



**25th CII National Award
for
Excellence in Energy Management 2024**

**Presented by :
Minera Steel & Power Pvt Ltd**

© Confederation of Indian Industry 





1. Mr. Girish Kumar: Vice President (Technical Services)
2. Mr. Prasanna Kumar Kulkarni: General Manager (E & I)
3. Mr. Laxmaiah: General Manager (SID)
4. Mr. Ali Hussain: Plant Energy Manager

- **MINERA STEEL & POWER PRIVATE LIMITED (MSPPL) is an Integrated Steel Player - Manufacturing Iron Ore Pellets, Sponge Iron and MS Billets.** MSPPL also has a captive 12MW Power Plant. The plant is located in Sandur Taluk, Bellary District of Karnataka State. The company originally promoted in the year 2006. MSPPL is promoted and managed by Mr. H Noor Ahmed and his son Mr. Tanveer Ahmed. The promoters have deep and extensive knowledge of the industry.
- Minera is assigned with credit rating of [ICRA] A+(Stable)/[ICRA]A1.
- Minera is assigned with credit rating of 'IND A+' /Stable/INDA1+

When the steel sector was in its peak expansion cum demand growth mode in the country and to comply with Government of India/State Government mineral policies during 2007-08, the management initiated the forward integration of products with added value based on the captive/locally available iron ore as the basic mineral to manufacture Iron Ore Pellet, Sponge Iron, Captive Power Plant, MS billets, etc.

The group at present is engaged in diversified manufacturing and business activities as under;

1. Iron Ore Mining. The company has acquired 02 Iron Ore Mines during 2015 on lease basis from Govt. of Karnataka through e-auction process, after observing all the formalities stipulated by central/state govt., located in Sandur Taluk, Bellary Dist., of 0.496 MTPA of high, medium and low-grade iron ore.
2. Integrated steel plant, manufacturing iron ore pellets, sponge iron, MS billets and Captive Power Plant.
3. M/s Minera Green Power Pvt. Ltd., has 12.00 MW Hydro Power Plant, generating power and supplying to CESC under long term PPA.
4. Wind Energy with Generating Capacity of 3.25 MW and supplying power to BESCOM & HESCOM on long term PPA basis.



ISO 50001 certification demonstrates an organization's commitment to continual improvement in energy management



ISO 45001 will provide new impetus for occupational health and safety practices in our organisation.



ISO 9001 is the world's best-known quality management standard for companies and organizations of any size.

