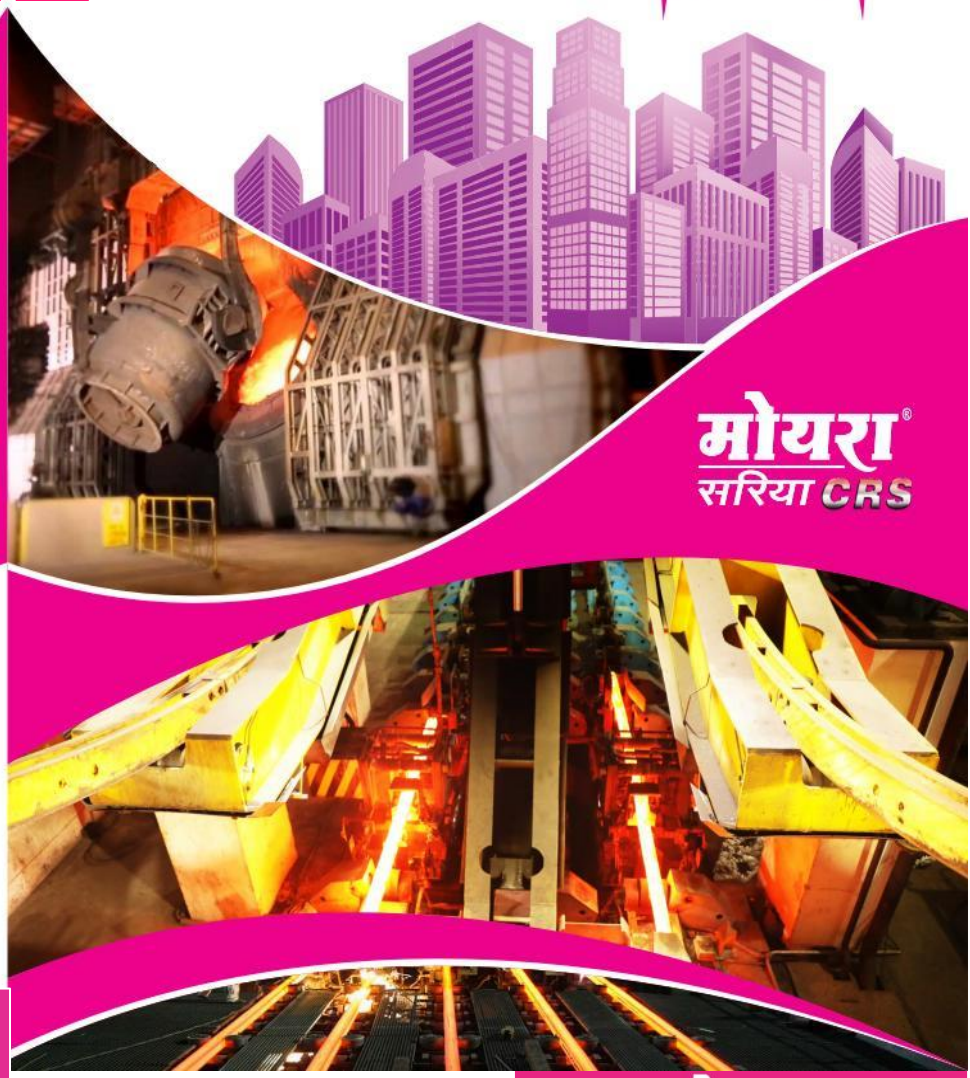
23nd National award for Energy Excellence 2022

www.moirasariya.com

हर नींव की धड़कन



Presenters :

Mr. O.P Malviya - CGM

Mr. Dinesh Bharti -CGM

Mr. Kapil Jat - GM

Jaideep Ispat & Alloys Pvt. Ltd..

