MANAGEMENT DISCUSSION AND ANALYSIS

MARKET REVIEW

Global Economy:

The global economy faced several challenges in CY 2022, starting from the initiation of the Russia-Ukraine war, supply chain disruption, high inflation, and high key policy rates by the central banks. Global inflation remained a matter of concern in most of the economy, which reached a multi-year high of 8.7% in CY 2022. Monetary tightening by the central banks across the world helped bring the trajectory downwards. The unwinding economic events weighed down global economic growth prospects. World economic growth in CY 2022 is estimated to have declined from 6% in CY 2021 to 3.4%, as per IMF.

Commodity prices eased the early gains of CY 2022 amidst supply chain issues and China's Zero Covid policy due to the demand slowdown. Metal prices, however, stabilised following China's reopening and measures to revive its economy and retracing inflation in advanced economy like USA and EU.

The Indian economy performed exceptionally well compared with the rest of the world. India is set to remain the bright spot in CY 2023 with a potential to contribute 15% to the global GDP growth, according to IMF. Indian economy is projected to grow at 5.9% in FY 2024[1] after having grown at an estimated 6.8% in FY 2023, to be among the fastest growing major economies

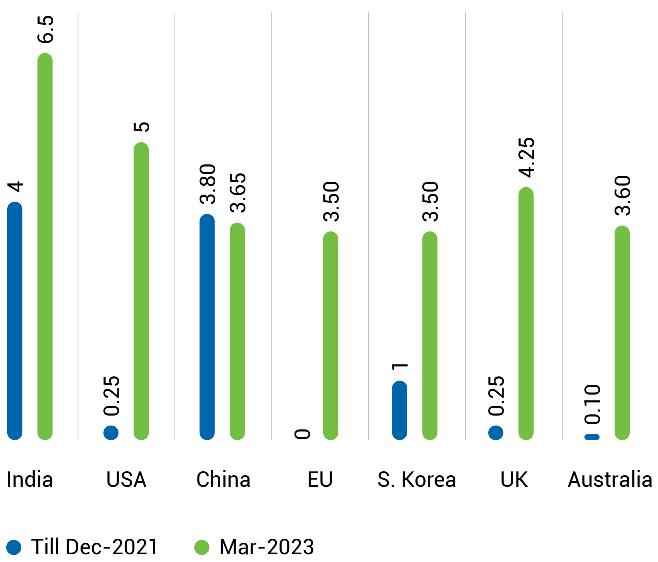
Europe's fight against the repercussions of war

Europe was significantly impacted by the war, which led to high energy and food prices created by the supply-chain disruption. This stretched the purchasing power of the consumers while also impacting the manufacturing sector, that led to production cuts. In Q4 CY 2022, the energy crisis improved, supported by high gas inventory levels, favourable weather conditions, and the central bank's monetary policy tightening, which eased inflation. IMF estimates the Euro area to have grown by 3.5% in CY 2022[1]. The monetary tightening is expected to limit the GDP growth in CY 2023 to 0.8% before increasing to 1.4% in CY 2024.

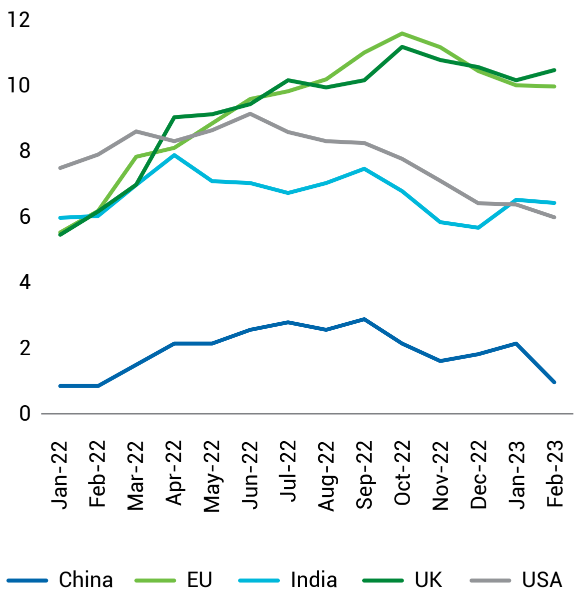
US Economy strong against recession fear

Inflation in the world's largest economy soared to a 40-year high, mainly driven by low labour participation and supply-chain crisis influenced by the external environment. The subsequent monetary tightening by the Federal Reserve Bank impacted the country's economic growth. Rising fed rates led to a further strengthening of the US dollar, thus stretching the current account deficit of import-dependent countries. Despite the negative outlook, the US economy has performed better than expected. The inflation level which reached 9.06% in June 2022 declined to 6.04% in February 2023[2]. The US economy grew by 2.1% in CY 2022 but is expected to decelerate to 1.6% in CY 2023 and 1.1% in CY 2024 [1].

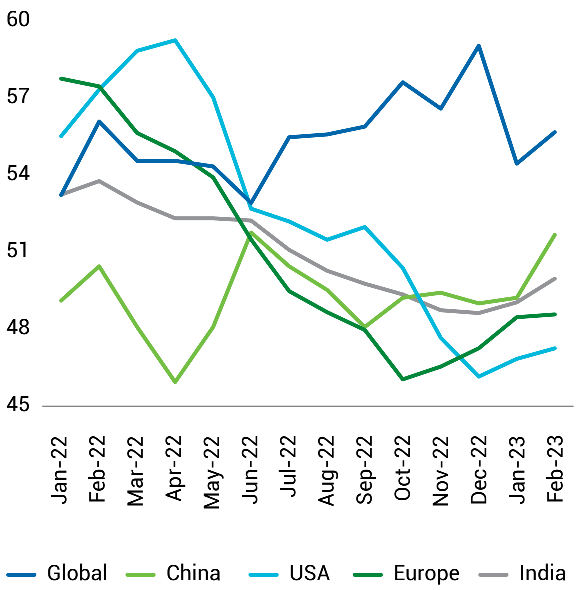
Central Banks' Interest Rates (%)



World's Retail Inflation in 2022 (%YoY)

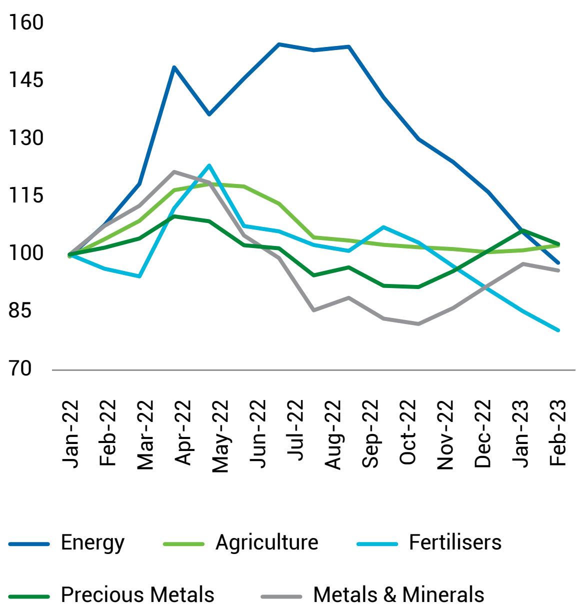


S&P Global Manufacturing PMI (%)



Source: CEIC, S&P Global, World Bank

World Bank Commodity Index (Base: Dec-2021) (%)



China's reopening to drive global economy

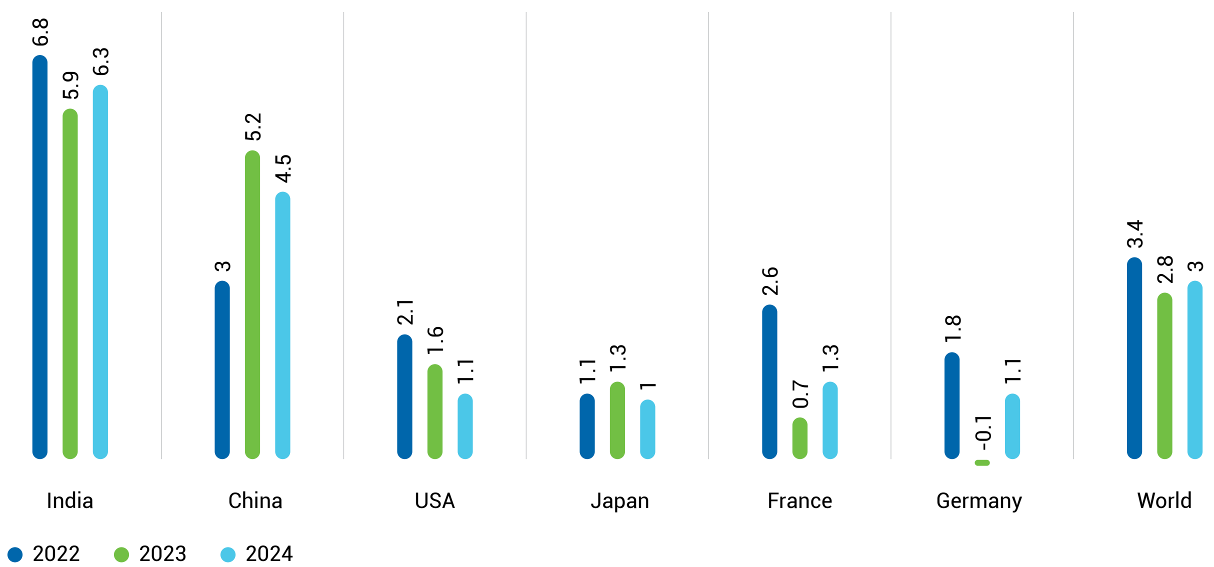
The Chinese economy dealt with multiple challenges in CY 2022, including the real estate sector slowdown, severe COVID-19 infection, and its mitigation with Zero-COVID Policy. Unlike other countries, its central bank loosened the monetary policy to encourage domestic growth, in addition to the stimulus package to boost consumption. China's manufacturing activity after facing a slowdown in CY 2022 with a growth of 3% is coming out strong and is projected to grow by 5.2% in CY 2023 and 4.5% in CY 2024 [1].

Global Economy Outlook:

Performance of the global economy was better than earlier projections, given the lower-than-expected severity of the Russia-Ukraine war and high energy prices. Manufacturing PMI, which fell below the 50-level mark is moving up in most economies. China's re-opening has further improved the expectation of increased economic activities, generating positivity for the global economy. **Inflation levels in most of economies peaked, but expected to fall to 6.6% in CY 2023, improving global financial conditions and business sentiment.**

IMF projects the global economy to grow by 2.8% in CY 2023 before rebounding to 3% in CY 2024, though the worries of war and high inflation still persist [1].

Global GDP Growth (%YoY)



Source: IMF

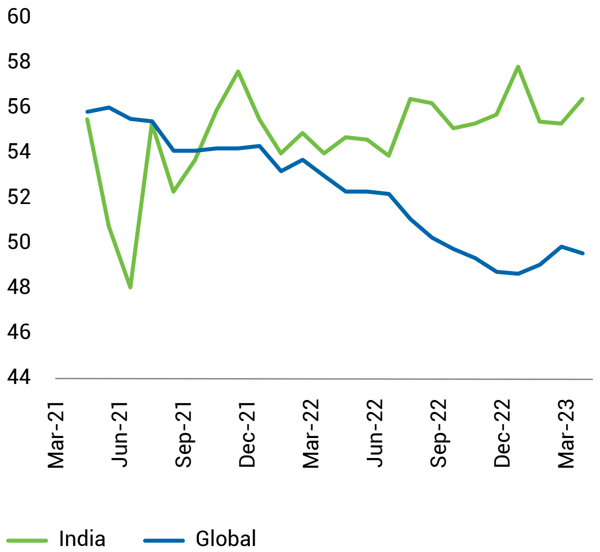
Indian Economy:

The Indian economy performed exceptionally well compared with the rest of the world. India is set to retain its bright spot in CY 2023 with a potential to contribute 15% to the global GDP growth, according to IMF.
In December 2022, India also assumed G20 presidency with an ambition to unite the world under the theme 'Vasudhaiva Kutumbakam" or "One Earth · One Family · One Future". This is an opportunity to showcase the nation's global leadership amidst growing uncertainty and economic crisis.

India's manufacturing sector also outperformed the rest of the world, projecting the country as a potential manufacturing hub. Stable political conditions, supportive policy schemes, strong domestic consumption and growing presence of skilled professionals support this ambition. India's manufacturing PMI remained above the 50-level mark through the year, indicating positive performance.

India's export, including services and merchandise touched US$750 billion in FY 2023 supported by robust policy implementation by the Indian government. GST collection also reached ₹18.1 trillion, a year-on-year growth of 21.4% in FY 2023[6]. Other economic indicators like non-food credit, automobile sales and electricity consumption have also registered robust growth. These indicators are well-supported by consumer sentiment indices, which witnessed consistent monthly year-on-year double digit growth[6].