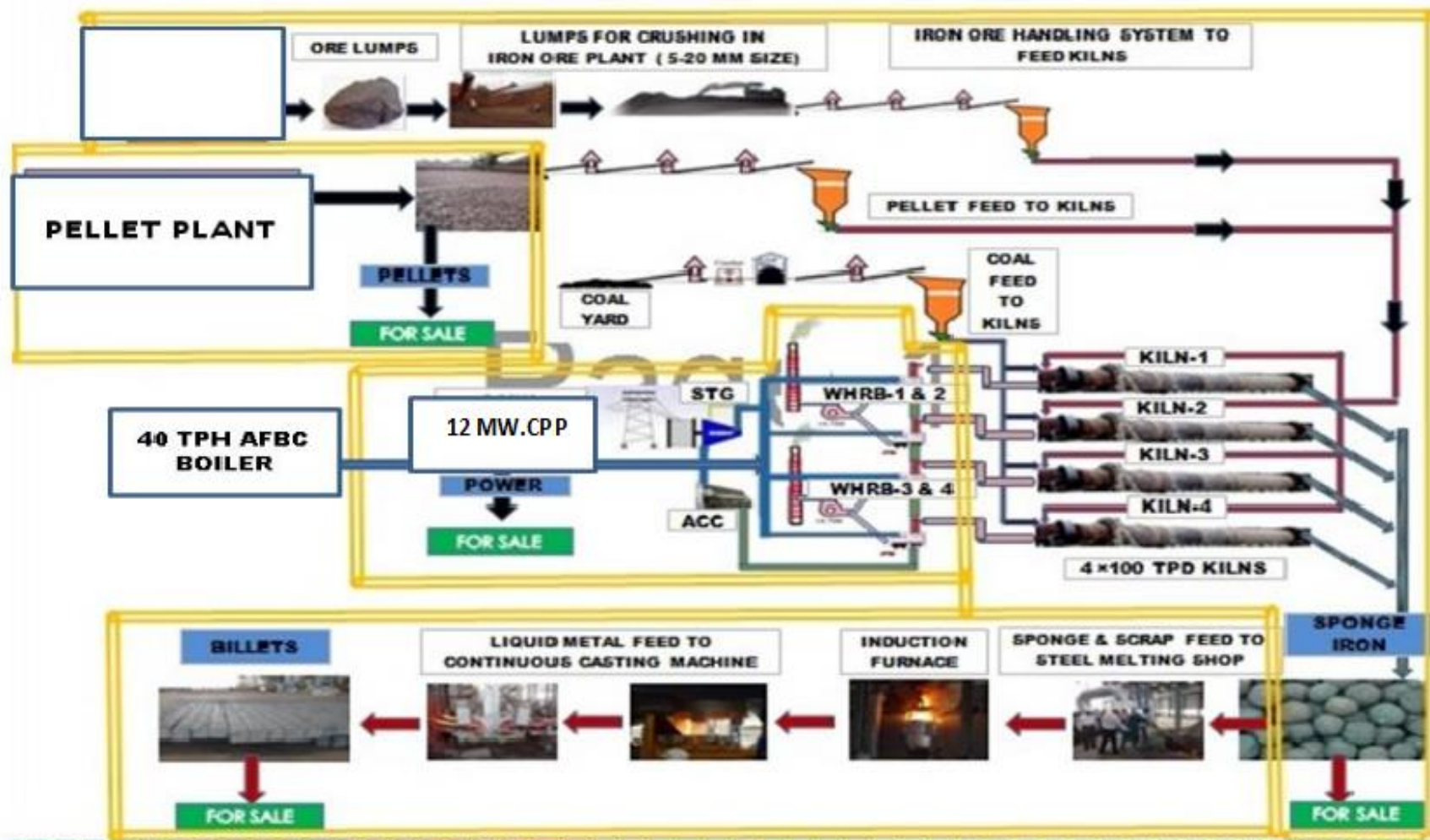


ISO 14001:2018 is a globally recognized standard for environmental management systems.



BIS certification for MS Billets, IS 2830 & IS 2831

Process Flow Diagram

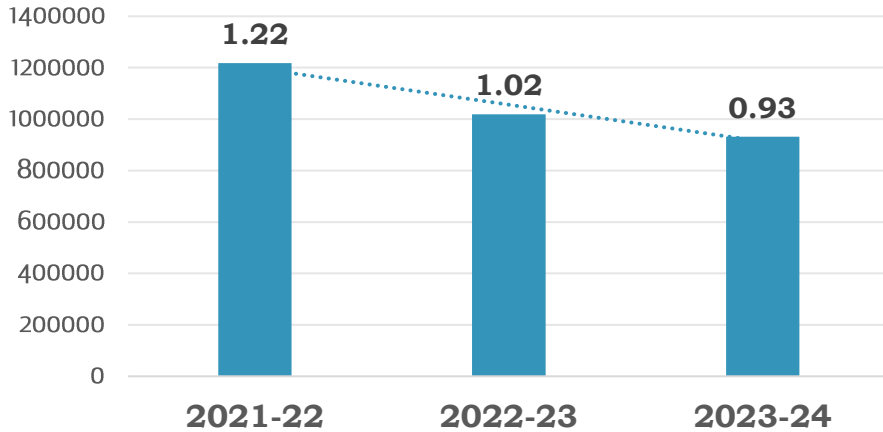


- Pellet Plant (0.8 MTPA)
 - Sponge Iron Division (4 X 100 TPD)
 - Steel Melting Shop (IF)(20T & 22T)
 - Captive Power Plant (12 MW)
 - Coal Gasification Plant (17,000 Nm³/hr)
 - Coal dryer (55 TPH)
 - Wind Power (4.25 MW)
 - Hydropower (12 MW)
 - Iron Ore Mining (0.496 MTPA)
- Ural Mash
 - Popuri (PECS)
 - Electrotherm
 - Triveni & Veelsons
 - Dev Energy
 - Transtechnologies
 - Suzlon/Vestas/Atria
 - Jyothi
 - Hospet & Sandur