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Company profile

Moira CRS Sariya is the leading TMT bar supplier in Central India with its wide network of more than 550+ dealers and 250+ exclusive dealers spread across the region. It is the flagship brand of Jaideep Ispat & Alloys Pvt. Ltd., one of the top TMT bar .manufacturers in India. to 40mm dimension in **Fe-500 CRS, Fe-500 D CRS, Fe-550 CRS, and Fe-550 D CRS grades.**

TMT Size Available -

8mm |10mm|12mm 16mm|20mm|25mm 28mm | 32mm | 40mm

New Product -
Wire Rod - 5.5mm - 8 mm
Zinc coated TMT

Scrap Yard

Furnace

Casting

Rolling Mill

Dispatch

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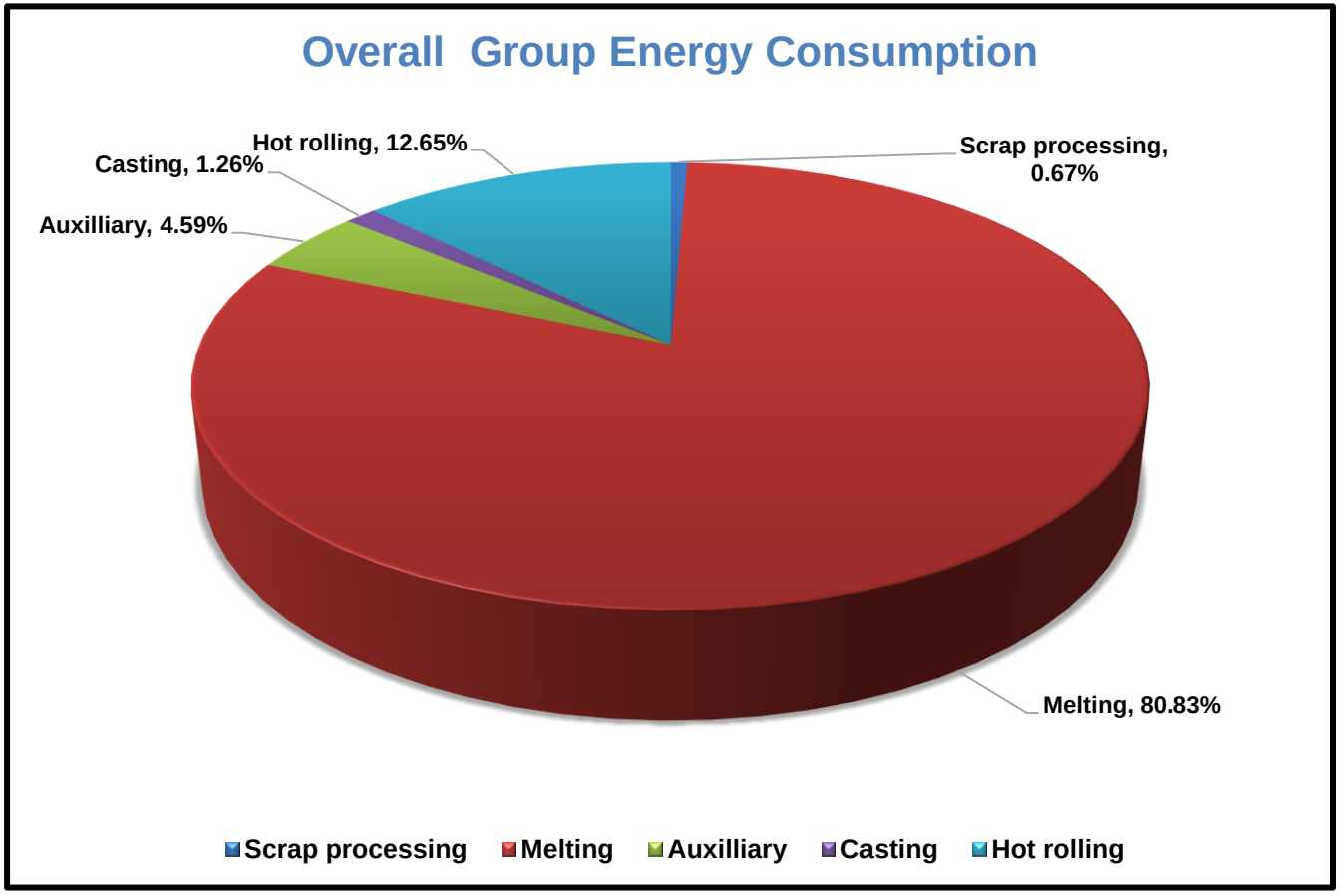
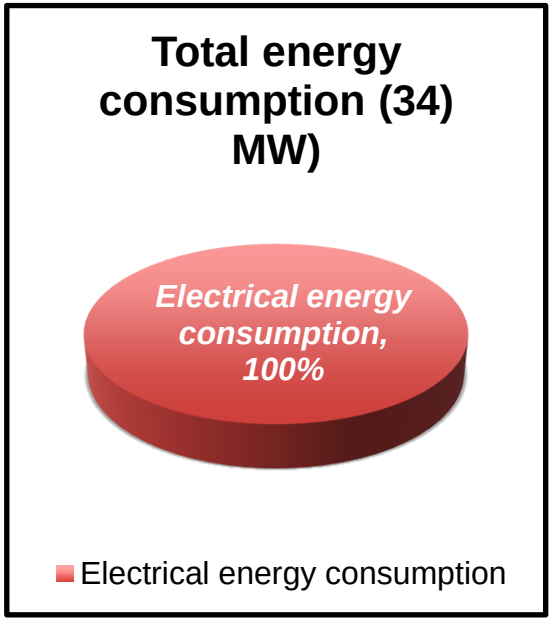
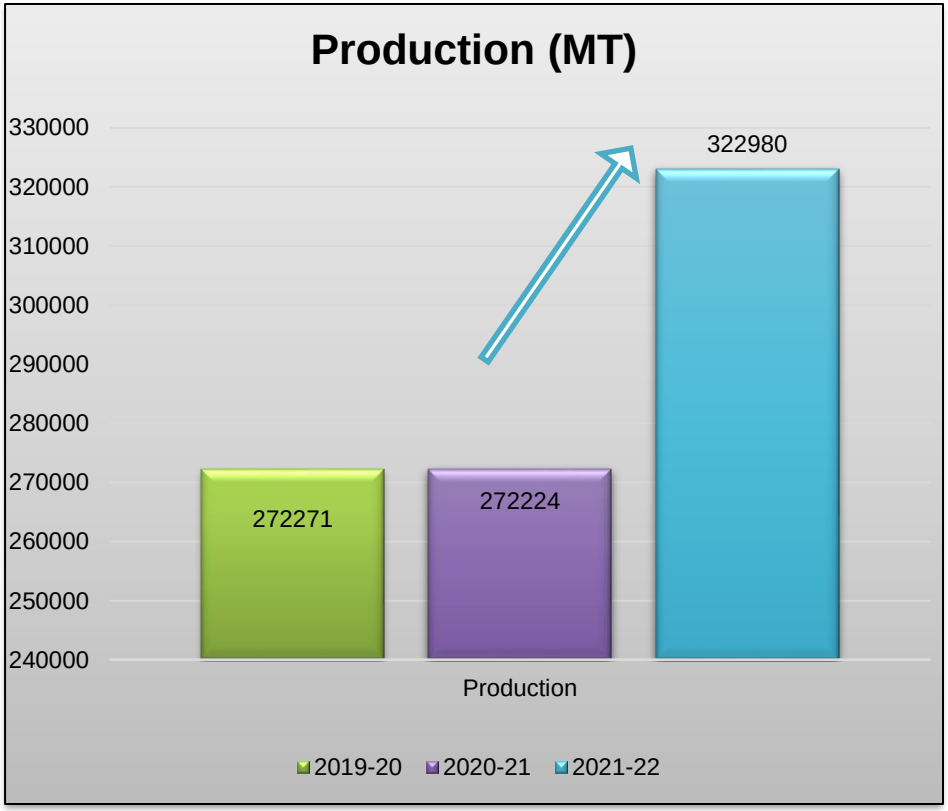
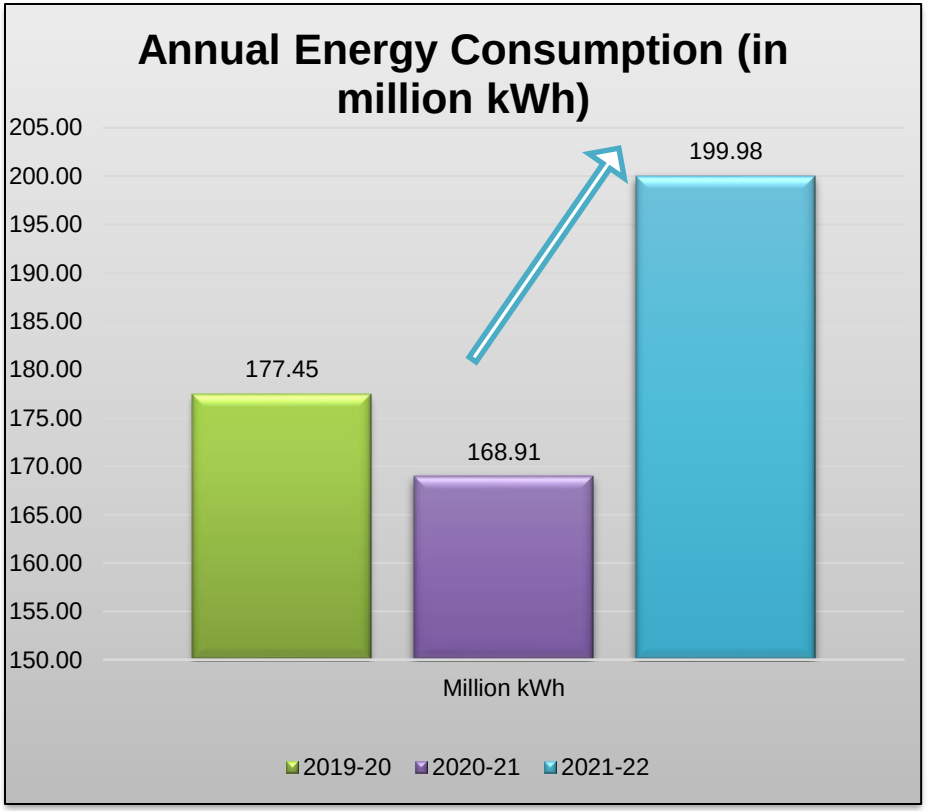
Energy consumption overview