Manufacturing PMI: India vs. Global



Source: RBI, CMIE

India's rising retail inflation was of concern. Fiscal stimulus support and additional monetary support resulted in the CPI level crossing RBI's upper tolerance levels. Sustained vigilance and multiple rate hikes by the RBI, resulted in repo rate increasing from 4% to 6.5% in February 2023. This significantly controlled the CPI level; from a peak of 7.8% in April 2022 [7], it reached below the upper tolerance limit in November and December of 2022, before reaching 6.4% in February 2023 [8].

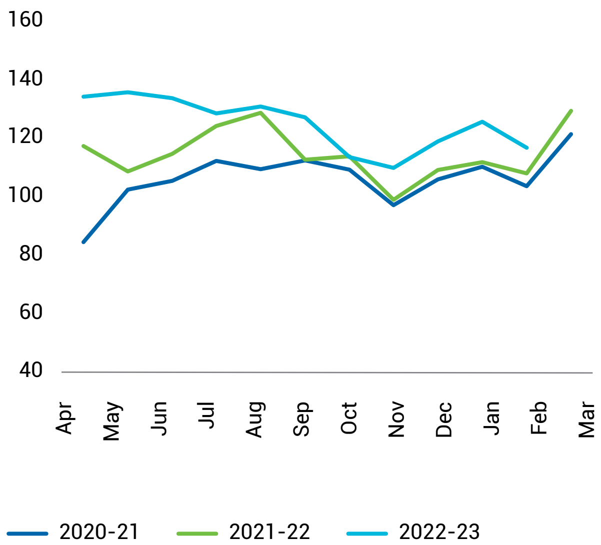
Policy initiatives by the Government of India (GoI)

The GoI's focus to make the country an attractive destination for business has been a key enabler of robust economic performance. The capital expenditure allocation of ₹10 lakh crore for FY 2024, an increase of 37.4%, YoY, has been an exceptional step. The approach towards infrastructure development and inclusive growth of the country is setting the foundation for multiple years of strong growth.

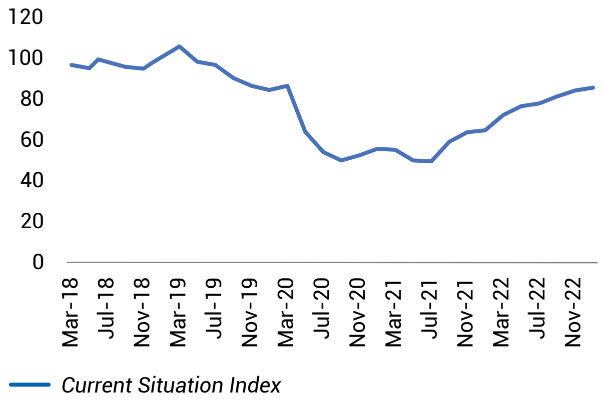
The World Bank has emphasised the collaboration between nations to boost global GDP growth in the current decade. GoI has taken steps in this direction, establishing bilateral trade relations through Free Trade Agreements with Australia and UAE, vastly expanding the market for domestic manufacturers. The upcoming negotiation with the UK, EU, and GCC nations are expected to further expand the horizon. As India aspires to be the global manufacturing hub, these trade deals will ensure a smoother transformation of the global supply chain. The removal of export duty on iron ore above 58% Fe grade and steel has encouraged the sector to have global competency amid commodity volatility.

The National Logistic Policy, another ground-breaking policy initiative by the GoI targeting the complex logistic system, is likely to make India more efficient in project implementation. The plan to reduce logistics cost from 14% to less than 10% is expected to expand the scope of government spending and streamline government operations.

Energy Requirement (billion kWh)

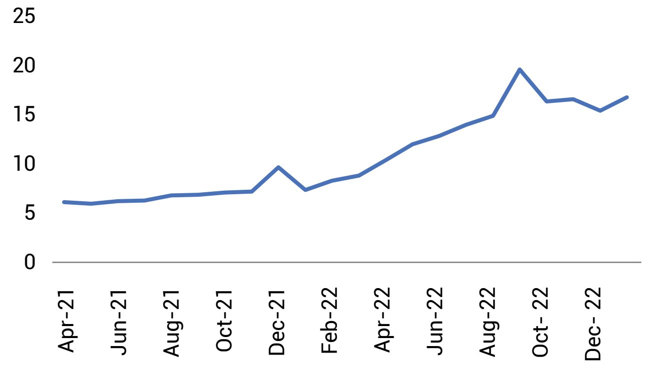


Consumer Confidence Survey of RBI



Source: RBI, CMIE

Non-food Credit Growth (%, YoY)



Indian Economy Outlook

Although global projections of economic growth for CY 2023 loom on uncertainties, India on the other hand is expected to outperform. **As per IMF, Indian economy is projected to grow at 5.9% in FY 2024[1] after having grown at an estimated 6.8% in FY 2023**, to be among the fastest growing major economies. It further projects India and China to contribute to half the global growth in CY2023. India's economic growth will be driven by robust domestic demand supported by the government's continued thrust on infrastructure spending. However, external challenges of global economic slowdown, geo-political scenario and energy price uncertainties may keep the Indian economy vigilant.

India's growth outlook by domestic and global agencies

Agency/Institution	Month of Release	FY 2022-23	FY 2023-24
Economic Survey (GoI)	January 2023	7.0%	6.5%
RBI	February 2023	6.8%	6.5%
IMF	January 2023	6.8%	5.9%
World Bank	January 2023	6.9%	6.3%
Asia Development Bank (ADB)	December 2022	7.0%	7.2%
OECD	November 2022	6.6%	5.7%
S&P Global Ratings	January 2023	7.0%	6.0%
Fitch Ratings	December 2022	7.0%	6.2%
Nomura	March 2023	6.6%	5.3%

Source: CMIE

References:

1. IMF, WEO, January 2023
2. U.S. Bureau of Labor Statistics
3. CEIC
4. S&P Global
5. World Bank, The Pink Sheet
6. CMIE
7. RBI, Monetary Policy Committee
8. MOSPI

SEGMENT OVERVIEW

ZINC

Overview

The year kicked off on a positive note with zinc prices hovering around US$4,000-4,400 per tonne (/t) levels as supply chain got impacted amidst the Russia-Ukraine war and China's zero covid policy led lockdown. However, the market was subject to volatility throughout the year; zinc prices even touched US$2,682/t level in November 2022. It closed at US$2,907/t during the end of March 2023.

The global refined zinc demand contracted by 3% to 13.6 million tonnes in CY 2022, largely due to a fall in Chinese demand. At supply level, the refined zinc production fell by 2.6% in CY 2022, due closure of several smelters globally for care and maintenance as the energy prices increased. Consequently, the global zinc warehouse stocks also fell during this period. In FY 2023, the total tonnage of zinc at Shanghai Futures Exchange (SHFE) warehouses and LME fell to 97 kt and 45 kt respectively during the end of March 2023.

Indian refined zinc demand, however, was robust and is estimated to have increased by ~3% in CY 2022 mainly driven by demand from the infrastructure and Galvanising industry.

Market Drivers

The global zinc demand is expected to grow by 3.5% in CY 2023 majorly driven by stronger offtake from China and India. In India, the zinc demand is expected to increase by 10% in CY 2023 driven by demand from infrastructure and automobile sector.

In domestic market, Indian Railways has been a key demand driver for zinc. With a focus on safety and speed, it has introduced 18 Vande Bharat trains till now (another 478 trains planned) and is also working on different mechanisms to protect rail network from corrosion. Strong focus on developing road, power generation and transmission and 5G related telecom infrastructure are likely to create demand. Together, these are expected to bolster zinc consumption in India.

Products and customers

Hindustan Zinc Limited (HZL) is the largest primary zinc producer in India. In FY 2023, it had 77% domestic market share; it sold ~60% of its refined zinc volume in the domestic market and exported rest of the volume to South-East Asian and Middle Eastern markets.

Over 70% of the zinc demand in India comes from galvanising steel, predominantly used in the construction and infrastructure sectors. HZL has a strong portfolio aligned to these needs comprising continuous galvanising grade, electroplatting grade and two grades of zinc for use in die-casting alloys, which make it an attractive player. The Company is working closely with its customers to increase the proportion of value-added products (VAP) in its zinc portfolio. It strives to increase VAP mix to 23% of total zinc sales in FY 2024, up from 16% in FY 2023.

LEAD

Overview

Historically, lead is believed to be insulated from cyclical demand movements compared to the other metals. However, lead prices in FY 2023, especially during first half of the year, experienced significant volatility. Starting with a 12-month high of US$2,471/t in April 2022, lead prices fell to a 23-month low of US$1,754/t in September 2022. The prices improved in 2H FY 2023 driven by China's reopening. LME price stood at around US$2,100/t level at the financial year end.

Global lead market, including primary and secondary markets, saw demand growth of 1.5% to 13.4 million tonnes in CY 2022 compared to 4.3% growth in CY 2021.

Demand outstripped supply and lead inventories fell to historically low levels. In first nine months of FY 2023, lead inventory in LME declined by ~36% to 25 kt and that in SHFE by ~60% to 35.2 kt.

In India, the refined lead market, including both primary and secondary markets, increased 8.2% to 1.2 million tonnes in CY 2023; the primary lead market demand was ~250 kt.

Market Drivers

The domestic refined lead consumption is expected to grow by 4.2% in CY 2023. With faster consumption growth against minimal mine supply growth, the markets are expected to be tight with no surplus.

Increasing urbanisation and industrialisation in developing countries along with rising automotive consumption are expected to be the key drivers for lead demand. In the domestic market, the demand for lead is expected to be robust, largely on the back of continued demand momentum in automotive sector, which witnessed excellent growth in the passenger vehicle and two-wheeler sales in FY 2023. The demand from the industrial battery segment is also expected to remain robust with battery replacements in data centres, banks, ATMs and other critical applications gathering pace. Given India's ambitious renewable energy focus, emerging areas like energy storage for electricity generated from photovoltaics are likely to add to the demand.

Products and customers

HZL is a leading primary lead producer in India; it produces 99.99% purity lead ingots. In FY 2023, it had ~85% share of the primary domestic market. It sold 91% of its production in domestic market and exported 9% to other geographies. Considering the opportunities in the Indian market, the Company intends to become 100% domestic market focussed through new customer acquisition, leveraging e-commerce platforms and introducing lead alloys.

SILVER

Overview

CY 2022 saw the silver demand reach new highs driven by strong industrial demand, jewellery and silverware offtake and physical investment. The global silver demand rose by 17% in CY 2022 to 1.24 billion ounces (Boz). The industrial demand for silver increased by 2.6% to 550 million ounces (Moz) in CY 2022, driven by vehicle electrification, government's expanding commitment to green infrastructure and rising 5G adoption.

FY 2023 started positively with London Bullion Metals Association (LBMA) silver prices reaching US$24.54 per troy ounce (/toz) in April 2022. However, with the market volatility, the prices declined to US$17.77/toz during September 2022. The prices picked up gradually to reach US$23.75/toz in January 2023 and stood at average US$21.9/toz during March 2023.

Market Drivers

Global silver supply is expected to rise by 4% to 1.005 Boz in CY 2023. Silver mine production is expected to grow by 5% to reach 0.873 Boz in CY 2023, due to new silver mines in Mexico and increased output from Chile gold operations with high silver content. The silver recycling growth is expected to be 3%.

Global silver demand, though, is expected to dip to 1.15 Boz in CY 2023. The decline would be primarily on account of softness in jewellery and physical investment demand. The long-term prospects for silver investments (both physical and ETF) remain strong. Silver coin demand in India is also encouraging. While it has largely been driven by gifting and religious purposes, which insulates it from price fluctuations, its demand has increased in recent years because of the different product offerings and marketing efforts from mints and refineries.

However, global industrial demand for silver is expected to increase by 2.6% to 550 Moz. The solar panel manufacturing industry has been increasingly consuming silver, driven by government's support in terms of production linked incentives (PLI) to promote the usage of renewables. The use of silver for vehicle electrification and creation of charging stations is also likely to rise.

Products and customers

HZL is India's only primary silver producer and ranks 5th globally among the top silver producing companies. HZL sells silver exclusively in the domestic market. It is used in industry (electrical contacts, solder and alloys, and pharmaceuticals), jewellery and silverware. The Company also offers spot sales of silver through e-auction to reduce manual intervention, thus ensuring equal opportunity for buyers to compete along with complete price transparency.

ALUMINIUM

Overview

The aluminium market during CY 2022 started on a positive note with LME prices steeply rising to all-time high of US$3,849/t in March 2022. However, the market was significantly impacted by volatility in macroeconomic conditions during the year amidst the ongoing Russia-Ukraine war, European energy crisis, and high inflation in the key markets. Consequently, the market witnessed price declines as the year progressed; LME price stood at around US$2,350/t level during the end of March 2023.