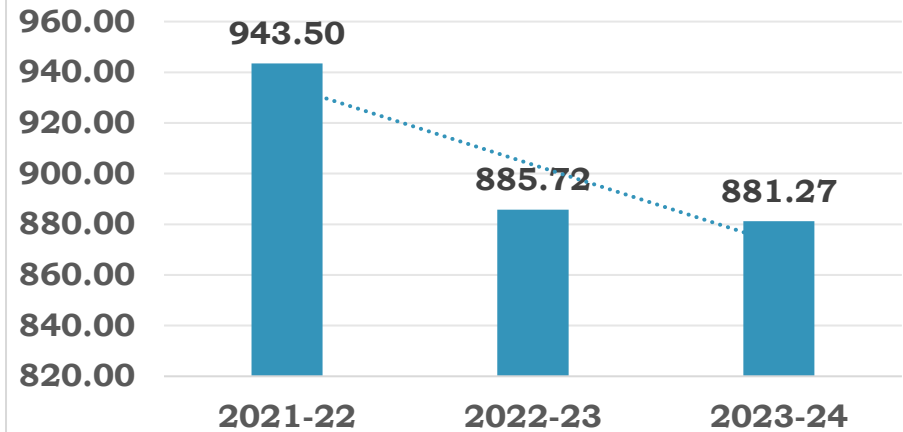
Specific Energy Consumption & Production



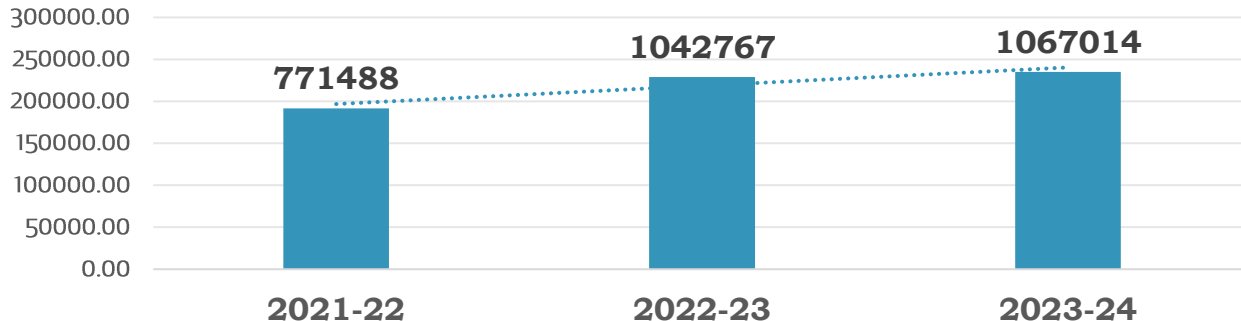
Specific Thermal Energy Consumption (Mkcal/Ton)