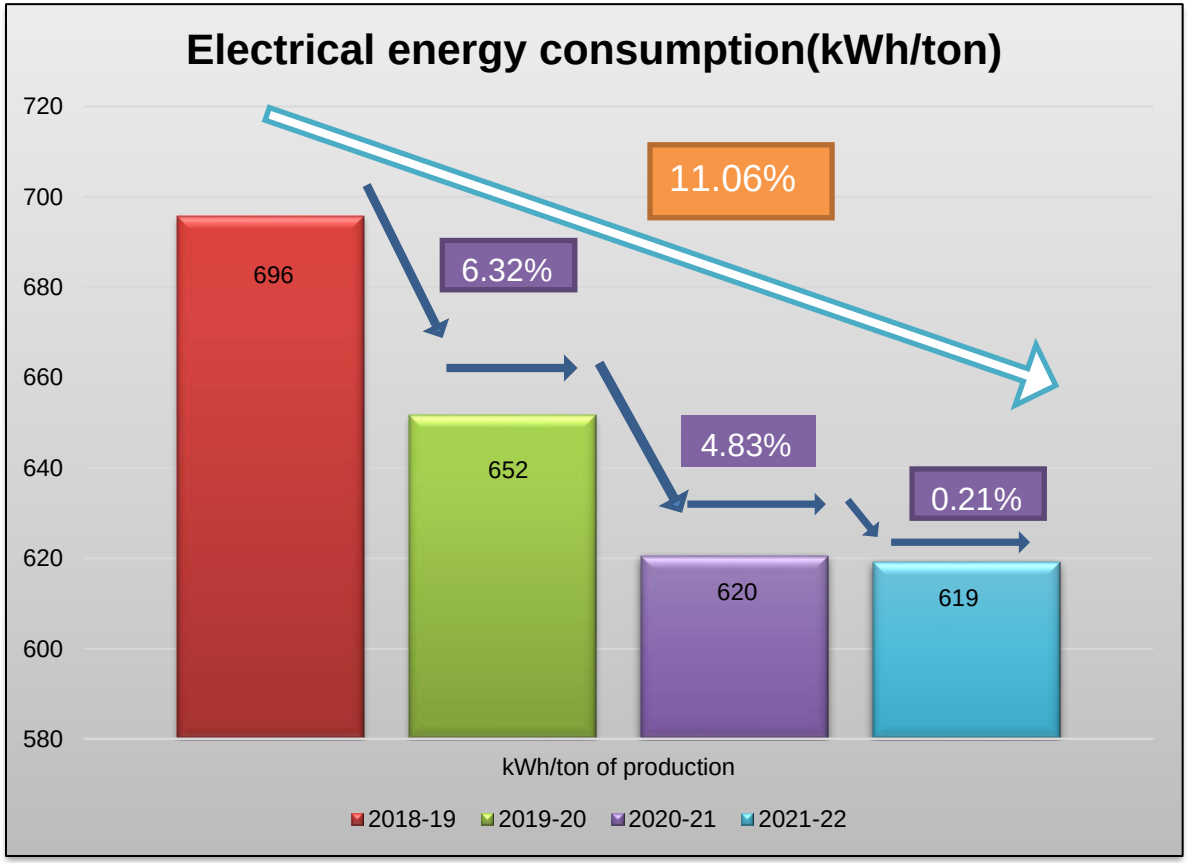


Energy consumption overview





Specific energy consumption



Key Projects implemented
Installation of scrap processing machines
Installation of Scrap processing and compacting systems increasing it's yield
Load factor enhancement
EMS implementation
Rolling mill end cut reduction

Benchmarking

Standard <u>Electrotherm</u> formula for calculating SEC is used

- **As per the formula: (in our case)**
- **SEC manufacturer claimed = 624 kWh/ton of production**
- **SEC actual = 619 kWh/ton of production**

<u>Target</u>
SEC = 610 kWh/ton

SEC target will be achieved by focusing on ENCON projects planned

Encon Projects Planned for FY 2022-2023

No.	Year	Title of Project	Annual Electrical Saving (kWh)	Total Annual Savings (Rs million)	Investment(Rs millions	Payback (Months)
1	2022-2023	CII Energy Audit	7000000	31.50	51.00	19
2	2022-2023	Scrap processing yard	11491200	98.37	314.30	38
3	2022-2023	Installation of new high capacity (18 MW) and high efficiency furnace	4844700	240.20	300.00	15
4	2022-2023	Upgrade Rolling mill to straight mill	748616	4.12	150.00	437
5	2022-2023	Reduce temperature drop using microporus insulation	279364	1.26	0.50	5
6	2022-2023	Replace helical gear box with planetary gear box	1236364	5.56	27.00	58
Total			**25600244**	**381**	**843**	

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Summary of Energy Conservation Projects

Year	No. of energy saving projects	Investments (in INR million)	Electrical savings (in Million kWh)	Savings (in Rs. Million)	Impact on SEC (electrical)
FY 2019-2020	12	5.3	1.69	9.3	Medium
FY 2020-2021	18	43	8.23	39	High
FY 2021-2022	8	26	8.87	40	High
