Runner sand and LD slag was reached. (Runner Sand + 25 % ground LD slag)*

- *LD slag was blended into runner sand for preparation of runner dressing of Blast Furnaces.*
- *No issue faced in jam cleaning.*
- *Runner preparation was as usual like in case of using normal runner sand.*
- *This innovation will contribute in 100 % utilisation of waste LD slag*

The use of LD slag in suggested pattern is not yet known in other steel plants.

Utilization of Renewable Energy Sources

Technology (Electrical)	Type of Energy	Onsite / Offsite	Installed Capacity (KW)	Generation (million kWh)	% of overall electrical energy	Generation (million kWh)	% of overall electrical energy	Generation (million kWh)	% of overall electrical energy
				2021-22		2022-23		2023-24	
Electrical	Solar	On site	100	0.216785	0.008%	0.18	0.008 %	0.16	0.008 %
TRT	Potential energy in BF gas	On site	14000	89.533	3.8%	91.53	3.8%	98.84	4.2%
BPTG	Waste heat from CDCP	On site	4000	11.28	0.5%	29.23	1.23%	29.69	1.25%



Utilization of Renewable Energy Sources

BSP

RENEWABLE PURCHASE OBLIGATION

SL NO.	FINANCIAL YEAR	CATEGORY	MUs	RPO, MUs
1.	2021-22	Captive Consumption	2271	182
		Cogen CPP -1, Cogen CPP - 2	283	
2	2022-23	Captive Consumption	2195	178
		Cogen CPP -1, Cogen CPP - 2	390	
3	2023-24	Captive Consumption	2717	216
		Cogen CPP -1, Cogen CPP - 2	376	

GHG Inventorisation

BSP

- ✓ *SAIL is a member of World Steel association (WSA)*
- ✓ *participating in the GHG disclosure project since 2010-11*
- ✓ *SAIL publishes its sustainability reports every year where-in GHG emissions are disclosed*
- ✓ *SAIL has also signed the sustainability charter of WSA in 2022*
- ✓ *BSP was the 1st Public Sector to publish sustainability report in 2006-07 as per GRI*

Parameter	Unit	FY 2021-2022	FY 2022-2023	FY 2023-2024
Scope 1 Emission	Kg CO2/TCS	2.699	2.785	2.835
Scope 2 Emission	Kg CO2/TCS	0.227	0.190	0.113
Scope 3 Emission	Kg CO2/TCS	(-)0.29	(-)0.36	(-)0.245
	Total	2.636	2.615	2.703

Scope of emissions (I,II,III) Considered:

Direct emissions (Scope-1 emissions) i.e emissions from site chimneys determined by the carbon balance methodology

Energy related emissions (Scope-2 emissions) :Upstream emissions or credits related to procurement/delivery of electricity and steam from site

Credits (Scope-3 emissions) :Other upstream emissions or credits related to procurement/delivery of pre-processed materials/co-products from site

Methodology for calculation: WSA GHG emission calculation tool

Peers Emission Intensity

- ***Tata Steel,Jamshedpur- 2.2 (FY:22)***
- ***RINL- 2.67(FY:22)***

Target (short term/ long term) for CO_2 emission reduction and action plan

Year	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Specific CO2 Emission (Ton CO2/TCS)	2.703	2.55	2.521	2.512	2.494	2.270	2.222	2.216

Short Term CO_2 emission reduction action plan

S.No	Plan	Impact	Timeline	Cost (in Rs)
a.	Waste heat recovery from Sinter cooler of SP-3, Machine-2. (For heating water, before mixer)	Reduced coke breeze consumption = 0.0025-0.003 Ton/Ton-sinter	September-24	10 lacs
b	Extension of Annealing hood by 8 meters, in Machine -2 CO_2 emission savings: 0.045 t/t-sinter	CO_2 emission savings: 0.045 Ton/Ton-sinter	October 2024	22 lacs
c	Installation of Slit burners in SP-3 Machine-2	CO_2 emission savings 0.001 Ton/Ton-sinter	March-2025 (Impact in 25-26)	50 lacs
d	Laying of 600 mm Diameter & 250 m span CO gas line with booster provision	Better ignition leading to Energy conservation	March-25	65 lacs
Implementation of above schemes will result in likely CO2 reduction of 0.026 Ton/Ton of Crude Steel				