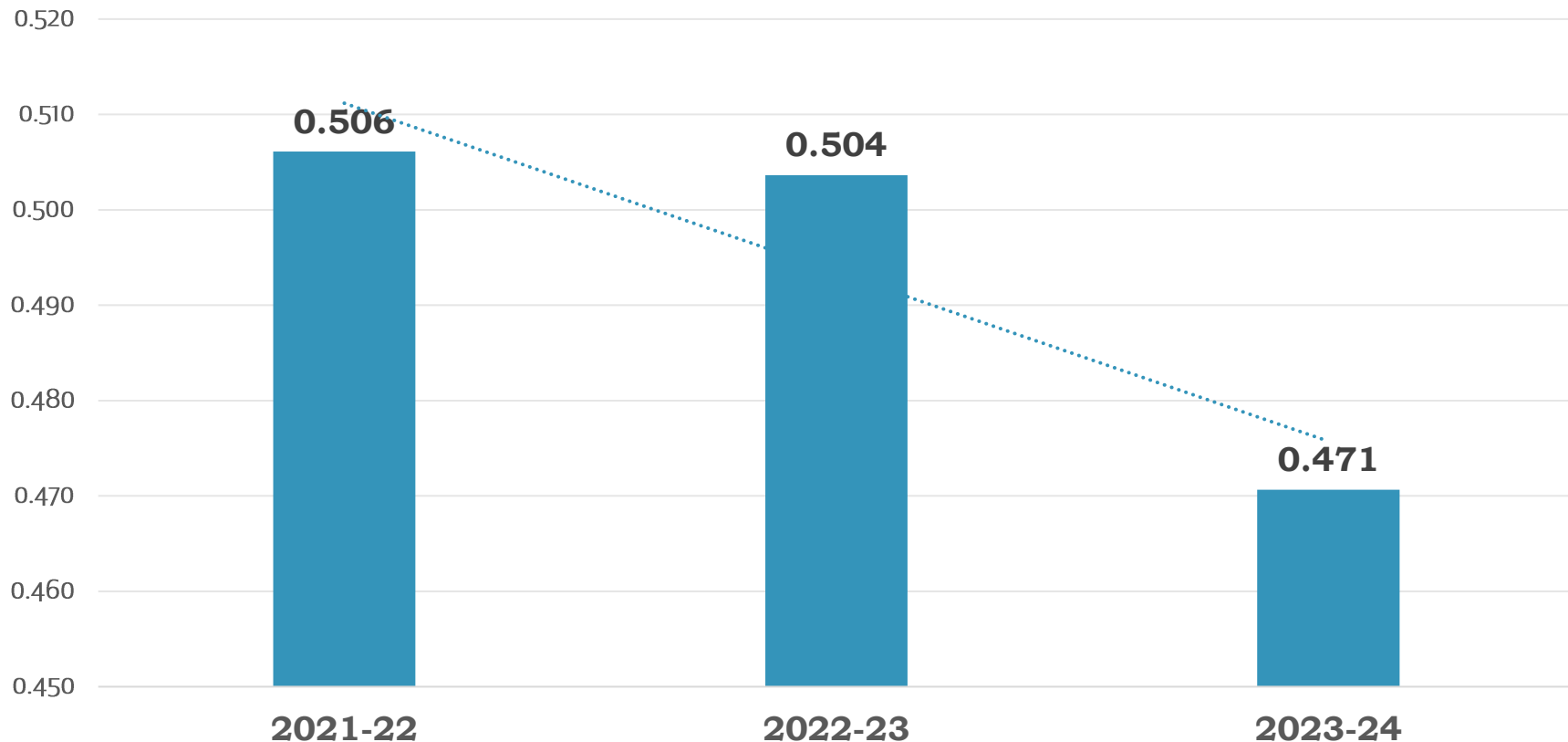
Specific Electrical Energy Consumption (Kwh/Ton)



Production (MT)



Normalized GtG SEC TOE/tonne



- Specific Coal Consumption is reduced in Sponge Iron Division from 1.0 t/t (2022-23) to 0.94 t/t (2023-24) .
- Power Plant Efficiency Improved from 0.76 % (2022-23) to 0.84 % (2023-24) due to Specific consumption reduced from 867 (Kcal/Kg) (2022-23) to 779 (Kcal/Kg) (2023-24). This is due to steam Turbine Rotor upgradation from 10 MW to 12 MW in June 2022.
- WHRB boiler heating surface area increased from 1518 Sq.Mtrs to 1918 Sq.Mtrs.
- Reduction of FO/LBO Consumption in Pellet Plant with the utilization of Coal Gas (2,65,000 Kcal/ton to 2,45,000 Kcal/ton).

SEC Comparison				
Plant Name	SEC BY	SEC AY	production BY	Plant Configuration
Minera Steel Pvt Ltd	0.4899	0.4619	194021	DRI + SMS + Pellet Plant + CPP
Sunvik Steel Pvt Ltd	0.4872	0.4683	120636	DRI + SMS + Rolling Mill + CPP
Prakash Sponge	0.4746	0.4447	94405	DRI + SMS + Rolling Mill + CPP
SRIIPL	0.6735	0.6374	126279	DRI + SMS + CPP
Ganesh Metaliks	0.5104	0.4800	141525	DRI + SMS + Rolling Mill + CPP
Anjani Steel Ltd.	0.5043	0.4841	134761	DRI + SMS + Rolling Mill + CPP

Reference Data of PAT 7 : BEE Gazzate Notification CG-DL-E-27-09-2022-239178 &CG-DL-E-29-10-2021-230808.

Road Map to Achieve Benchmark



- Dual layer refractory to optimise radiation losses in Kilns.
- Induced CV booster Chemical for Coal Gas.
- Addition of Organic binders to reduce bentonite consumption.
- Coal Gas plant Phenolic water usage at Pellet plant.
- Dust injection in ABC chambers to enhance the WHRB power generation.
- ACC fan/CGP cooling tower Blades replacement from GFRP to EFRP material.
- Secondary Air Injection in AFBC boiler to reduce unburnt carbon in Ash.
- Scrap pre-heating & Oxygen utilization in Induction furnace.
- Upgradation of IE2/IE3 to IE4 Energy Efficient Motors.
- Installation of VFD's for Pumps/Fans/Cooling towers/Screens & Conveyors.
- HT capacitor bank addition to improve the Ball mill Power factor.