In CY 2022, global primary aluminium production increased by 2.5% to 69 million tonnes while demand is estimated to have increased by 0.4% to 69.2 million tonnes resulting in global deficit of 0.2 million tonnes. In China, the largest market, primary production increased by 4.5% while demand increased by 1.2%. In rest of the world (RoW), both production and consumption were flat.

In India, the domestic demand is likely to have surged 17% from ~3.9 million tonnes in FY 2022 to around 4.6 miliion tonnes in FY 2023; majorly driven by primary aluminium demand on robust economic growth with high industrial and manufacturing activities supported by government initiatives.

Market Drivers

Global total aluminium demand is expected to increase at a CAGR of ~3% from 96 million tonnes in CY 2022 to 122 million tonnes in CY 2030 driven by multiple factors. The decarbonisation transition in transportation and packaging industry is expected to push aluminium demand. Aluminium consumption from renewable energy and electric vehicle sectors is expected to increase from 6 million tonnes in CY 2022 to 16 million tonnes by CY 2030.

CY 2023 is expected to witness demand improvements from both China and rest of the world. China's primary aluminium demand is expected to increase by 2-3% mainly due to government stimulus policies.

Indian domestic aluminium demand is likely to be driven by key consuming segments like electronics and appliances as well as anticipated boom in renewable, defence, and aerospace sectors.

Products and customers

Vedanta is India's largest primary aluminium producer with an annual capacity of ~2.3 million tonnes. It has a market share of 41% (as of March 2023) in the domestic market; its domestic sales volume increased by 28% in FY 2023. The Company also has a sizeable OEM base globally that consumes its value-added products.

The Company's product portfolio includes aluminium ingots, primary foundry alloys, wire rods, billets, and rolled products which cater to varied industries globally such as power, transportation, construction and packaging, defence, renewable, automobile and aerospace among others.

In line with the evolving market needs and the focus on value creation, the Company has been steadily strengthening its market position with focus on value-added product (VAP) portfolio which currently accounts for ~38% of its total aluminium sales globally. The Company is working on projects to increase its total aluminium capacity to 3 MTPA and VAP mix to ~100% along with improvement in backward integration.

OIL AND GAS

Overview

According to the US IEA, the global oil supply increased by 4.7 million barrels per day (mbpd) to 100.1 mbpd in CY 2022, with the US, Russia and the Organisation of the Petroleum Exporting Countries (OPEC) being the major contributors. At the same time, the global oil demand increased by 2.2 mbpd, driven by both Organisation for Economic Co-operation and Development (OECD), primarily the US, and non-OECD countries, primarily India, and the Middle East. Indian oil demand increased by 8%.

Crude production and consumption (mbpd)

Particulars	CY 2021	CY 2022	Change, CY 2021 vs CY 2022
World production	95.4	100.1	4.7
OPEC crude production	26.4	29.1	2.7
World consumption	97.7	99.9	2.2

(Source: US EIA)

Oil market was subject to elevated volatility amidst multiple macro and geopolitical events in CY 2022. This included Russia's invasion of Ukraine in late February 2022 and the ensuing sanctions, embargoes, and price cap on its oil imports. Further, recessionary and inflationary pressures on the global economy, China's low oil demand due to stringent zero-COVID policies, and the transformed crude and product trade flow also impacted the market. The global oil market adjusted to these shocks and physical supplies were marginally hit. The losses in Russian supplies were limited due to unwinding of OPEC+ cuts, release of oil from the strategic petroleum reserve (SPR), and the ability of Russia to redirect its exports from Europe to other parts of the world. India emerged as a key destination, with share of Russian crude in its overall import basket increasing from 0.2% levels to highs of ~27% in January 2023.

These elevated uncertainties shaped supply demand balance and market expectations, as partly reflected in extreme price movements in CY 2022. During majority of the first half of CY 2022, crude oil prices traded above US$100 per barrel (/ bbl). However, it softened gradually during second half of CY 2022 and returned to pre-Russia-Ukraine war level of US$70-75/bbl by March 2023.

Brent, $/bbl

Market Drivers

As per OPEC, the global oil demand is expected to increase by 2.5 mbpd to 101.9 mbpd in CY 2023 with a potential upside coming from the opening of the Chinese economy and increased demand for jet fuel and kerosene. Global oil supply driven by the US, Brazil, Norway, Canada, Kazakhstan, and Guyana are expected to exceed demand during the first half of CY 2023. However, second half of CY 2023 is expected to be oil deficit with demand recovery and continued decline in Russian output due to the sanctions imposed. Nevertheless, large uncertainties remain over the impact of ongoing geopolitical developments, as well as the output potential for the US shale in CY 2023.

According to the US Energy Information Administration (EIA), brent crude oil spot prices will average at US$83 per barrel in CY 2023. Global economic outlook uncertainty and rising crude inventory will impact crude oil prices, however, the pressure will be limited due to high demand from Asian markets.

India, the world's third largest oil consumer and the fourth largest refiner, currently meets 87% of its oil consumption and 50% of its gas consumption through imports. In CY 2023, India's demand is projected to increase to 5.39 (+0.02) mbpd, supported by increasing airline activities and projected GDP growth of 5.6%. The government's proposed increase in capital spending will boost construction and manufacturing activities, thereby, driving the oil demand in India.

Products and customers

Cairn India is the largest private oil & gas exploration and production company in India with gross proven and probable R&R of 1,151 million barrels of oil equivalent (mmboe). The Company's crude oil is sold to public and private refineries and its natural gas is consumed by the fertiliser industry and the city gas distribution sector in India.

100% of the Company's crude oil and natural gas production in FY 2023 was sold in India as per government regulation. The Company is focussed on strengthening its dominance in the Indian market, with an ambition of producing 50% of India's oil & gas.

POWER SECTOR

Overview

India is the 3rd largest electricity producer in the world after China and the US, with an installed capacity of 411 GW, as of 31 March 2023. Energy being an important input for economic growth and development, India has seen rapid growth in electricity demand over the years, in line with its economic development. In FY 2023, India's total electricity demand grew by 9.5% to reach record highs of 1,511 billion units (BUs) while the total electricity generation grew 8.7% to 1,624 BUs.

There is strong focus on creating new capacities to meet the country's burgeoning energy demand. The Government of India (GoI) has set a vision to double the power capacity by 2030, to keep pace with the growing population, increasing electrification and per capita usage.

Market Drivers

According to the Central Electricity Authority (CEA), India's annual electricity consumption is estimated to grow at an average of 7.2% per annum over next five years, driven by expansion in industrial activities, growing population, rising per capita income, and increasing electricity penetration. In line with the demand projections, the country's installed capacity is estimated to register a 10+% CAGR during FY 2022-27.

Multiple initiatives by the government are encouraging growth and investment in the power sector. This includes policy support such as delicensing the electrical machinery industry, allowing 100% foreign direct investment (FDI) and the focus on 'Power for All' through various schemes. This includes Saubhagya, Integrated Power Development Scheme, Deen Dayal Upadhyaya Gram Jyoti Yojana, Unnat Jyoti by Affordable LEDs for All, Restructured Accelerated Power Development and Reforms Programme, Ujwal DISCOM Assurance Yojana and National Infrastructure Pipeline.

To ensure climate compatible growth, renewable energy is expected to be a preferrable mode with a target to expand its capacity to 500 GW by 2030. PLI scheme and policies like the Green Energy Open Access Rules, Energy Conservation (Amendment) Bill 2022 and renewable energy generation and utilisation (renewable purchase obligations) are incentivising this change. The Union Budget FY 2023-24 has also given due importance to renewable energy with increased capital outlay.

Products and customers

Vedanta has a power portfolio with a total capacity of ~ 9 GW. These power assets are at Talwandi Sabo, Jharsuguda, Korba, Lanjigarh. 37% of the total capacity is used for generating power for commercial purposes, backed by long-term power purchase agreements with state distribution companies of Punjab, Tamil Nadu, Kerala, Chhattisgarh, and Odisha. The remaining 63% power generated is deployed in captive operations at Aluminium and Zinc businesses.

Vedanta has set itself a target to achieve 2.5 GW round the clock renewable energy (RE RTC) capacity by 2030 and has signed power delivery agreements for 788 MW RE RTC by the end of FY 2023.

STEEL

Overview

India is the second-largest steel producer in the world. Steel is one of India's core industries, contributing more than 2% to the GDP. In FY 2023, India's crude steel production increased by 4% to 125 million tonnes.

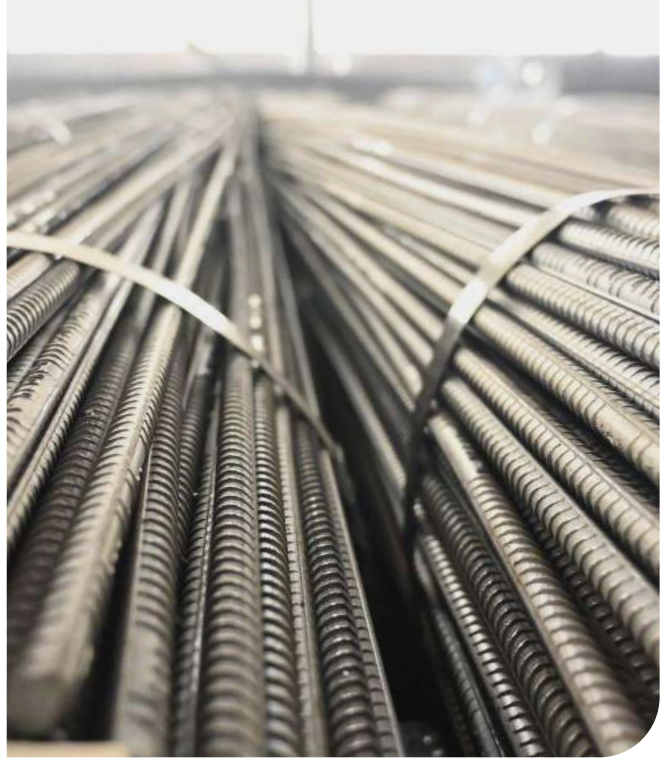
Indian government's continuous focus on infrastructure building has led to an increase in Indian steel finished consumption by 13% to 119 million tonnes in FY 2023. In eastern states, steel demand was relatively higher due to the projects like Hockey World Cup in Odisha and various rail bridge constructions in the North-Eastern belts.

The steel product prices, however, have been volatile. The domestic long steel prices reached highs of ~₹70,000/tonne during April 2022, as raw material prices increased following the Russia-Ukraine war. However, with increase in export duty during May-December, 2022, the prices fell as domestic market-focussed producers liquidated inventories. Prices recovered back to ₹60,000/tonne levels during March 2023 with reversal of export duty, and subsequent uptick in export orders along with improved domestic demand.

Market Drivers

In FY 2024, steel demand in India is expected to be robust. The government's push to increase steel production as per the National Steel Policy, focus to make India a US$5 trillion economy and 'Make in India' policy are likely to support the industry. Demand from the major sectors such as infrastructure (including railways, metros, freight corridors), construction and housing, renewables and automobiles is expected to be strong supported by Union Budget 2023-24's push for infrastructure creation through ₹10 lakh crore capital expenditure outlay.

Railways have been allocated ₹2.40 lakh crore with plans to bring 4,000 km of railway network under 'Kavach', a train protection system, in FY 2024. Further, increased activity in UDAN scheme to construct 100 airports, a higher allocation of ₹80,000 crore to Pradhan Mantri Awas Yojana and a resurgence in automobile sector (expected to attract ₹74,850 crore investment as part of PLI scheme) are likely to boost steel demand. Additionally, the proposed import duty reduction for machine parts used to produce Li-ion batteries in electric vehicles, may boost auto industry and hence the steel consumption.



Products and customers

ESL Steel Limited presently has 1.5 MTPA of steel manufacturing capacity, with projects underway to expand the capacity to 3 MTPA in FY 2024. The Company's portfolio includes pig iron, billets, TMT bars, wire rods and ductile iron pipes which are sold across construction, infrastructure, transport, energy.

In FY 2023, the Company developed various new wire rods grades, including Boron Alloy Grades in co-ordination with customers to meet their requirements. It received several notable accreditation approvals, including from UK CARES for TMT. It also secured various domestic approvals, such as blanket approval from the National Highways Authority of India and UP Metro Rail corporation, UP Bridge Corporation, Satluj Jal Vidyut Nigam, IOC Panipat Refinery, Jal Jeevan Mission, Water Corporation of Orissa and Rural Water Supply and Sanitation department. The Company further added several esteemed customers to its portfolio, from infrastructure, steel and engineering sectors.

For FY 2024, ESL is prioritising developing value-added grades of wire rods, increasing alloy grades and enhancing retail segments. The Company is also focussed on digitalisation to ensure fair price recovery and conducting auctioned sales for prime grades of all products.