Summary	**38**	**74.3**	**18.87**	**88.3**	

Innovative project

Project Title :
Induction furnace power controller for reduction in specific power consumption.

Project Details & Methodology :

The new power controller system includes a load cell which senses the weight of scrap being put in furnace. Depending on the amount of load feedback is being sent to demand manager which then supplies energy only of the amount required to melt the scrap at higher rate for a particular amount of time and then caps the energy supply which is only sufficient for maintaining the temperature of molten metal.

Trigger for project implementation:

- Reduce specific power consumption
- Save greenhouse gas emissions
- Easily replicable

Replication potential:

- **Easily replicable**

Category B
First time implementation on national level

Results

SEC reduction (in kWh/MT) = 10
MPM = 380
Daily running hours = 1200
Total daily production (MT) = 456
Annual production = 165072

Total reduction in units consumption = 1650720 kWh

Annual savings = 7758384 INR

Investment = 50,00,000 INR

*http://www.eauc.org.uk/file_uploads/ucccfs_unit_converter_v1_3_1.xlsx

Utilization of Renewable Energy Sources

S.No.	Renewable Energy Projects	Technology (electrical/thermal/other)	Type of energy	Onsite/Offsite	Energy Saving/Benefit	Investment	% of overall electrical energy
1.	On grid Captive solar plant - 4 MW capacity	Electrical	PV - Renewable	Offsite	5.79 million kWh/year	147.9 million	2.9%
2.	Rain Water Harvesting **(in operation)**	Other	Hydro	Onsite	1260 KL/year capacity	0.2 million	NA
3.	Sewage Treatment plant **(in operation)**	Other	Hydro	Onsite	10200 KL/year water is filtered	2.9 million	NA