Encon Projects Implemented In Last 03 Years



Sl. No.	Year	No. of Energy Saving Projects	Investment (Million Rupees)	Electrical savings in Million Kwh	Thermal energy savings in Million Kcal	Total savings (INR Million)	Pay Back Period(In Months)
1	2021-22	2	180.19	0.15	0	7.21	38
2	2022-23	4	64.21	5.33	340.20	41.30	16
3	2023-24	6	32.30	6.89	0.0	36.39	12



Sl. No.	Name of Energy Savings Project	Investment (Million Rupees)	Thermal savings in Million Kcal	Electrical savings in Million KWH	Total savings (INR Million)	Pay Back Period(In Months)
1	Adoption of Latest Technology (DiFOC_Electrotherm) to improve SMS Capacity and Specific power consumption	130.00	0.00	0.72	4.98	26
2	Coal Dryer in DRI Plant	50.19	129	0	2.23	51
	Total	180.19	129	0.72	7.21	38

Sl. No.	Name of the Energy Savings Project	Investment (Million Rupees)	Electrical saving in Million KWh	Thermal energy savings in Million Kcal	(Total saving (Million Rupees))	Pay Back Period (In Months)
1	Steam Turbine Rotor refurbishment	44.5	1.75	0.00	12.06	44
2	Diverting Dolochar handling from Product house to CPP Transfer Tower	3.71	0.00	340.20	4.50	8
3	ACC in CPP Turbine Exhaust to improve the specific steam consumption	3.00	0.80	0.00	5.52	6
4	Shearing machine in SMS to improve the specific power consumption	13.00	2.78	00.00	19.22	7
Total		64.21	5.33	340.20	41.30	16.25

Energy Savings Measures in 2023-24



Sl. No.	Name of the Energy Savings Project	Investment (Million Rupees)	Electrical saving in Million KWh	Thermal energy savings in Million Kcal	(Total saving (Million Rupees))	Pay Back Period(In Months)
1	Float Type drain valve installation in CPP and DRI Compressor	0.24	0.12	0	0.79	3
2	Boiler Feed Pump resizing from 2x160KW to 1x250KW	1.50	0.57	0	4.00	4
3	WHRB increase in working volume for generation of power	20.00	2.46	0	16.94	14
4	Ball Mill motor resizing from 2700kw to 2000kw	2.80	1.81	0	1.25	27
5	Bag filter dust Injection System at ABC to increase the power	6.56	1.83	0	12.64	6
6	Harmonic Mitigator at pellet plant	1.20	0.10	0	0.77	19
Total		32.30	6.89	0	36.39	12



Energy Conservation Projects under Implementation (2024-2025)



Sl. No.	Name of the Energy Savings Project	Investment (Million Rupees)	Electrical saving in Million KWh	Thermal energy savings in Million Kcal	(Total saving (Million Rupees))	Pay Back Period(In Months)
1	E-Glass EPOXY EFRP Fan For Cooling Tower (Planning) at CGP	0.10	0.0126	0	0.10	8
2	VFD Drives for cooling water pumps at SMS	0.50	0.260	0	1.79	3
3	VFD Drives for CA Fan at Pellet Plant	0.42	0.21	0	1.42	3
4	VFD Drives for DA Fan at Pellet Plant	0.37	0.063	0	0.44	8
5	Float drain valves for air receiver tank to remove moisture (5 nos) @ Pellet Plant	0.15	1.188	0	0.06	8
6	Upgradation of IE2 to IE4 Motors. Project awarded from BEE.	6.72	0.926	0	6.39	13
Total		8.26	2.65	0	10.2	7

Innovative Project: 1) Dust Conveying System

Grand Total Investment		6563335.92
Power generation in 2022-23 in WHRB	MW	50075
Power generation in 2023-24 in WHRB	MW	51907
Additional power due to DCS	MW	1832
Cost@ 6.90 per unit	Rs.	12640800
ROI (in months)	Month	5 Months