IRON ORE

Overview

Global iron ore prices witnessed significant volatility in CY 2022. The prices reached a peak of US$160/t in March 2022, driven by concerns over loss of significant supply in the context of geopolitical conflict in Europe. The prices gradually dropped through the year to touch a low of US$79/t in October 2022, owing to weakness in Chinese real estate sector. However, the iron ore prices firmed up in the following months and stabilised around ~US$120-130/t level in March 2023.

In India, FY 2023 iron ore production was stable at ~250 million tonnes with 6% increase in domestic steel production. However, iron ore exports fell by ~23% to ~20 million tonnes as Government of India (GoI) increased iron ore export duty in May 2022. Iron ore prices moved in tandem with global price movement during early CY 2022, however, the pricing later was decoupled due to sudden increase in export duty. In November 2022, GoI reversed the additional export duty. Iron ore prices increased in March 2023 driven by a seasonally strong steel sector demand and export opportunities.

Market Drivers

Indian iron ore production is expected to increase to 260 million tonnes by FY 2025. Iron ore exports from India are expected to increase with the removal of iron ore export duties and Karnataka iron ore export ban. The positive shift was evident in growing exports during last quarter of FY 2023 and is likely to sustain.

Global iron ore prices are expected to sustain in near term, driven by recovery in China's economy and specifically its construction sector post lifting of Covid restrictions. Additionally, a decrease in production from key producers, Australia and Brazil, is expected to further strengthen the prices.

Products and customers

The Company produces iron ore and pig iron, and caters to steelmaking, construction, and infrastructure sectors. It sells more than 65% of pig iron and 69% of iron ore in the domestic market.

In FY 2023, the Company strengthened its industry position by ramping up mining operations. It bagged iron ore blocks FEE grade and BICO in Odisha's

Sundargarh in FY 2022 and operationalised both the mines in FY 2023 with a combined capacity of 5.5 MTPA. It also started mining operations in Bomi mine Liberia, achieving a production run-rate of 0.2 MTPA as on 31 March 2023. The Company expanded its geographic reach in India and won Bicholim mine in Goa, with resources of 84.92 MTPA.

HIGH CARBON FERRO CHROME

Overview

High carbon ferro chrome (HCFC) is a key raw material in stainless steel, adding special characteristics of non-corrosiveness, high durability and temperature resistance. Over 80% of all ferrochrome goes into manufacture of stainless steel, making it a key demand driver. South Africa is the largest HCFC supplier and has significant bearing on market dynamics. However, Asia led by China is the largest consuming markets with 85% and 60% of the global HCFC consumption, respectively. China's large overall import/merchant demand continues to make it the most influential market for global supply-demand dynamics and prices.

In CY 2022, global HCFC production stood at ~15 million tonnes and India produced ~1.3 million tonnes, making it the fourth largest producer. India remained an export-oriented HCFC producer with 60% of the volume being exported.

HCFC prices in FY 2023, especially during first half of the year, experienced volatility. In April 2022, the prices were at a 12-month high of US$1,592/t. However, it fell to a 15-month low of US$1,173/t in September 2022. During second half of the year, the prices improved with China reopening; prices stood at around US$1,350/t level at the year end.

Market Drivers

Stainless steel demand and prices are the key market drivers for HCFC. With growing demand from infrastructure projects in developing countries and demand resumption from the largest market of China, stainless steel production is expected to grow at 4-5% for next fiscal. This is expected to drive demand for global HCFC. The global HCFC production is likely to grow at 3-4%.

India is poised to be the fastest growing market, with both stainless steel and HCFC production projected to grow at 7-8%. India's growth will be supported by largest-ever capital allocation for infrastructure creation including highway and airport development, railway network modernisation, and increased focus on housing construction.

Products and customers

Though India is an export-oriented country, Ferro Alloys Corporation (FACOR) is the second largest supplier of HCFC in the domestic merchant market. In FY 2023, FACOR sold 85% of its total ferro chrome volume within India, primarily to stainless steel and alloy steel producers.

The Company is focussed on developing value added products (VAP) portfolio. It increased its VAP capacity from 75 KTPA to 150 KTPA in FY 2023 to address niche markets in North America, Europe and South Korea. In FY 2024, the Company will be focussed on enhancing its volume and footprint both in Indian and global markets.

COPPER

Overview

Copper experienced another volatile year in CY 2022. Copper prices soared to a record high above US$10,000/t in March 2022 owing to rising geopolitical tensions, inflation and energy costs. However, a downtrend owing to the fears of recession drove down prices to nearly two-year lows of less than US$7,000/t by July 2022. Since then, the prices have gradually been moving up and were average US$8,836/t during March 2023.

Overall global copper demand and supply were mostly flattish. Global refined copper consumption is estimated to have increased by 1.2% to 24.5 million tonnes. However, Indian copper market was strong in CY 2022; refined copper production and consumption increased by 10.5% to 550 kt and by 19% to 640 kt, respectively.

Market Drivers

In CY 2023, a rapid recovery in global economic activity and rebound in China's construction and automotive industry following its economic reopening are expected to improve copper demand. Globally, CY 2023, is estimated to be a supply deficit year for copper with an estimated 2.6% growth in refined copper consumption, which would provide support to prices. China's refined copper consumption is expected to grow by 2.5% to 13.9 million tonnes and India's refined copper consumption to grow faster by 12.5% to 720 kt in CY 2023.

India's total copper demand is projected to reach 2.8 million tonnes by 2030 driven by building and construction, manufacturing, transportation, and consumer durable industries. EV segment would play a crucial role in driving demand given their higher copper content compared to traditional vehicles.

Products and customers

The Company has one of the largest copper production capacities in India. It produces a wide range of copper products including 8 mm copper rod, 11.42 mm/12.45 mm/12.45 mm wax free, copper cathode and copper car bar with housing wires, winding wires and cables, transformer and electrical profile producers being its primary customers.

The Company sold 96% of its FY 2023 volume in domestic market. It also has presence in export markets, namely Saudi Arabia, Qatar and Nepal. The Company is undertaking various projects towards manufacturing green copper to strengthen its competitive positioning.

FINANCE REVIEW

Executive summary:

We had a strong operational and financial performance in FY 2023 amidst the challenges faced due to macroeconomic uncertainty. The Company continues to focus on controllable factors such as resetting cost base through diverse cost optimisation initiatives, disciplined capital investments, working capital initiatives, marketing initiatives & volume with strong control measures to ensure safe operations across businesses within framed government and corporate guidelines.

In FY 2023, we recorded an EBITDA of ₹35,241 crore, 22% lower YoY with strong double digit adjusted EBITDA margin[1] of 28%. (FY 2022: ₹45,319 crore, margin 39%). This was mainly due to slip in commodity prices at Aluminium, Lead and Silver and headwind in input commodity prices, partially offset by rupee depreciation, improved sales volume at zinc, aluminium and copper coupled with strategic hedging gains.

Higher sales volumes resulted in increase in EBITDA by ₹641 crore, driven by higher volumes at zinc, aluminium and copper partially offset by reduced sales volume at Oil & Gas and Iron & Steel.

Market factors resulted in decrease in EBITDA by ₹9,512 crore. This was primarily driven by input commodity inflation, decrease in the commodity prices, partly offset by rupee depreciation

Gross debt as on 31 March 2023 was ₹66,182 crore, increase of ₹13,073 crore since 31 March 2022. This was mainly due to the increase of debt at VEDL Standalone and temporary debt at HZL partially offset by reduction of debt at TSPL & ESL and receipt of inter-company loan from VRL.

Net debt as on 31 March 2023 was ₹45,260 crore, increased by ₹24,281 crore since 31 March 2022 (FY 2022: ₹20,979 crore), mainly due to dividend payment and capex outflow partially offset by cash flow from operations and working capital release.

The balance sheet of Vedanta Limited continues to remain strong with cash & cash equivalents, of ₹20,922 crore and Net Debt to EBITDA ratio at 1.3x well within the approved capital allocation framework (FY 2022: 0.5x)

1 Excludes custom smelting at copper business.

Consolidated EBITDA

EBITDA decreased by 22% in FY 2023 to ₹35,241 crore.

(₹ crore, unless stated)

Consolidated EBITDA	FY 2023	FY 2022	% change
Zinc	19,408	17,695	10%
- India	17,474	16,161	8%
- International	1,934	1,533	26%
Oil & Gas	7,782	5,992	30%
Aluminium	5,837	17,337	(66%)
Power	851	1,082	(21%)
Iron Ore	988	2,280	(57%)
Steel	316	701	(55%)
Copper	(4)	(115)	-
FACOR	149	325	(54%)
Others	(86)	23	-
Total EBITDA	**35,241**	**45,319**	**(22%)**

Consolidated EBITDA bridge:

(₹ crore, unless stated)

Consolidated EBITDA		% change
EBITDA for FY 2022		**45,319**
Market and regulatory: (9,512)		
a)	Prices, premium/discount	(4,573)
b)	Direct raw material inflation	(9,984)
c)	Foreign exchange movement	5,296
d)	Regulatory changes	(251)
Operational: (1,977)		
e)	Volume	641
f)	Cost and marketing	(2,618)
Others		**1,411**
EBITDA for FY 2023		**35,241**

a) Prices, premium/discount

Commodity price fluctuations have a significant impact on the Group's business. During FY 2023, we saw a net negative impact of ₹4,573 crore on EBITDA due to slip in commodity prices.

Zinc, lead and silver: Average zinc LME prices during FY 2023 increased to US$3,319 per tonne, up 2% YoY; lead LME prices decreased to US$2,101 per tonne, down 8% YoY; and silver prices decreased to US$21.4 per ounce, down 13% YoY. The cumulative impact of these price fluctuations decreased EBITDA by ₹387 crore.

TC/RC in Zinc International Business during FY 2023 increased to US$245/dmt up 148% YoY, decreased EBITDA by ₹645 crore.

Aluminium: Average aluminium LME prices decreased to US$2,481 per tonne in FY 2023, down 11% YoY, this had a negative impact of ₹5,732 crore on EBITDA.

Oil & Gas: The average Brent price for the year was US$96 per barrel, up 18% YoY. This had positive impact on EBITDA by ₹1,183 crore.

Iron & Steel: Higher realisations positively impacted EBITDA at ESL by ₹771 crore.

b) Direct raw material inflation

Prices of key raw materials such as imported alumina, thermal coal, carbon and coking coal have increased in FY 2023, negatively impacting EBITDA by ₹9,984 crore, primarily at Aluminium, Zinc and Iron & Steel business.

c) Foreign exchange fluctuation

Rupee depreciated against the US dollar during FY 2023. Stronger dollar is favourable to the Group's EBITDA, given the local cost base and predominantly US dollar-linked pricing. The favourable currency movements positively impacted EBITDA by ₹5,296 crore.

Key exchange rates against the US dollar.

	Average year ended 31 March 2023	Average year ended 31 March 2022	% change	As at 31 March 2023	As at 31 March 2022
Indian rupee	80.27	74.46	7.8%	82.16	75.59

d) Regulatory

During FY 2023, changes in regulatory levies such as Renewable Power Obligation etc. had a cumulative negative impact on the Group EBITDA of ₹251 crore.

e) Volumes

Higher volume led to increase in EBITDA by ₹641 crore by following businesses:

HZL (positive ₹1,153 crore): In FY 2023, HZL achieved metal sales of 1,032 kt, up 7% YoY and silver sales of 714 tonnes up 10% YoY

ZI (positive ₹385 crore): In FY 2023, ZI achieved MIC sales of 273 kt, up 22% YoY

Aluminium (positive ₹141 crore)

Partly offset by:

Cairn (negative ₹761 crore) and
Iron and Steel (negative ₹333 crore)

f) Cost and marketing (-₹2,618 crore)

Higher costs resulted in decrease in EBITDA by ₹3,167 crore over FY 2023, primarily due to increased cost, partially offset by higher premia realisations at Aluminium business.

g) Others

This primarily includes the impact of strategic hedging gains, partially offset by inventory adjustments during the year.

Income statement

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% Change
Net Sales/Income from Operations	1,45,404	1,31,192	11%
Other Operating Income	1,904	1,541	24%
EBITDA	35,241	45,319	(22%)
EBITDA margin[1] (%)	28%	39%	-
Finance Cost	6,225	4,797	30%
Investment Income	2,851	2,341	22%
Exchange Gain/(Loss)	(492)	(235)	-
Exploration Cost Written off	(327)	-	-
Profit before Depreciation and Taxes	31,048	42,627	(27%)
Depreciation and Amortisation	10,555	8,895	19%
Profit before Exceptional items	20,493	33,732	(39%)
Exceptional items[2] : credit/(expense)	(217)	(768)	-
Taxes[3]	5,770	9,255	(38%)
Profit after taxes	14,506	23,710	(39%)
Profit after taxes (before Exceptional Items)	14,449	24,299	(41%)
Minority interest	3,929	4,908	(20%)
Attributable PAT (after exceptional items)	10,574	18,802	(44%)
Attributable PAT (before exceptional items)	10,521	19,279	(45%)
Basic earnings per share (₹/share)	28.50	50.73	(44%)
Basic EPS before exceptional items (₹/share)	28.36	52.02	(45%)
Exchange Rate (₹/US$) – Average	80.27	74.46	8%
Exchange Rate (₹/US$) – Closing	82.16	75.59	9%

1. *Excludes custom smelting at Copper business*
2. *Exceptional Items gross of tax*
3. *Tax includes tax benefit on exceptional items of ₹274 crore in FY 2023 (FY 2022: tax benefit of ₹178 crore)*
4. *Previous period figures have been regrouped/rearranged wherever necessary to conform to current period presentation*

Revenue

Reported record revenue for the year was ₹1,45,404 crore, higher 11% YoY. This was primarily driven by higher volumes at copper, zinc and aluminium, strategic hedging gains and rupee depreciation, partially offset by slip in commodity prices majorly of aluminium, copper, lead, and silver.