Long Term CO_2 emission reduction action plan (to be implemented by 2029-30)

BSP

S.No.	Project	Likely completion	Expected CO2 reductions
1	Plate Mill Reheating furnace	April-2026	64493
2	Merchant Mill upgradation	March-27	102992
3	New Wire Rod Mill	June-27	30627
4	Pellet Plant Bhilai(2 MTPA)	March-27	197468
5	Installation of BF 9	March-28	127575
6	2000 TPD Oxygen plant	June-27	
7	15 MW Floating Solar Plant through JV Company NSPCL	May-25	22000
8	35 MW Floating Solar Plant through JV Company NSPCL	September-27	51345
9	Combined cycle power Plant	March-27	1055674
10	Battery-12 with CDCP having 8 MW turbine	March-28	186127

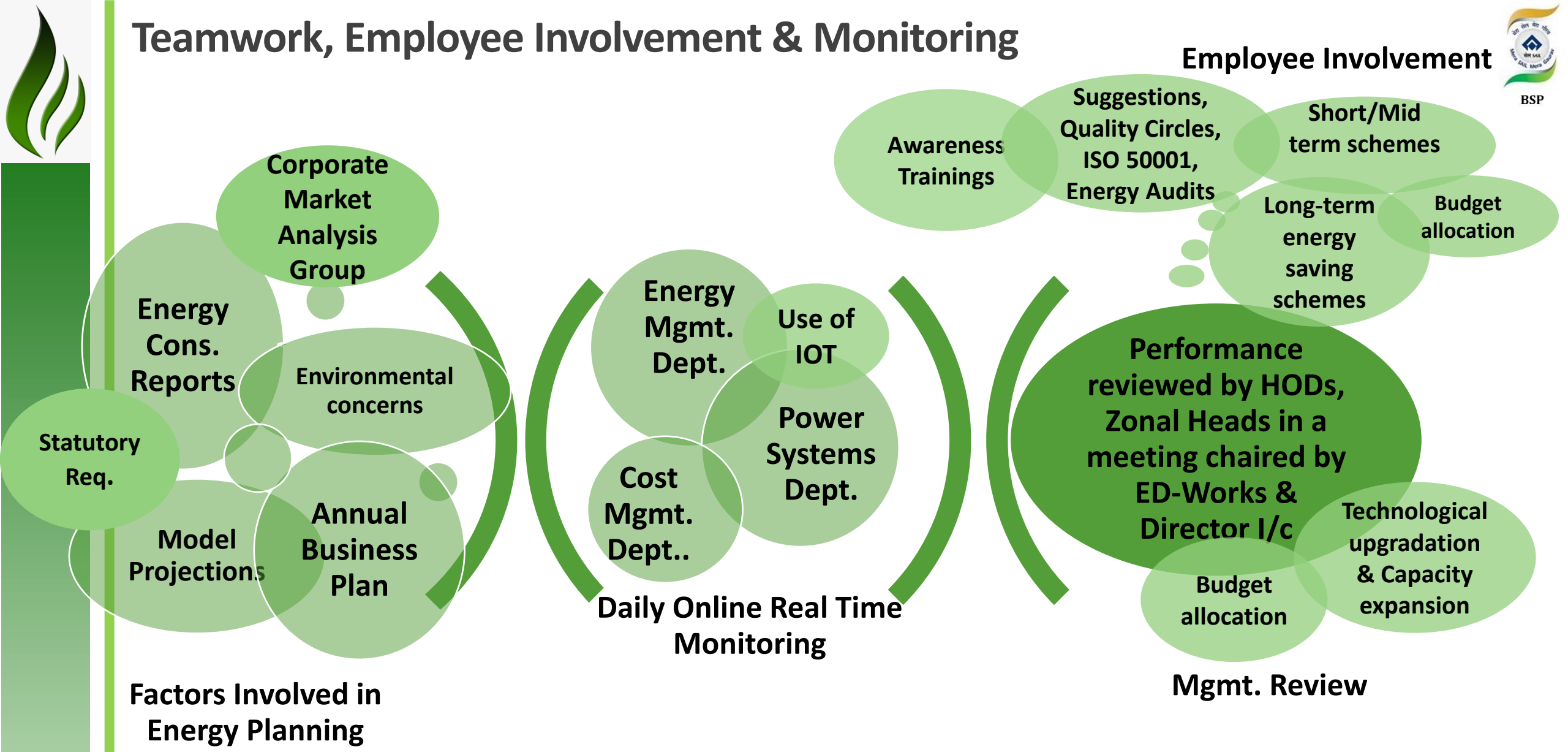
The above projects are likely to result in overall CO_2 emission reductions of 18,38,301 Tons. By 2030-31 emission intensity of BSP would be 2.216 Tons CO_2 per ton of crude steel