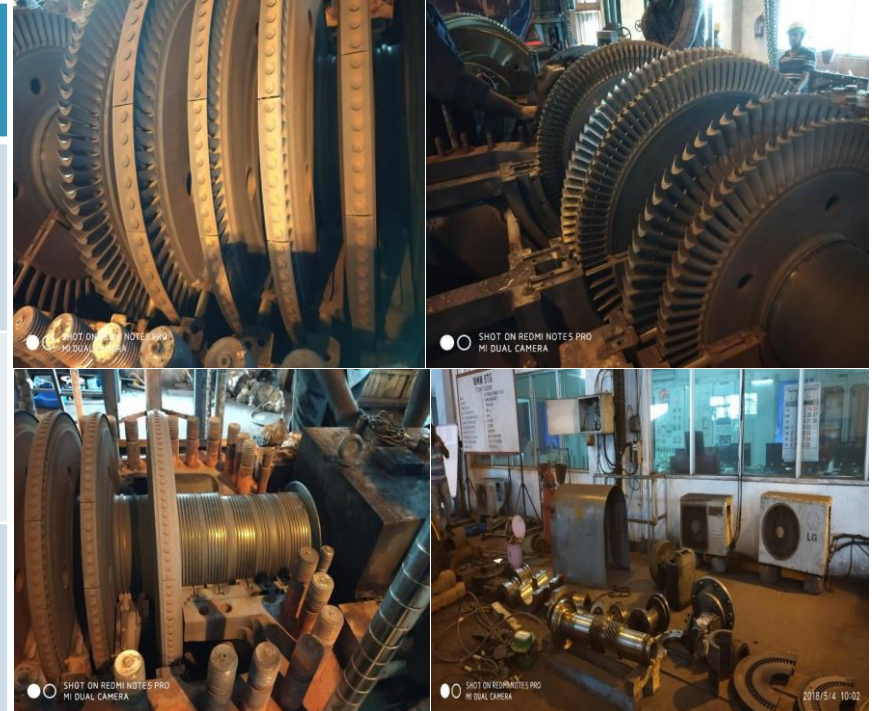


Innovative Project:

2) Turbine Rotor Enhancement



Sl. No.	Year	POWER Generation (KWH)
1	2021-22	6,11,19,700
2	2022-23	8,49,44,400
3	2023-24	10,11,28,300



New Turbine Upgraded from 10 MW to 12 MW in June 2022

Utilization of Renewable Energy (Off-Site)



Sl.No.	Financial Year	ATRIA POWER (Kwh) (Group Captive)	(Solar+Wind) Third party Import POWER (Kwh)
1	2021 - 22	76,97,000	20,00,000
2	2022 - 23	96,00,000	20,00,000
3	2023 - 24	82,00,000	0



GHG Emissions Inventory for the plant site for the year 2022-23



Earthood Services Pvt. Ltd, Gurgaon was engaged to develop the Organizational greenhouse gas (GHG) emissions inventory accounting for Scope-1, Scope-2 and Scope-3 as per methodology specified under the International Standards of GHG Protocol and the approach provided under ISO 14064 - Part-1 for the financial year 2022-23.

- 1. Scope-1** Includes Direct Emission sources Like stationary for example Coal for electricity generation.
- 2. Scope-2** Includes Indirect Emission sources as per GHG Protocol like Purchased Electricity.
- 3. Scope-3** Includes a total of fifteen (15) categories as per GHG Protocol. Other indirect emissions like Purchased goods and services, Fuel-and energy-related activities, Capital Goods, Upstream transportation & distribution, employee commuting and business travel.

Total GHG emissions by sources for the financial year 2022-23 (in tCO₂e)

<u>Emission Sources</u>	<u>Tonnes-CO₂e</u>	<u>% Contribution</u>
Scope-1 (Direct Emissions)	3,46,437.269	38.43
Scope-2 (Indirect Emissions)	26,958.623	2.99
Scope-3 (Other Indirect Emissions)	5,28,163.258	58.58
Total (in tCO₂e)	9,01,559.150	100.00



GHG Emissions Inventory for the plant site for the year 2022 - 23



Operational wise GHG emissions inventory (in %)

<u>Emissions by Operations</u>	<u>Tonnes CO₂ equivalent</u>	<u>% Contribution</u>	<u>Scope-1(%)</u>	<u>Scope-2(%)</u>	<u>Scope-3(%)</u>
1) Sponge Iron (SID)	332685.882	36.9	57.13	6.66	25.18
2) Steel Melting Shop (SMS)	424919.852	47.13	23.01	56.26	62.49
3) Pellet Plant (PP)	85264.549	9.46	11.99	30.16	6.74
4) Captive Power Plant (CPP)	58688.866	6.51	7.87	6.92	5.59
TOTAL	901559.150	100.00	100.00	100.00	100.00