EBITDA and EBITDA Margin

Second highest EBITDA for the year was ₹35,241 crore, 22% lower YoY. This was mainly due to slip in commodity prices at Aluminium, Lead and Silver and headwind in input commodity prices, partially offset by rupee depreciation, improved sales volume at zinc, aluminium, and copper coupled with strategic hedging gains.

We maintained a strong double digit adjusted EBITDA margin of 28% for the year (FY 2022: 39%)

Depreciation and Amortisations

Depreciation for the year was ₹10,555 crore compared to ₹8,895 crore in FY 2022, higher by 19%, due to increase in ore production at Zinc India and higher depletion charge at Oil & Gas business.

Net Interest

The blended cost of borrowings was 7.8% for FY 2023 compared to 7.9% in FY 2022.

Finance cost for FY 2023 was ₹6,225 crore, 30% higher compared to ₹4,797 crore in FY 2022 mainly on account of increase in average borrowings.

Investment income for FY 2023 stood at ₹2,852 crore, 22% higher compared to ₹2,341 crore in FY 2022. This was mainly due to interest received on income tax refund, mark-to market movement and change in investment mix.

Exceptional Items

The exceptional items for FY 2023 were at ₹(217) crore, mainly on account of SAED partly offset by impairment reversal in ESL & WCL.

[for more information, refer note [36] set out in P&L notes of the financial statement on exceptional items].

Taxation

Tax expense for FY 2023 stood at ₹5,770 crore (FY 2022: ₹9,255 crore). The normalised ETR is 30% as compared to 28% in FY 2022 due to change in profit mix.

Attributable profit after tax (before exceptional items)

Attributable PAT before exceptional items was ₹10,521 crore in FY 2023 compared to ₹19,279 in FY 2022.

Earnings per share

Earnings per share before exceptional items for FY 2023 were ₹28.36 per share as compared to ₹52.02 per share in FY 2022.

Dividend

Board has declared total dividend of ₹101.5 per share during the year.

Shareholders' Fund

Total shareholders fund as on 31 March 2023 aggregated to ₹39,423 crore as compared to ₹65,383 crore as of 31 March 2022. This was primarily net profit attributable to equity holders earned during the year partially offset by dividend paid during the year.

Net Fixed Assets

The net fixed assets as on 31 March 2023 were ₹1,15,273 crore. This comprises ₹17,434 crore as capital work-in-progress.

Balance Sheet

Our financial position remains strong with cash and liquid investments of ₹20,922 crore.

The Company follows a Board-approved investment policy and invests in high quality debt instruments with mutual funds, bonds and fixed deposits with banks. The portfolio is rated by CRISIL which has assigned a rating of "Tier I" (meaning highest safety) to our portfolio.

Gross debt as on 31 March 2023 was ₹66,182 crore, an increase of ₹13,073 crore since 31 March 2022. This was mainly due to the increase of debt at VEDL standalone and temporary debt at HZL partially offset by reduction of debt at TSPL & ESL and receipt of inter-company loan from VRL.

Gross Debt comprises term debt of c.₹54,543 crore, working capital loan of c.₹2,733 crore and short-term borrowing of c. ₹8,906 crore. The loan in ₹ currency is 90% and balance 10% in foreign currency. Average debt maturity of term debt is ~c. 3.4 years as of 31 March 2023.

CRISIL and India Ratings at AA with negative outlook.

Key FY 2023 outcomes

Revenue
₹1,45,404 crore
11% YoY ↑

EBITDA
₹35,241 crore
22% YoY ↓

EBITDA margin[1]
28%

ROCE
~ 21%

PAT (before exceptional and one-time gain)
₹14,449 crore
41% YoY ↓

Free cash flow (FCF) post-capex
₹18,077 crore

Gross debt
₹66,182 crore

Net debt
₹45,260 crore

Cash and cash equivalents
₹20,922 crore

Contribution to the exchequer
~₹73,486 crore

Historic dividend
₹101.5 per share

Net Debt/EBITDA
1.3x

Note 1: excluding custom smelting at Copper Business

OPERATIONAL REVIEW

ZINC INDIA

The year in brief

Mine production progressively improved during the year with ore production for the full-year up 2% YoY to deliver a record 16.74 million tonnes, supported by strong production growth at Rajpura Dariba Mine, SK Mines and Rampura Agucha mine, which were up 11%, 7% and 6% respectively. Mined metal production was up 4% YoY to 1,062 kt primarily on account of higher ore production improved mined metal grades and operational efficiencies.

1,032 kt
Highest ever refined Zinc-Lead production

714 tonnes
Ever-highest silver production
10% YoY ↑

16.74 million tonnes
Record ore production

Occupational health & safety

In line with our commitment to ensure zero harm to employees, the leadership has undertaken the prime responsibility of providing a safe workplace for all employees entering our premises. While committed to operate a business with 'Zero Harm', it is with deep sadness that we report the loss of six business partners colleagues and one HZL employees in work-related incidents at our managed operations. These incidents happened despite our constant efforts to eliminate fatalities and attain a Zero Harm work environment. A thorough investigation was conducted to identify the causes of these incidents and to share the lessons learned across Hindustan Zinc, to prevent similar incidents in the future.

During the year, to avoid fatalities and catastrophic incidents in HZL, Vihan: A Critical Risk Management (CRM) initiative was launched to improve managerial control over rare but potentially catastrophic events by focussing on the critical controls. We have launched four critical risks i.e., Fall of Ground (FOG), Fall of person/object from height (WAH), Vehicle Pedestrian Interaction (VPI) and Entanglement. Through this initiative, we want to ensure that all identified critical controls are being monitored and systems are in place.

Safety Pause was also conducted across all our operational units under the theme 'Stop Work if it's not Safe'. During this connect, all recent safety incidents happened across group companies were discussed and key learnings were shared.

Community of Practice - Structure Stability established during the year to establish a review mechanism of all prevailing civil and mechanical structures; further a specific categorisation was founded to mark the structures based on which their repair/replacement is planned.

Second half of the year has been an era of innovation for mining operations to avoid manual intervention and related risk with inclusion of: Single point remote blasting over wi-fi at pilot level, digitalised drilling of production stops during blasting operations in which no manpower is present and machine drills in auto mode with interlock features of approaching man, Digital RFID based cap lamps along with proximity sensors to ensure real-time tracking and monitoring of personnel working in underground and Digital interlockings have been developed to stop over winding operation during excess of mud/water at shaft bottom.

Training and capability building was also core theme during the year, few key programmes are first underground practical cum digitised training gallery developed at RAM to provide all facility of surface training to underground operations team, Wi-Fi Network available at training place so that underground manpower can connect from underground to any kind of seminars/trainings, safety leadership development program initiated for mines frontline supervisor through ex-DGMS officials and Dupont, RAM has also launched a unique virtual reality-based simulator training for jumbo operator.

Response during any emergency is a paramount parameter to ensure safety of the people. As a proactive measure, we have conducted ERCP (Emergency Response and Crisis plan) Gap Assessment study across all the sites. 51st All India Mines Rescue Competition was hosted under the aegis of DGMS at Rajpura Dariba Complex, 10 days Capacity Building Training Programme on Disaster Management was conducted at ZM, the training included medical first responder, collapsed structure search & rescue, fire management, chemical emergencies, etc. RAM has reaffirmed safety & rescue by establishing Underground Fire Tender with remote operated foam unit and thermal imaging camera for blind zones.

Demonstrating the highest standards of health and safety management during the year, Dariba Smelting Complex received the prestigious 'Sword of Honour' from British Safety Council for showing excellence in the management of health and safety risks at work. Kayad Mines received 5 Star Rating Award in Safety and Welfare by Rajasthan Government and Jaswant Singh Gill Memorial Industrial Safety Excellence Award 2022 in underground Metal mine in India.

Environment

Hindustan Zinc commits to 'Long-term target to reach net-zero emissions by 2050' in line with Science Based Targets initiative (SBTi) aiming to have a clear and defined path to reduce emissions in line with the Paris Agreement goals. To achieve the target, we are working towards improving our energy efficiency, switching to low carbon energy sourcing, introducing battery operated electrical vehicles and increasing the role of renewables in our energy mixes.

We have entered into a power delivery agreement for supplying 450 megawatts of renewable power by 2025 which will not only strengthen our commitment towards a clean future but also help reduce emissions to the tune of 2.7 million tCO_2e. Also, Pantnagar metal plant is sourcing 100% green power for its operations thus making it a one-of-a-kind initiative, leading towards reducing emissions by 30,000 tCO_2e.

Technology and digitalisation are key to strengthening our ESG footprint and creating a net-zero future. It is our ambition to convert all our mining equipment to battery-operated Electric Vehicles (EVs). To make our mining operations environment-friendly, we plan to invest US$1 billion over the next five years towards combating climate change impacts.

Electric Vehicles (EVs) are a globally recognised means to alleviate dependence on petroleum products and reduce CO_2 emissions. Therefore, Hindustan Zinc signed a Memorandum of Understanding (MoU) with Epiroc Rock Drills AB, Normet Group Oy and Sandvik AB to introduce battery electric vehicles (BEV) in its underground mining operations making Hindustan Zinc the first company in India to introduce battery-operated vehicles in underground mines.

HZL has led by example by inducting LNG-powered truck for transportation which shall contribute 30% lesser towards GHG emission. We are also using 5% biomass for power generation and reducing carbon footprint through our captive thermal power plants.

In-line with HZL's policy of a green value chain, our business partners have also started operating Electric vehicles, several electric forklifts have been introduced in our multiple business units.

At HZL, we recognise the reality of climate change. Therefore, our risk management processes embed climate change in the understanding, identification, and mitigation of risk. We have published our second TCFD (Task Force on Climate-related Financial Disclosure) report during the year which sets the adoption of the TCFD framework for climate change risk and opportunity disclosure.

Endeavouring towards sustainable organisation, we have relooked our materiality matrix and established the ESG governance at tier 3 level as well as at SBU level to implement ESG projects on ground.

Hindustan Zinc joins the Taskforce on Nature-Related Financial Disclosures (TNFD) piloting with ICMM to access the challenges in implementing LEAP process of TNFD.

Miyawaki afforestation was completed at DSC and CLZS. 12,000 Indigenous Plants and 6,500 native seeds planted in the area of 1 hectare at each of the location to create a self-sustaining forest in the span of 3 years. 3 years Engagement with IUCN has initiated, under this Prepared IBAT (Integrated Biodiversity Assessment Tool) Report for all Rajasthan-based locations identifying species present in the core area, Reframed Biodiversity Policy of HZL, Ecosystem Service review conducted across the Rajasthan based locations and Biodiversity risk assessment and site visit by IUCN team members for one season completed. These studies will help HZL to prepare a strategy to achieve 'No Net Loss' towards biodiversity. Green cover study done by SRSAC (State Remote Sensing Application Centre, Jodhpur) for all Rajasthan-based locations of HZL.

One of the most notable achievements has been the successful commissioning of a 3,200 KLD Zero Liquid discharge (RO-ZLD) plant at the Dariba Smelter. Apart from that, Zawar (ZM) and Rampura Agucha Mine ZLD projects of 4,000 KLD capacity each have been initiated to improve recycling and strengthen the zero discharge. Like ZM, dry tailing plant at Rajpura Dariba Mine is also under final stage of commissioning and will result in significant amount of water recovery from the tailings.

Site Inspection and updated GISTM (Global Industry Standard on Tailing Management) Conformance Assessment completed by ATC Williams for all TSF (Tailing Storage Facility). Environment Product Declaration (a Type 3 Ecolabel) for zinc product published.

Public hearing was conducted successfully at CLZS for proposed enhancement of zinc production capacity from 504 to 630 kt and installation of Induction Furnace, Slab Casting Line, RZO Unit, change in product mix in Pyro unit on total metal basis & installation of lead refinery & minor metal complex etc.