Though the target year for achieving net zero emissions is 2070, efforts are on in BSP to achieve net zero by 2050

Modus-operandi for Energy Monitoring

- Energy Mgmt. Dept. has a centralized online energy monitoring system with Level-1 automation for real time overview of all energy parameters
- More than 1000 signals of energy parameters like by-product gases, oxygen, nitrogen, argon, steam and compressed air are monitored online 24 x 7
- Reports and trends are also generated and stored for data mining
- BSP is in talks with M/s Fuji Electric for implementing energy forecasting and optimization model in its existing EMS
- Power Systems Department monitors electrical energy consumption patterns across the plant through a Plant wide Power Monitoring System
- Enertics sensors are installed in 100 critical motors in BSP for continuous real time monitoring
- MIS section of Energy Mgmt. Dept. prepares energy performance report of the plant on daily, weekly , monthly and annual basis
- Cost Control department carries out cost analysis on a monthly basis to translate the deviation in energy performance indices in terms of cost and spell out its impact on the profitability of the plant

Teamwork, Employee Involvement & Monitoring



Implementation of EMS Systems

- **ISO 50001:2011-Energy Management System(EnMS)** was implemented in Bhilai Steel Plant in 2017
- **In July 2020, the EnMS was upgraded to ISO 50001:2018**
- **Bhilai Steel Plant is the only Integrated Steel Plant in India to have ISO 50001:2018 certification for entire integrated steel making process covering production of coke, sinter, iron and steel making and rolling of finished steel products**
- In total, 15 depts. of BSP are in the scope and boundary of ISO 50001
- **Mandatory energy audits** conducted every three years. Last energy audit conducted in 2021-22 . Recommendations are being implemented phase wise

TÜV NORD

CERTIFICATE

Management system as per
ISO 50001: 2018

In accordance with TÜV INDIA procedures, it is hereby certified that

BHILAI STEEL PLANT
(A UNIT OF STEEL AUTHORITY OF INDIA LIMITED)
Bhilai Steel Plant, Bhilai - 490 001,
Chhattisgarh,
India

applies a management system in line with the above standard for the following scope

Integrated Steel Making Covering Production of Coke, Sinter, Iron and Steel Making and Rolling of Finished Steel Products

Certificate Registration No. ENMS 04 00008
Audit Report No. Q 10086/2020

Valid until 12.07.2023
Valid from 14.12.2020
Initial Certification 12.07.2017

Certification Body
at TÜV INDIA PVT. LTD.

Issue 14.12.2020
Place : Mumbai

This certification was conducted in accordance with the TÜV INDIA auditing, and certification procedures & shall be valid subject to regular Surveillance Audits.

TÜV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India cert.helpdesk@tuvindia.co.in

% investment of energy saving projects on total turnover of the company (FY 23) = 2 %

Learnings from CII Energy Award

- Opportunity for self assessment in terms of energy efficiency measures undertaken
- Benchmarking with the energy performance of similar industries
- Knowledge acquisition regarding new, innovative and replicable energy efficiency measures undertaken by other industries
- In 2022-23, dual injection facility of LD converter gas into BF network gas line and CO network gas line was developed from two converter gas holders through inspiration from RINL
- Use of Super Absorbent Polymer/Surfactants to Reduce Coke Moisture consumption as demonstrated in last year's presentation by Tata Steel Jamshedpur is under exploration
- Installation of micro turbo generator in Back Pressure Turbo generator for steam pressure reduction (as seen in Tata Steel, Kalinganagar Plant)
- Implementation of Coke Oven Gas injection in tuyeres of one of the Blast Furnaces in collaboration with SMS is under feasibility study (in line with Tata Steel)