Total carbon emissions relative to the production of the final product (considering all scopes)

<u>Operational Unit</u>	<u>Final product</u>	<u>Production (MT)</u>	<u>tCO_{2e}</u>	<u>tCO_{2e} /MT</u>
1) Sponge Iron (SID)	Sponge Iron Pellet	149994	332685.88	2.22
2) Steel Melting Shop (SMS)	MS Billets	92862	424919.85	4.58
3) Pellet Plant (PP)	Iron Ore Pellets	799911	85264.55	0.107
4) Captive Power Plant (CPP)	Power Generation	84944400	58688.87	0.00069

- Solid Energy are measured through weigh feeder ,bin weighing system & weigh scale .
- Liquid Energy like LDO,FO/LBO is Monitored through Vortex & Corolisis Meters , Meters are directly connected to DCs-PLC system
- Electrical Energy is connected directly to DCS
- CGP-Division having Dedicated PLC & Scada system & online is monitoring done through these system.
- IOT based Based technology in MRSS 110 KV/11 KV for 25 MVA Distrubution Transformer
- Power plant Energy monitoring done through DCS & PLC in following in centralised process control room.
- We have updated voltage level from 33 KV to 110 KV increase in availability from 98.06% to 99.78 %(1.72 % availabiluty increased) ,Since 33 kv comes under rural areas there is continous load shedding.

- Continuous Emission Monitoring System (CEMS).
- Ambient Air Quality Monitoring System (AAQMS).
- Best Practices adopted for Emission Monitoring and Control.
- For Controlling SPM Emission, ESP/Bag Filters is installed.
- Mist canon is used for dust suppression.
- Drip irrigation for Plantation work.
- Water audit has been conducted in July '2024 & suggestion from BSJL ENVIRO ENGINEERS LLP Hyderabad is under Implementation.
- STP Commissioning under progress.
- Zero Liquid discharge operations.
- 100% Ash Utilization.
- Future Plan for Rainwater Harvesting System.

Features:

- Significant Energy Use.
- Developing Energy Management Programs.
- Operational control of identified energy aspects.
- Monitoring and Measurement.
- Risk & Opportunities.
- Internal Audit.
- Management Review System ISO:50001.
- To reduce specific energy consumption (GTG) as per PAT cycle target.
- Analyze the standard operating procedure and make effort to improve them considering the product quality.
- Purchasing only Energy Efficient motor for new requirements and replacing inefficient motors in phased manner.
- Implementation of Energy Conservation measures given.
- Re-melt the launder loss.

- Impact of energy on climate.
- Green Energy Usage.
- Innovative design and technology.
- To know about the best practices which are not being implemented in our plant.
- An opportunity to know about the best achieved data's by other plants, which can be a bench marking for us.
- An opportunity to contact with individuals/companies to know about the best vendors for implementing proposed ENCON projects economically.
- To know about new technology, ENCON Projects, area's of innovation and remedy of same problems.
- Motivation for performing the best by knowing the ideas about how the participating companies is spreading awareness about “ Energy Efficiency” to reduce the variable cost and maintaining the Environmental data in the field of Going Green

Award Glimpse of Celebration of Energy Conservation Week & Day & Plantation



 **minera**

World Energy Conservation Day

14th December 2023



 **minera**

Energy Conservation Week

9th to 14th December 2023



Certificate of Appreciation for prompt Filing of GST 2020 - 21





BUREAU OF ENERGY EFFICIENCY
A statutory body under Ministry of Power, Government of India



HOME



MY DASHBOARD

Welcome Mr T Hanumanta Reddy



INS0087KA - Minera Steel and Power Pvt Ltd Yarabana Halli, Kudatini, Ballari, Karnataka