Production performance

Production (kt)	FY 2023	FY 2022	% Change
Total mined metal	1,062	1,017	4%
Refinery metal production	1,032	967	7%
Refined zinc – integrated	821	776	6%
Refined lead – integrated[1]	211	191	10%
Production – silver (in tonnes)[2]	714	647	10%

1. *Excluding captive consumption of 7,912 tonnes in FY 2023 vs. 6,951 tonnes in FY 2022.*
2. *Excluding captive consumption of 41.4 tonnes in FY 2023 vs. 37.4 tonnes in FY 2022.*

Operations

For the full-year, ore production was up 2% YoY to 16.74 million tonnes on account of strong production growth at Rajpura Dariba Mine, SK Mines and Rampura Agucha Mine, which were up 11%, 7% and 6% respectively. FY 2023 saw the best-ever Mined metal production of 10,62,089 tonnes compared to 10,17,058 tonnes in the prior year in line with higher ore production across Mines supported by better metal grades and operational efficiencies.

For the full year, we saw our ever-highest metal production, up 7% to 1,032 kt in line with better plant and MIC availability, while silver production was 10% higher at 714 million tonnes in line with higher lead metal production.

Particulars	FY 2023	FY 2022	% Change
Average zinc LME cash settlement prices US$ per tonne	3,319	3,257	2%
Average lead LME cash settlement prices US$ per tonne	2,101	2,285	(8%)
Average silver prices US$/ounce	21.4	24.6	(13%)

FY 2023 started well with the prices around ~US$4,000/t. With the impact of the Russia-Ukraine War, lockdown announced in China and US GDP contraction, zinc prices hovered around US$4,400/t for most of April 2022 and ended at US$4,100/t. In the month of May, prices went down to US$3,499/t over concerns of economic slowdown in the US and China. Prices again rebounded above US$4,000/t driven by increased expectation of a stimulus from the Chinese government to support growth in order to offset the impact of the coronavirus. However, in Q3 FY 2023, negative sentiment of the market pushed down the LME prices in October 2022 and reached to US$2,682/t on 3 November 2022, lowest since February 2021. With the sudden end to China's zero-Covid policy at the end of CY 2022 and the prospect of Chinese demand rebound, the faith in base metals has been restored in investors. This gave the much-needed boost and prices rose above US$3,400/t in January 2023, with monthly average of US$3,289/t. However, the trend has not lasted for long and prices have corrected to US$2,956/t in March 2023.

In long term, the prices will be pressured by growing surpluses. The higher zinc prices in recent years have encouraged the development of a significant amount of new mine projects. However, the smelter capacity suggests not all of this new mined output will be processed, leading to concentrate surpluses. At the same time, smelter output growth is forecast to outpace demand growth. This, in turn, will lead to a significant refined stock build. As the cumulative surplus becomes unsustainably large, prices will fall lower to rebalance the market.

Zinc Demand-Supply

Zinc Global Balance In kt	CY 2021	CY 2022	CY 2023 E
Mine Production	13,094	12,862	13,080
Smelter Production	13,867	13,489	13,855
Consumption	14,147	13,587	13,794

Source: Wood Mackenzie, March STO

Global demand witnessed contraction in CY 2022, decreasing by 3.0% to 13.6 million tonnes, largely due to the fall in Chinese demand. At supply level, the refined zinc metal production fell by 2.6%, as several smelters closed for care and maintenance across the world owning to the increase in energy prices. The global mined zinc production is expected to grow stronger during 2023 to 2026 period as there will be new mine projects ramping-up. And it is expected that the production will grow by 1.8% to 13.8 million tonnes in 2023,.

The global zinc warehouse stocks also fell during this period due to supply constraints. The total tonnage of zinc in the Shanghai Futures Exchange (SHFE) warehouses fell to 20 kt at the end of December 2022 and settled at 97 kt at the end of March 2023, from 176 kt in April 2022. And the London Metal Exchange (LME) stocks stood at 45 kt at the end of the March 2023, down from 140 kt in April 2022.

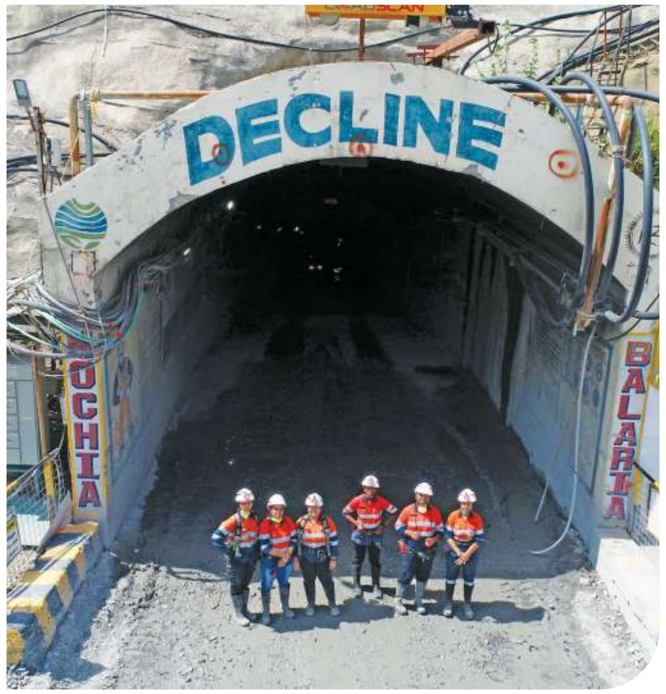
The Indian economic environment has remained optimistic. The same was reflected by the S&P Global Manufacturing PMI which stood at 56.4 in March 2023 as compared to 54.7 in April 2022 and 55.3 in February 2023, reflecting expansion in manufacturing sector. The Indian automobile industry is on a growth trajectory, with 13.5% increase in production to reach 227 lakh units till February 2023 from April 2022, compared to the same period in the previous fiscal. The passenger vehicle sales stood at 29 lakh units, marking a growth of 30% over the same period in the previous year.

(Source: SIAM & SP Global Index)

The finished steel domestic production was at 110.44 million tonnes during April 2022 to February 2023, up by 7.2% over the same period in the previous year. Consumption in domestic market during the same period stood at 108.15 million tonnes, up by 12.6%. The total net finished steel exports till February 2023 stood at 5.90 million tonnes, down by 52% over same period in the previous financial year on account of export duty levy.

(Source: MIS Report on Iron & Steel by JPC)

The overall domestic demand for primary zinc in this financial year has seen growth rate of 3.8% compared to last year, reaching pre COVID levels, and it is expected to grow further by 4% in FY 2024.



Unit costs

Particulars	FY 2023	FY 2022	% Change
Unit costs (US$ per tonne)			
Zinc (including royalty)	1,707	1,567	9%
Zinc (excluding royalty)	1,257	1,122	12%

For the full year, zinc COP excluding royalty was US$1,257/t, higher by 12% YoY (21% higher in ₹ terms). The COP has been affected by higher coal & commodity price increase partially offset by benefits from better volumes, operational efficiencies & recoveries.

Financial performance

Particulars	FY 2023	FY 2022	% Change
Revenue	33,120	28,624	16%
EBITDA	17,474	16,161	8%
EBITDA margin (%)	53%	56%	-

Revenue from operations for the year was ₹33,120 crore, up 16% YoY, primarily on account of higher metal & silver production, higher Zinc LME prices, gains from strategic hedging and favourable exchange rates partially offset by lower lead and silver prices.

EBITDA in FY 2023 increased to ₹17,474 crore, up 8% YoY. The increase was primarily driven by improved metal and silver volumes, higher Zinc LME prices, gains from strategic hedging and favourable exchange rates partly offset by higher costs and lower lead & silver prices.

Projects

In HZL journey of 1.25 MTPA MIC expansion, only left-out project of RD Beneficiation plant revamping is under execution at RD Mines which is scheduled to be commissioned in Q1 FY 2024. Fumer plant final commissioning delayed due to VISA issues of OEM from China. The plan is to complete commissioning of plant through OEM support in Q1 FY 2024. For further phase of expansion of Mines and Smelters, studies are under progress and results are expected in FY 2024.

The capacity of smelters is being enhanced by putting up a new Roaster in Debari with latest technologies. The order placement is targeted by Q1 FY 2024.

A new project of Hindustan Zinc Alloys ordered in Q1 FY 2023 is under execution and scheduled for completion in Q1 FY 2024. HZL is also setting up new Fertiliser Plant in Chanderiya for which partner has been locked in. Formal order placement is scheduled to be completed in Q1 FY 2024. Project is scheduled for completion in 24 months.

Exploration

Zinc India's exploration objective is to upgrade the resources to reserves and replenish every tonne of mined metal to sustain more than 25 years of metal production by fostering innovation and using new technologies. The Company has an aggressive exploration program focussing on delineating and upgrading Reserves and Resources (R&R) within its licence areas. Technology adoption and innovations play key role in enhancing exploration success.

The deposits are 'open' in depth, and exploration has identified number of new targets on mining leases having potential to increase R&R over the next 12 months. Across all the sites, the Company increased its surface drilling to assist in Resource addition and upgrading Resources to Reserves.

In line with previous years, the Mineral Resource is reported on an exclusive basis to the Ore Reserve and all statements have been independently audited by SRK (UK).

On an exclusive basis, total ore reserves at the end of FY 2023 totalled 173.49 million tonnes and exclusive mineral resources totalled 286.56 million tonnes. Total contained metal in Ore Reserves is 9.64 million tonnes of zinc, 2.7 million tonnes of lead and 310.2 million ounces of silver and the Mineral Resource contains 12.8 million tonnes of zinc, 5.66 million tonnes of lead and 545.7 million ounces of silver. At current mining rates, the R&R underpins metal production for more than 25 years.

Strategic Priorities & Outlook

Our primary focus remains on enhancing overall output, cost efficiency of our operations, disciplined capital expenditure and sustainable operations. Whilst the current economic environment remains uncertain, our goals over the medium term are unchanged.

Our key strategic priorities include:

- Further ramp-up of underground mines towards their design capacity, deliver increased silver output in line with communicated strategy
- Sustain cost of production to be in the range of US$1,125-US$1,175 per tonne through efficient ore hauling, higher volume & grades and higher productivity through ongoing efforts in automation and digitisation
- Disciplined capital investments in minor metal recovery to enhance profitability
- Increase R&R through higher exploration activity and new mining tenements, as well as upgrade resource to reserve
- Progressing towards sustainable future with continued efforts towards reduction in GHG emissions, water stewardship, circular economy, biodiversity conservation and waste management

Pg. 50

ZINC INTERNATIONAL

The year in brief

During FY 2023, Zinc International continued to ramp-up production at Gamsberg mine and achieved record production of 208 kt. This was mainly due to increase in tonnes treated and plant recoveries compared to previous financial year.

Black Mountain continued to have a improved production of 65 kt, which is significantly higher than FY 2022 due to higher lead grades and recoveries.

Skorpion Zinc has been under Care and Maintenance since start of May 2020, following cessation of mining activities due to geotechnical instabilities in the open pit. Activities to restart the mine are still in progress.

208 kt

Record mined metal production at Gamsberg

Occupational health & safety

At Vedanta Zinc International (VZI), we take the health and safety of our employees and stakeholders very seriously and we remain committed to communicating timeously and transparently to all stakeholders.

Airborne particulate management remains a key focus in reducing lead and silica dust exposures of employees (Exposure Reduction to Carcinogenic). VZI had 17 blood lead withdrawals for FY 2023, against more stringent limits than required by law. We have strengthened our Employee Wellness Programme, focussing on the increased participation of employees and communities in VCT for Aids/HIV, blood donation and wellness.

VZI is embarking on a real-time monitoring strategy and additional controls at source to reduce and eliminate exposures to both silica and lead.

The VZI LTIFR improved from 1.41 in FY 2022 to 0.75 in FY 2023. The TRIFR improved from 5.6 in FY 2022 to 3.1 in FY 2023, both improving by 46% and 44% respectively. VZI remained fatal free during FY 2023, and Black Mountain Mine achieved LTI free year. These remarkable achievements were necessitated by VZI's strong commitment to Zero harm principle and a belief that everybody coming to VZI must return home safe and healthy every day.

Leading Indicators reporting, Leadership Engagements and Critical Risk Management were the strategic initiatives central to these record setting achievements. VZI shall, in collaboration with the Mineral Council and Vedanta Group continue to seek for leading practices to continually improve our HSE performance.

Environment

VZI has secured Portion 1 of the farm Wortel 42 as the fifth Biodiversity Offset Property and has presented the property to the Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERDLR). Once the property is transferred to BMM's name, there will be declaration of this property as a Protected Area, as an inclusion to the Gamsberg Nature Reserve Protected Area under the National Environmental Management Protected Areas Act, 2003 (Act No. 57 of 2003). This is a requirement of Clause of the Biodiversity Offset Agreement (BOA). BMM is in negotiations with landowners to secure the remaining two farms by 1 April 2024 to ensure compliance to Clause 6 of the BOA.