Utilization of Renewable Energy Sources

4 MWp Offsite Ground Mounted Solar Power Plant

Investment Made:
147.9 million INR

Energy Generated FY 2021-2022 :
5.79 million kWh

Group total capacity = 33 MW

12.1% of connected load powered through renewables

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Waste Utilization and Management

S.No.	New Initiatives taken – Zero Waste
1.	Slag reuse – for making roads
2.	STP next level = Taking water treatment to next level, making water fit for industrial use by additionally filtering it through RO and water softner
S.No.	**Older Initiatives in progress – Zero Waste**
1.	Make bricks from slag
2.	Zinc recovery from pollution dust
3.	Rain water harvesting
4.	STP (sewage treatment plant)
5.	TMT bundle locker
6.	Re-melt the launder loss
7.	Re-use the slag by extracting the metal from it

GHG Inventorisation - Emissions

Current Situation on Emission:

- Currently CO2 emission from 68000 litres of diesel was saved when we used electric powered chain excavator instead of going with the diesel one.

Total 3 chain excavator converted to electric from diesel , hence total diesel savings = **204000** litres

- Total Carbon emissions saved per annum (in kg CO2e) = 182769.72 *3
  = 548309.16

Future Target :

- Target is to further bring the emissions down by 913848.6 kg CO2e by using 5 electric powered chain excavators and completely removing any diesel powered chain excavators.

Reduced CO2 emissions by making steel through secondary route

Annual Co2 emissions saved :

1500 kg CO_2/ton of final product

- State of the art FES system from Thermax
- Total capacity of 130000 cubic metre/hour

PM levels = 25 mg/Nm 3

Miyawaki forestation = 6000 trees planted

Reference : https://www.eia.gov/coal/production/quarterly/co2_article/co2.html

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Teamwork, Employee Involvement & Monitoring

Plant performance report – contains all the necessary KPI for the entire plant
Reviewed everyday in a meeting chaired by the **plant head** with all the respective section heads as the members
Approval for any energy conservation projects takes place in this meeting

- Management Committee
- Operations
- Coordination
- Staff
- Workforce

Training programs organized on the following topics :
- Plant utilities (by CII)
- Roll pass design
- Optimize melting operations
- Casting technology
- PLC programming
- Shock pulse monitoring
- Furnace lining practices
- Breaker & Switchgear maintenance

Date - 8/11/2020 — Rathi Plant Performance Report

	SMS-1 Scrap type	Actual charged	% Charged	SMS-2 Scrap type	Actual Charged	% Charged	Audit issues
Recipe Compliance	Mill	5300	1.39%	Mill	11800	2.72%	Furnace
	Light	15300	4.00%	Light	43500	10.03%	
	Mix	160495	42.00%	Mix	152670	35.20%	
	Essar	2000	0.52%	Essar	2000	0.46%	CCM
	Skull	4000	1.05%	Skull	4000	0.92%	
	Cast Iron	1000	0.26%	Cast Iron	4400	1.01%	
	Shredded	5000	1.31%	Shredded	5000	1.15%	
	Turning	46900	12.27%	Turning	64800	14.94%	Rolling
	Process	5600	1.47%	Process	6000	1.38%	
	Sponge	136500	35.72%	Sponge	139500	32.17%	
Recipe plan issues and non compliance	No issues			No issues			Remarks
Scraps Processing issues and							Furnace
							CCM
							Rolling