Awards Won by BSP during Last Year FY:23-24

- **FICCI Industry 4.0 Awards 2023**: Coke Quality Prediction was awarded by FICCI under Smart Operations Category in FICCI Industry 4.0 Awards 2023.
- **Best Booth Award at Geneva,Switzerland Fair as part of Conference of Parties (COPs)** under Stockholm convention: SAIL,BSP has participated & displayed the PCB model at PCB fair held in May2023 at Geneva, Switzerland as part of Conference of Parties (COPs) under Stockholm convention. The booth was setup by "SAIL/BSP, UNIDO & MoEFCC" was adjudged the best booth of the fair.
- 13 employees of SAIL-Bhilai Steel Plant have bagged the prizes **in CII Western Regional work skills** competition 2023.
- Gold Award in the International Convention of Quality Concepts-2023 -The 'Sarathi' team from the BSP BRM department clinched the Gold Award in the International Convention of Quality Concepts-2023 in Beijing, China.
- **Kalinga Environmental Excellence award** :BSP has won the Kalinga Environmental Excellence award for the year 2022 in June'23 at Rourkela for exceptional performance in Environment Management.
- **CII National Awards for Excellence in Energy Management – 2023** :Bhilai Steel Plant has won two awards in the prestigious CII National Awards for Excellence in Energy Management – 2023 held at Hyderabad on 13th September 2023
  - **Excellent Energy Efficient Unit Award in Metals Category** for energy performance in 2022-23
  - **Most Innovative Project Award** for use of plastic in coal charge of Coke Ovens for 2022-23

Awards Won by BSP during Last Year FY:23-24

- Bhilai Steel Plant has also won **the Energy Excellence Award and adjudged the State Champion – Chhattisgarh** in the Manufacturing Category of Energy Conservation Award (ENCON) 2023, CII Eastern Region.
- **Greentech Environmental Excellence Award 2023**: Dalli Mechanised Mine has been awarded with “Greentech Environmental Excellence Award 2023” on 23rd Nov’23.
- **Safe & Sustainable Mining Development Award** : Bhilai Steel Plant was awarded the prestigious ‘Safe & Sustainable Mining Development Award’ at the International Conference on Safe & Sustainable Mining Technologies, and Mining EXPO (IConSSMT-2024).
- **Greentech PCWR Awards 2024**: Bhilai Steel Plant has been adjudged Winner for outstanding achievements in "Innovative Waste Management Technology" Category of “Greentech PCWR Awards 2024.”

BSP

Thank You

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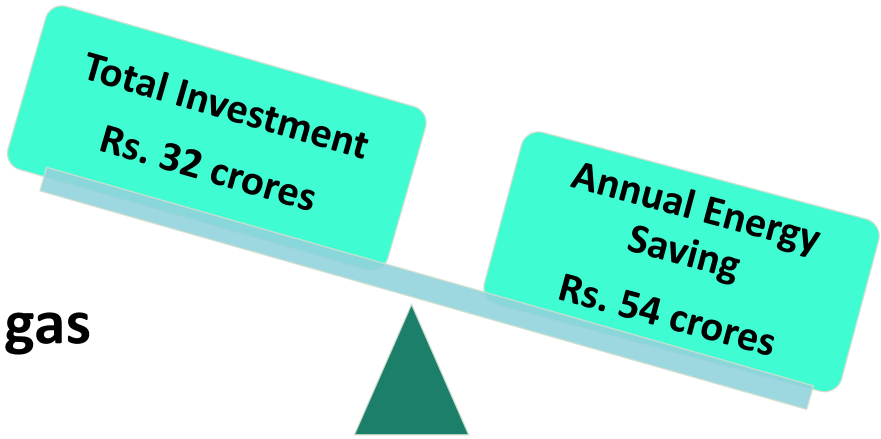
Major ENCON projects planned for FY:2023-24

BSP

- Installation of 500 KW capacity micro TG in BPTG of CDCP of Coke Oven Battery 11
- Installation of VFDs in 6 nos. skirt cooling pumps of converter 2 of Steel Melting Shop-2
- Installation of MV drives in combustion air fans of Blast Furnace 6
- Replacing conventional lighting fixtures with LED lamps in entire plant – phase-wise
- Installation of VFD in one motor (350 KW, 6.6 KV) for gas flow control in Rolling Mill Booster Station
- Installation of rooftop solar power generation facility of 3 MW in residential buildings and administrative buildings in BSP township



Process Flow Chart of BSP