The Second Independent Audit on the Implementation of the BOA between BMM and DAERDLR commenced October 2022 and the draft reports have been submitted to the implementation parties (BMM and DAERDLR) for comments and review. The final report will be available by end of March 2023 with a large improvement since the previous audit. The final report will be published in VZI Annual Report and on the VZI webpage as required by the BOA.

The implementation of the nine Biodiversity Monitoring Protocols has been completed for a test year and will be revised and updated in April 2023 for long-term implementation. BMM are awaiting verification of the status of No Net Loss that was monitored and measured as part of the implementation of the Biodiversity Monitoring Protocols and a statement regarding the findings and verification will be shared.

The installation of a dedicated anti-poaching surveillance camera network, covering a circular route of more than 400 km show good results and according to statistics received from South Africa Police Services (SAPS) and the Agri Namakwaland the surveillance camera network has resulted in a large decrease in petty crime in the area. However, incidents of poaching outside the surveillance cameras are still reported on an ad hoc basis as poachers adjust their modus operandi. An Antipoaching workshop between IUCN, BMM, DAERDLR, South Africa Biodiversity Institute (SANBI), SAPS and key role players in the area are planned for April 2023.

Production performance

Production (kt)	FY 2023	FY 2022	% Change
Total production (kt)	273	223	22%
Production – mined metal (kt)			
BMM	65	52	25%
Gamsberg	208	170	22%

Operations

During FY 2023, total production stood at 2,72,713 tonnes, 22% higher YoY. This was primarily due to tonnes treated and higher recoveries.

At BMM, production was 65,112 tonnes, 25% higher YoY. This was mainly due to 8.9% higher throughput at 1.7 million tonnes, higher lead grades (3.0% vs 2.1%) and recoveries (82.8% vs 81.6%) offset by lower grades of zinc (1.8% vs 2.1%) and recoveries (71.9% vs 75.2%).

Gamsberg's production was at 2,07,601 tonnes as the operation continues to ramp up with improved performance during current financial year. Higher production at Gamsberg YoY is attributable to 7.8% increase in throughput to 4.2 million tonnes, higher zinc grades (6.5% vs 6.2%) and recoveries (75.7% vs 69.9%).

At Skorpion Zinc engagement with technical experts to explore opportunities of safely extracting the remaining ore is ongoing. The pit optimisation work is complete. The business is currently evaluating options to restart mining.

Unit costs

Particulars (US$ per tonne)	FY 2023	FY 2022	% change
Overall Zinc COP including TcRc	1,577	1,442	9%
Gamsberg Zinc COP excluding TcRc	1,033	1,168	(12%)

Gamsberg COP excluding TcRc decreased by 12% to US$1,033 per tonne. This reflects the strength and efficiency of our operations at Zinc International. The decrease in the cost of production was driven by higher production supported by local currency depreciation against the US$ despite high input commodity inflation.

Overall Zinc COP including TcRc increased by 9% to US$1,577 per tonne, from US$1,442 per tonne in the previous year. This was mainly driven by commodity price inflation and higher treatment and refining charges, offset by higher production and local currency depreciation against the US$.

Financial performance

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% change
Revenue	5,209	4,484	16%
EBITDA	1,934	1,533	26%
EBITDA margin	37%	34%	

During the year, revenue increased by 16% to ₹5,209 crore, driven by higher sales volumes compared to FY 2022 due to 22% higher production BMM & Gamsberg, higher zinc LME prices and favourable exchange rates movement partially offset by lower lead and silver prices.

EBITDA increased by 26% to ₹1,934 crore, from ₹1,533 crore in FY 2022 also mainly on account of improved operational performance, higher zinc LME price, favourable exchange rates movement partially offset by lower lead & silver prices and increase in TC/RC.

Projects

Refinery Conversion – The Skorpion Refinery Conversion project has reached Ready-to-order phase, post completion of FEED, feasibility study, tendering activities & techno-commercial adjudication and contract finalisation. All regulatory approval is in place to start project execution.

With power tariffs being very critical for the viability of the project, discussions/negotiations are in progress with the state power utility along with the option of renewable power which is also being explored. We are only waiting for confirmation of power tariff to take the final decision and starting the execution on the ground by H1 FY 2024.

Gamsberg Phase 2 – Gamsberg Phase 2 project includes the mining expansion from 4 MTPA to 8 MTPA and Construction of New Concentrator plant of 4 MTPA, taking the total capacity to 8 MTPA and was approved by the Vedanta Board in Q4 of FY 2022. The EPC partner, Onshore, has been appointed in Q1 FY 2023, site mobilisation completed, detailed engineering is under progress and the project is in execution phase. All Major Long lead FIMs {Ball & Sag Mill (CITIC), Crusher, Floatation, Filter Presses and Thickeners Package (MO)} Orders placed.

Cumulative progress – Engineering – 61.79%; Procurement – 35.17%; Construction - 1.57%; Overall project – 16.26%

Transformer and 11 KV Switchgear partner are locked in

Crusher House & LV Substation Foundation Works-in-Progress

Wet TSF Design under progress – Geo Chemical investigation completed. Geotech investigation in progress

External Power & Water package –Site established, and work started

Workmen Camp & Site Office Establishment – In progress

Gamsberg Smelter – The Gamsberg Smelter Project is re-defined with phased approach wherein 210 KTPA capacity phase 1 will be executed by repeating the available HZL smelter design incorporating necessary modifications required to treat Gamsberg Concentrate. The partner selection is in progress for various EPC/EP+C packages. We have appointed ThyssenKrupp (TKIS-India) as Owner's engineer. The techno-commercial proposals with Shapoorji & L&T as the prospective EP Partners. Construction Tender released on 23 November 2022.

RFQs for all FIMs released

Construction Tender released on 23 November 2022. Offers are received and are under Commercial negotiations

The techno-commercial proposal for EPC 1 (on EP basis) is received from Shapoorji and it is under commercial adjudication. L&T 's offer is awaited

Pre bid meeting conducted with all prospective partners for Renewable Power. Proposals received from 4 vendors

We have received the environmental approval for the Smelter & Bulk water pipeline construction. The Smelter EC is currently under appeal phase. We are also engaging with Gov. of South Africa on the other critical success factors like SEZ, power price, sulphuric acid offtake, logistics infrastructure and balance regulatory approvals which are vital for economic feasibility of the project.

Black Mountain Iron Ore project – This is a project to recover iron ore (magnetite) from the BMM fresh tailings. EPC's detailed engineering, procurement, earthworks, and major fabrication are completed. Construction is currently at 76.4% completion. Project being relooked for repurposing under guidance of CEO, Zinc Business.

Exploration

0.3% increase in resources from 27.20 million tonnes to 27.29 million tonnes metal and 4.4% reduction in reserve metal tonnes from 7.9 million tonnes to 7.6 million tonnes.

Total R&R for VZI decreased from 671 million tonnes to 659 million tonnes of ore, while metal decreased from 35.1 million tonnes to 34.87 million tonnes (0.7% decrease in total metal)

Reduction in reserves largely attributable mining depletions and the slight increase in resources due to addition of metal tonnes at Kloof which was offset by an increase in transport/operating costs and increased dilution which impacted the cut-offs used.

Strategic Priorities & Outlook

Zinc International continues to remain focussed to improve its YoY Production by sweating its current assets beyond its design capacity, debottlenecking the existing capacity, and adding capacity through Growth Projects. Our Immediate priority is to ramp up the performance of our Gamsberg Plant at designed capacity and simultaneously complete Gamsberg Phase 2 project to add another 190 kt to the total production of VZI. Likewise, BMM continues to deliver stable production performance and focus is to debottleneck its ore volumes from 1.8 million tonnes to 2.0 million tonnes. Skorpion is expected to remain in Care and Maintenance, while management is assessing feasible & safe mining methods to extract ore from Pit 112. Zinc International continues to drive cost reduction programme to place Gamsberg operations on 1st Quartile of global cost curve with COP< US$1,100 per tonne.

Core Growth strategic priorities include the following:

- Completion of construction activities of Gamsberg Phase 2 project with the aim to start production in H2 FY 2024
- Continue to improvise Business case of Skorpion Refinery Conversion Project and Gamsberg Smelter Project through Government support, Capex and Opex reduction

Pg. 50

OIL AND GAS

The year in brief

During FY 2023, Oil & Gas business delivered gross operated production of 143 kboepd, down by 11% YoY, primarily driven by natural reservoir decline at the MBA fields. The decline was partially offset by addition of volumes through new infill wells brought online in Mangala, Bhagyam and Raageshwari Deep Gas fields. Offshore assets were supported by gains from the infill drilling campaign across both assets Ravva and Cambay.

In OALP blocks, we have secured 8 blocks in DSF-III round and one Coal Bed Methane (CBM) Block in special CBM round 2021.

143 kboepd

Average gross operated production

11% YoY ↓

Occupational Health & Safety

There was one lost time injuries (LTIs) in FY 2023. Frequency rate stood at 0.03 per million-man hours (FY 2022: 0.20 per million-man hours).

Our focus remains on strengthening our safety philosophy and management systems.

Cairn Oil & Gas has taken various initiatives:

- "5S" certification for Mangala, Raageshwari and Aishwarya Mines.
- Established Mines Vocational Training Centre at RJ Oil, Barmer.
- Project CSUSP (Cairn Sustainability & Safety Performance Program), a journey to improved sustainable and increased safety performance initiated.
- Digital initiatives: NLP (Natural Language Processing) based Safety Observation Reader, Training through Virtual Reality Headsets, QR code based tracking system for fire cylinders.
- Artificial intelligence-based safety surveillance system installed across locations.
- COVID-19 mass booster dose vaccination drive for employees, their family members and business partners.

Environment

Our Oil & Gas business is committed to protect the environment, minimise resource consumption and drive towards our goal of 'zero harm, zero waste, zero discharge'. Highlights for FY 2023 are as:

- Cairn Oil & Gas declared as Water Positive Company with NPWI (Net water positive impact) index of 1.12. Four of our sites RJ Oil, RJ Gas, Midstream and Ravva) are also individually declared as water positive assets.

Biodiversity/wildlife conservation initiatives

- MoU signed with District Forest Office, Rajasthan and Gujarat for plantation of 0.35 million trees over 700 hectares in Barmer district and development of 60-hectare mangroves forest in Sural Coastal area respectively.
- Biodiversity assessment completed with objective to draw No Net Loss or Net Positive Impact.
- Drinking water facility developed for wild animals at Dhorimanna Hilly Forest Area, Barmer.
- Revival of Khejari in Thar Ecosystem through Agro forestry and distributed 300 saplings to community farmers.
- Published book "Know Your Flora – A Glimpse of Thar Ecosystem" and video on "Ravva Biodiversity - Photo Journey of a Nurtured Ecosystem".

Reduction in GHG emission:

Cairn signed Power Purchase Agreement (PPA) for 25 MW renewable energy

Installation of 150+ Solar lights at Mangala Processing Terminal & well pads for renewable power generation ~32,000 units/annum.

Reduction in RDG flare by tuning the control valve of condensate flash drum (CFD) & Stabiliser column & recycle gas compressor optimisation with annual GHG Reduction potential of 17,300 tonnes of CO_2e/annum.

Solar rooftop installed on 10 AGIs (above ground installations) for pipeline operations (Annual GHG reduction potential of 208 tonnes of CO_2e/annum).

Installation of 220 KWP of Solar Rooftop at RJ Gas and 130 KWP at Radhanpur Terminal (Annual GHG reduction potential of ~440 tonnes of CO_2e/annum).

Commissioned 10 KWP Solar Plant at Cambay asset.

Introduced 5 new Electric Golf carts at RJ Gas for internal commuting.

All Operating assets of Cairn (RJ Oil, RJ Gas, Midstream operations, Ravva, and Suvali) have been certified as "Single Use Plastic free" premises.

Production performance

	Unit	FY 2023	FY 2022	% change
Gross operated production	Boepd	1,42,615	1,60,851	(11%)
Rajasthan	Boepd	1,19,888	1,37,723	(13%)
Ravva	Boepd	11,802	14,166	(17%)
Cambay	Boepd	10,777	8,923	21%
OALP	Boepd	147	39	277%
Oil	Bopd	1,18,634	1,35,662	(13%)
Gas	Mmscfd	144	151	(5%)
Net production – working interest	Boepd	91,485	1,03,737	(12%)
Oil*	Bopd	76,149	87,567	(13%)
Gas	Mmscfd	92	97	(5%)
Gross operated production	Mmboe	52.1	58.7	(11%)
Net production – working interest	Mmboe	33.4	37.9	(12%)

** Includes net production of 450 boepd in FY 2023 and 535 boepd in FY 2022 from KG-ONN block, which is operated by ONGC. Cairn holds a 49% stake.*

Operations

Average gross operated production across our assets was 11% lower YoY at 1,42,615 boepd. The Company's production from the Rajasthan block was 1,19,888 boepd, 13% lower YoY and from the offshore assets, was at 22,579 boepd, 2% lower YoY, owing to natural field decline. The decline has been partially offset by infill wells brough online across all assets.