Furnace SMS	SMS-1	SMS-2	Rathi Rolling			Caster SMS (CCM)		
Target MPM	285	270						
Furnace KPI	Actual	Actual	Rolling KPI	Plan	Actual	CCM KPI	Plan	Actual
MPM	282.44	276.49	% Of Hot rolling	95%	97.86	Launder Loss	800	780
MPM	282.44	276.49	% Of Missroll	0	0.410	Tundish Loss	200	155
BL	8.75	9.28	Mill Down T	0	0 24.00	End Cut	150	205
Mn Average	9.58	9.4	Mech Down T	0	0:00:00	Front Cut	120	130
Mn Recovery	85.6	86.95	Elect Down T	0	0:05:00	No Of Sequence	1+14	1+14,1+14
OFF Heat	0	0	Power consumption		107.79	Bypass Due to	0	0.36
Furnace Hold	0	0				Bypass Due to	0	1.77
Mech/ Elect	Nil	Nil	Roll change time	0	0:00:00	3rd Stand by pass	0	0
Power con.	609.81	613.86	Pass change time	0	0:00:00	High Speeed	0	0
Load Factor	Aux.Pow	58.93	Maintenance time	0	0:00:00	MPEB Power cut	0	0
L.life(hoats)	17	18	MPEB Power Cut Time	0	0:00:00	Mech/ Elect BD	0	0
L.life(hours)	31.62	33.42	Furnace Downtime	0	0:00:00	Laddel hold	0	0
Avg. kW	10346	10186	Site change	0	0:00:00	Powder	400	310
Any Accident	0	0	Any Accident	-	0	No of Breakouts	0	0

SMS Caster Quality KPI					Major Breakdown
Reason	Total Time	Missroll Indep.	Missroll Dep.	Billet Bypass	SMS F/C-
Chilli Problem	0:00:00			0	Caster -
Mouth Open	0:00:00			0	
Cracking Problem	0:00:00			0	Rolling -
Piping Problem	0:00:00			0	

IOT systems installed

- *Realtime data update in cloud*
- *Automatic Employee performance monitoring systems*
- *Automatic KPI dashboards*
- *ERP & CRM systems installation*

Projects implemented through Kaizens: (total 51)

- Replace manual drain valves with level sensor based drain valves
- Install transvector nozzle/blowers for cleaning applications

Green Supply chain

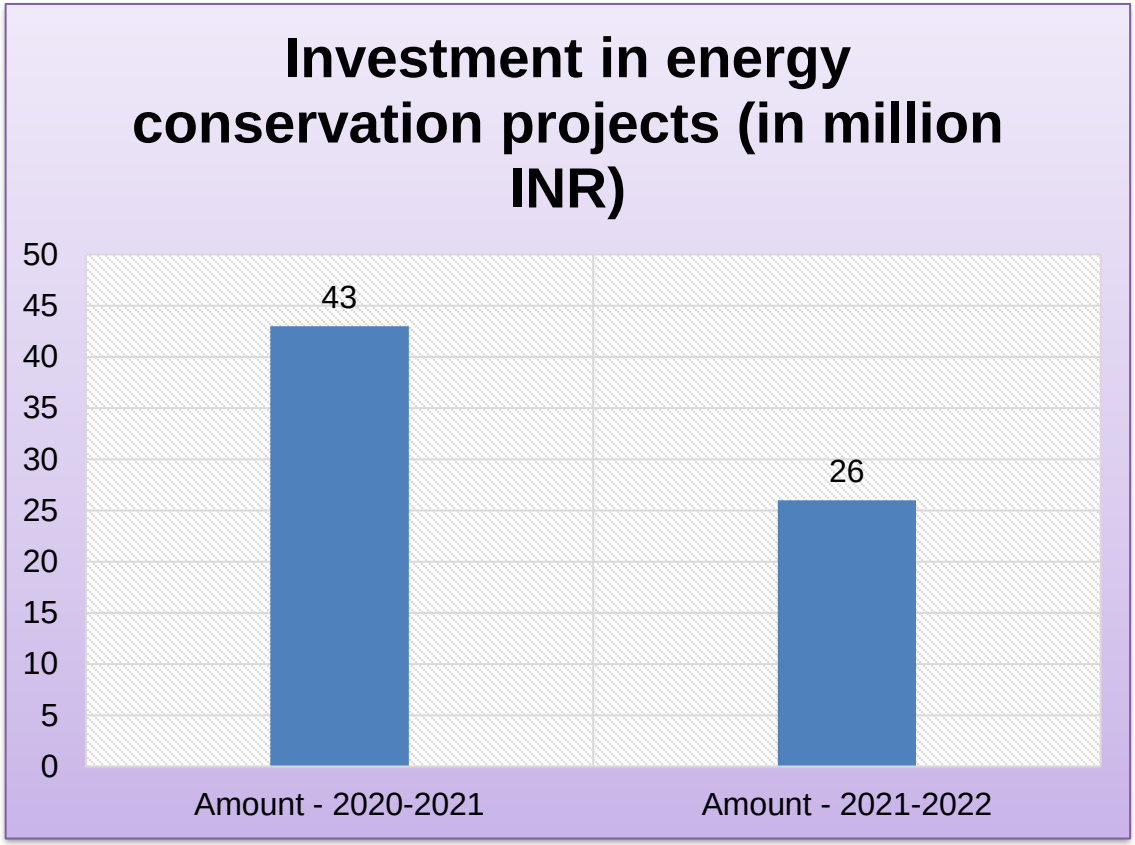
Objective:

The objective of assessing "Green Supply Chain" for participant companies is to understand how the award participant companies are integrating environmental thinking into their supply-chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product

Initiatives:

- Turn around time(TAT) optimization
- QC Digitalization
- Mobile quality van
- Taking TMT size (order) details online
- NABL accredited lab

% Budget Contribution towards energy conservation

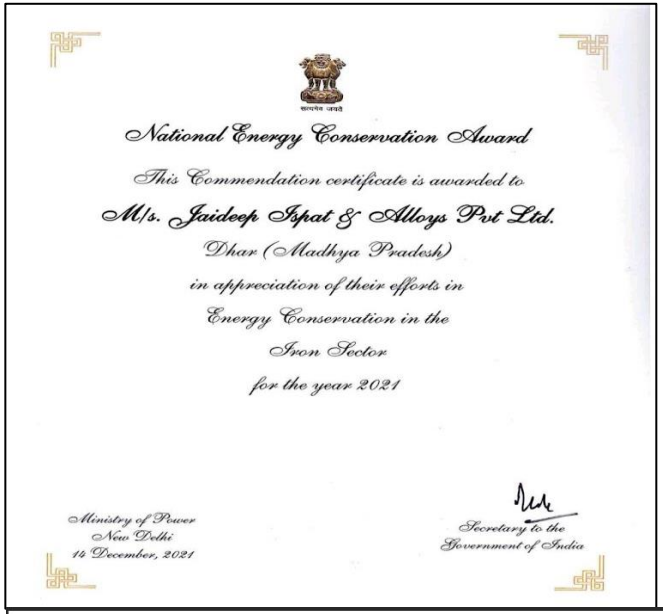


FY 2022-2023 Implement ISO 50001 through CII

Learnings from CII Energy Award 2021

- Impact of energy on climate
- Different waste to fuel technologies
- Innovative design and technology
- Best practices of other units
- Implementation of TPM

Awards & Recognition



National Energy Conservation Award

This Commendation certificate is awarded to

M/s. Jaideep Ispat & Alloys Pvt Ltd.

Dhar (Madhya Pradesh)

in appreciation of their efforts in

Energy Conservation in the

Iron Sector

for the year 2021

Ministry of Power
New Delhi
14 December, 2021

Secretary to the
Government of India

CII Centre of Excellence for Competitiveness for SMEs

Certificate of Award

This is to certify that
Jaideep Ispat & Alloys Pvt. Ltd., Dhar
has received the Appreciation award (Large sector)
under Innovations in Energy Efficiency
Category in the 6th Edition of
CII National Energy Efficiency Circle Competition
held on 14-16 July 2022.

Mr Shreekant Somany
Chairman,
CII – Centre of Excellence for Competitiveness for SMEs

Dr Sudhir Kapoor
Chief Jury,
CII National Energy Efficiency Circle Competition

Mr Pikender Pal Singh
Executive Director
Confederation of Indian Industry

Date: 16-07-2022

Confederation of Indian Industry

6th edition
CII NATIONAL ENERGY EFFICIENCY CIRCLE COMPETITION
14 – 15 – 16 JULY 2022
CII VIRTUAL PLATFORM

6th Edition of CII National Energy Efficiency Circle Competition

Certificate No. EC22/A37

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Long term Vision on Energy efficiency

In the long run we are planning to invest more and more in the renewable sector and hydrogen storage.

Target :
50 MW
Solar Power
Project

Thank You

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Contact No. : 8889914201

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