PAT Cycle: PAT(3)2017-2020



PAT Forms



ESCerts Issuance



Check Verification



Trading



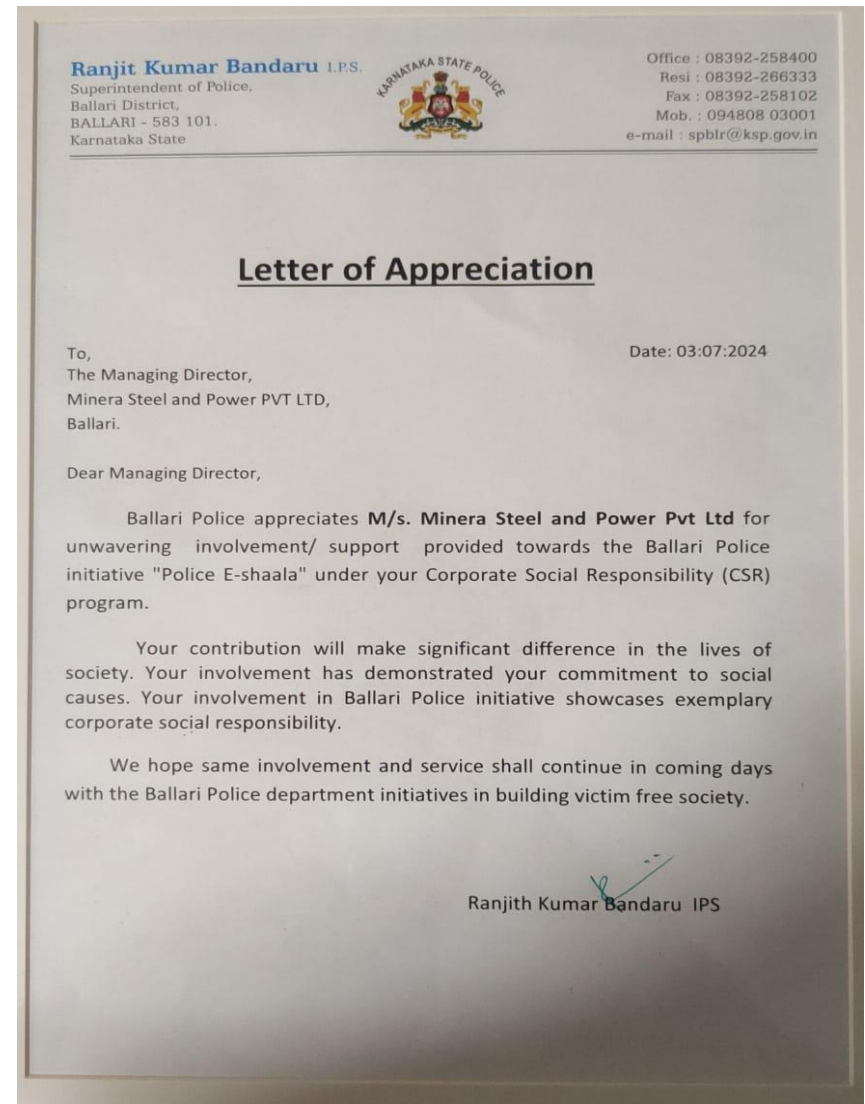
Compliance

No.Of ESCerts(Claimed)	No.Of ESCerts(Approved by MOP)	Serial No.Of Issued ESCerts	Eligibility Type	Blocked ESCerts	Banked ESCerts
3135	3000	03-00460633-INS0087KA-290224 to 03-00463632-INS0087KA-290224	NA	0	0

Eligible Entity Registration	
Form	Status
Submit	

Partial Participation Details		Download			
Form	Status	Certificate	Invoice	Advance Receipt	Refund Voucher

We have awarded issuance of Escerts in PAT-3 (2019 - 20) : 3000







CERTIFICATE

Management system as per
ISO 50001 : 2018

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

MINERA STEEL AND POWER PRIVATE LIMITED
Survey No.114, Yerabanhalli Village,
Sandur Taluk, Ballari District,
Ballary - 583 115,
Karnataka,
India



operates a management system in accordance with the requirements of ISO 50001 : 2018 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Manufacture of Iron Ore Pellet, Sponge Iron and Billet.

Certificate Registration No. **44 764 23393852**
Audit Report No. **2.5-10988/2022**

Valid from **14.01.2023**
Valid until **13.01.2026**
Initial certification **14.01.2023**



Certification Body
at TÜV NORD CERT GmbH

Mumbai, **14.01.2023**

TÜV NORD CERT GmbH Am TÜV 1 45307 Essen www.tuev-nord-cert.com

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India www.tuv-nord.com/in



CERTIFICATE

Management system as per
ISO 45001 : 2018

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MINERA STEEL AND POWER PRIVATE LIMITED
Survey No.114, Yerabanhalli Village,
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minera

Thank You for your time.