Production details by block are summarised below:

Rajasthan block

Gross production from the Rajasthan block averaged 1,19,888 boepd, 13% lower YoY. The natural decline in the MBA fields has been partially offset by infill wells brought online in Mangala, Bhagyam, ABH and RDG fields.

Gas production from Raageshwari Deep Gas (RDG) averaged 142 million standard cubic feet per day (mmscfd) in FY 2023, with gas sales, post captive consumption, at 118 mmscfd.

On 26 October 2018, the Government of India, acting through the Directorate General of Hydrocarbons (DGH), Ministry of Petroleum and Natural Gas, granted its approval for a ten-year extension of the PSC for the Rajasthan block, RJ-ON-90/1, subject to certain conditions, with effect from 15 May 2020. The Division Bench of the Delhi High Court in March 2021 set aside the single judge order of May 2018 which allowed extension of PSC on same terms and conditions. We have filed a Special Leave Petition (SLP) in Supreme Court against this Delhi High court judgement.

We have served notice of Arbitration on the GoI in respect of the audit demand raised by DGH based on PSC provisions. The final hearing and arguments were concluded in September 2022. Post hearing briefs have been filed by the parties on 11 November 2022. It is our position that there is no liability arising under the PSC owing to these purported audited exceptions. The audit exceptions do not constitute demand and hence shall be resolved as per the PSC provisions.

Pursuant to GoI's approval for extension vide letter dated 26 October 2018, the parties have now executed the addendum for PSC extension for 10 years from 15 May 2020 to 14 May 2030 on 27 October 2022.

Ravva block

The Ravva block produced at an average rate of 11,802 boepd, lower by 17% YoY, owing to natural field decline.

Cambay block

The Cambay block produced at an average rate of 10,777 boepd, higher by 21% YoY, supported by gains from the infill well drilling campaign.

Prices

Particulars	FY 2023	FY 2022	% change
Average Brent prices – US$/barrel	96.2	81.15	18%

Crude oil price averaged US$96.2 per barrel in FY 2023, compared to US$81.15 per barrel in FY 2022. The continuous upward movement is mostly driven by supply constraints following Russia's invasion of Ukraine.

Early in the year, prices rose amid tight supply after a build in U.S. crude and gasoline stocks, limited spare capacity of OPEC and downfall in supply from Caspian Pipeline Consortium. Demand outlook remains clouded by increasing worries about an economic slump in the United States and Europe, debt distress in emerging market economies.

Further, faltering economic backdrop and weakening outlook for consumption caused a volatility in the oil prices. Interest rate hike by central banks around the world weighted on demand outlook and series of rate hikes by US Fed caused dollar to spiral to two decades high to make oil more expensive to the buyers holding currency other than dollar. COVID-19 restrictions in China and US administration releasing oil inventories from strategic reserve further eased the prices.

However, in March, financial markets witnessed uncertainty, triggered by the turmoil in the US and European banking sector. Concerns about potential financial contagion effects and the risk that banking sector turmoil will extend to the economy pushed crude oil prices sharply down to 15-month lows at US$75/bbl.

In April, decision by OPEC and allies to slash May production by 5,00,000 bopd in a bid to arrest the slump in prices provided floor to the prices.

Financial performance

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% change
Revenue	15,038	12,430	21%
EBITDA	7,782	5,992	30%
EBITDA margin	52%	48%	-

Revenue for FY 2023 was 21% higher YoY at ₹15,038 crore (after profit petroleum and royalty sharing with the Government of India), as a result of the increase in oil prices, favourable exchange rate movements partially offset by lower sales volume. EBITDA for FY 2023 was at ₹7,781 crore, higher by 30% YoY as a result of higher brent prices, favourable exchange rate movement, increase in capex recovery partially offset by lower volumes and increased cost.

The Rajasthan operating cost was US$14.2 per barrel in FY 2023 compared to US$10.1 per barrel in FY 2022, primarily driven by increase in polymer commodity index, owing to oil price rally and increased well interventions to manage natural field decline.

A. Growth Projects Development

The Oil & Gas business has a robust portfolio of infill development & enhanced oil recovery projects to add volumes in the near term and manage natural field decline. Some of key projects are:

Infill Projects

Bhagyam

To accelerate production and augment reserves from Bhagyam field, infill drilling opportunities in FB1 and FB3 layers were identified. The project entails drilling of 11 infill producers and injector wells in FB3 layers and three horizontal wells in the bio-degraded zone.

As of 31 March 2023, 12 wells have been drilled, of which 7 wells are online.

Aishwarya

Based on the success of the polymer injection in Lower Fatehgarh (LF) sands of Aishwariya field, additional production opportunities were identified in Upper Fatehgarh (UF) sands. The project entails drilling of 25 infill wells in Upper Fatehgarh (UF) sands and conversion of 7 existing wells to UF polymer injectors.

As of 31 March 2023, 18 wells have been drilled, of which 8 wells are online.

Tight Oil (ABH)

Aishwariya Barmer hill infill drilling program established confidence in reservoir understanding of ABH. Based on its success, drilling of 14 additional wells were conceptualised.

Early acceleration of three wells has been completed during the fiscal year 2023. Drilling is to re-commence from first quarter of fiscal year 2024.

Tight Gas (RDG)

In order to realise the full potential of the gas reservoir, an infill drilling campaign of 27 wells has commenced during fiscal year 2022. As of 31 March 2023, 24 wells have been drilled of which 17 wells are online.

Satellite Fields

In order to monetise the satellite fields, 14 wells development campaign for 3 satellite fields (GSV, Tukaram, Raag Oil) was conceptualised. Drilling has been completed during fiscal year 2023 and they are being progressively hooked up to ramp up volumes.

Cambay (Offshore)

Infill program in Cambay over the last few years has resulted in incremental recovery. New opportunities had been identified basis integration of advanced seismic characterisation, well and production data. Project has been completed during the second quarter of fiscal year 2023 and two wells are online.

Ravva (Offshore)

To augment reserve base and manage natural decline, infill opportunities were identified in Ravva asset. The project entails drilling of four exploration wells and 1 development well.

Project has been completed during the fourth quarter of fiscal year 2023 and success has been notified in two exploration wells and 1 development well which are online and producing. No hydrocarbons were observed in two wells and have been declared dry.

Discovered Small Field (DSF)

Hazarigaon: Well intervention and testing activities was carried out in Hazarigaon-1 well and monetisation is underway. Production commenced from third quarter of fiscal year 2023.

B. Exploration and Appraisal

Rajasthan - (BLOCK RJ-ON-90/1)

Rajasthan Exploration

The Rajasthan portfolio provide access to multiple play types with oil in high permeability reservoirs, tight oil and tight gas. We have completed drilling of 2 exploration wells and to unlock the potential of unconventional resources, we completed drilling of the first shale exploration well in Rajasthan during the fiscal year 2023. We are also evaluating further opportunities to drill low to medium risk and medium to high reward exploration wells to build on the resource portfolio.

Open Acreage Licensing Policy (OALP)

Under the Open Acreage Licensing Policy (OALP), revenue-sharing contracts have been signed for 51 blocks located primarily in established basins, including some optimally close to existing infrastructure, of which 5 onshore blocks in the KG region have been relinquished.

Production commenced from Jaya discovery in Cambay region in third quarter of fiscal year 2023. This is the first of its kind production facility wherein sales through CNG cascade system are being done by an E&P operator from an exploration well site.

Drilling preparations are ongoing in the Offshore West-Coast to drill a moderate risk-high reward prospect (risked resource potential of 42 mmboe) within the Kutch-Saurashtra basin during the first quarter of fiscal year 2024. We intend to continue the exploration across Rajasthan, Cambay, and North-east in FY 2024 to unlock the full potential of the OALP blocks.

Strategic Priorities & Outlook

Vedanta's Oil & Gas business has a robust portfolio mix comprising of exploration prospects spread across basins in India, development projects in the prolific producing blocks and stable operations which generate robust cash flows.

The key priority ahead is to deliver our commitments from our world-class resources with 'zero harm, zero waste and zero discharge':

- Infill projects across producing fields to add volume in near term
- Define up to 20 potential new development projects to bring these Resources into production
- Unlock the potential of the exploration portfolio comprising of OALP and PSC blocks
- Continue to operate at a low cost-base and generate free cash flow post-capex

Pg. 50

The year in brief

In FY 2023, the aluminium business achieved highest ever aluminium production of 2.29 million tonnes. It has been a remarkable year as we inched towards our vision of 3 MTPA Aluminium. Though this year we saw headwinds in cost due to rising commodity prices and the coal crisis but we undertook several structural initiatives to make our business immune from market induced volatilities. These reforms coupled with our continued focus on operational excellence, optimising our coal and bauxite mix, improved capacity utilisation across refinery, smelter and power plant, will further help reduce our cost in sustainable manner and make the business more predictable and improving our price realisation to improve profitability in a sustainable manner through well-structured PMO approach. The hot metal cost of production for FY 2023 stood at US$2,324 per tonne. We have produced 1.79 million tonnes of calcined alumina at the Lanjigarh refinery.

2,291 kt

Highest ever aluminium production

Occupational health & safety

We report with deep regret, one fatality of business partner employee during the year at Jharsuguda site. We have thoroughly investigated all the incidents and the lessons learned were shared across all our businesses to prevent such incidents in future.

This year, we experienced total 33 Lost Time Injuries (LTIs) resulting in LTIFR of 0.41 at our operations. Further, we have developed the V-SAFE portal for timely identification and reporting of safety hazard and rectification of the same.

Towards the goal of Zero Harm in Safety, the Lanjigarh Unit undertook numerous safety measures to improve workplace condition in terms of site infrastructure, safety system & safety culture. Noteworthy infrastructural improvements include safer access pathways for pedestrians and heavy vehicles across the site. Safety systems incorporated to improve safety are introduction of Driver Management Centre, monitoring of vehicles & safe driving parameters through smart cameras, speed detectors and Vehicle Tracking System. BALCO has onboarded the journey of "Vihan" - Critical Risk Management (CRM) and launched with five critical risks control this year.

The site has also implemented digitisation project v-Unified (ENABLON) to manage safety through technological tools.

The Site is committed to 'Refuse Work if it is Unsafe to Execute' and empowered all site personnel to reject any activity that posed a possible safety concern.

Environment

During the year, Jharsuguda has recycled 13.09% of the water used, while BALCO has recycled 10.76%. Our specific water consumption at VLJ metal was 0.20 m^3/t, BALCO metal was 0.61 m^3/t and alumina refinery was 2.04 m^3/t.

At Lanjigarh, biomass was co-fired in the boiler for the first time, with all defined safety measures to reduce GHG emissions (by 388 tCO_2e) of the power plant. At BALCO, biomass was co-fired in the boiler for the first time (Qty: 5 kt), with all defined safety measures to reduce GHG emissions (by 6,900 tCO_2e) of the power plant. Also started using biodiesel for the first time in technological vehicles and Ladle cleaning shop. This is in line with the Vedanta de-carbonisation and carbon neutrality plan.

EV vehicles will be used in operations as part of the green drive. Under this initiative, the Jharsuguda unit has deployed Electric 27 forklifts in place of diesel-propelled forklifts. We have planned to shift to 100% EV LMV by FY 2030. This will help us eliminate our in-plant scope 3 GHG emission from LMV operations at the Jharsuguda business. BALCO has planned to shift 2 EV LMVs in current year for the reduction of scope-3 emission at BALCO business.

This year, we produced 58 kt of Green Aluminium (YTD) under the brand name (Restora) with a potential to produce 100 KTPA. This is a strong step towards our commitment to achieve GHG emission intensity reduction of 30% by 2030 and Net zero carbon by 2050.

Restora Ultra is an ultra-low carbon aluminium brand in collaboration with Runaya Refining. Near zero carbon footprint – one of the lowest in the world. Testament to our focus on 'zero waste' through operational efficiencies and recovery from dross.

In the current fiscal year, we have reduced our GHG emission intensity by 8.3% compared to the FY 2021 baseline. We have purchased 1,323 MU of Green Power March 2023 YTD and co-fired 5,141 tonnes of Biomass. Further, the Floating

Solar Project is expected to be completed by Q3 FY 2024, thus strengthening our green power commitment.

Management of hazardous waste such as spent Pot line, aluminium dross, and high volume low toxic waste such as fly ash, red mud etc. are material waste management issues for the aluminium business. During the year, our operations have utilised 106.74% of Ash and 99.34% Dross.

Vedanta Aluminium has entered into a long-term partnership with Dalmia Cements for gainful utilisation of industrial by-products such as fly-ash and Spent Pot Lining (SPL) waste to manufacture 'green' cement. The partnership will enable Vedanta Aluminium's plant at Jharsuguda to transport around 20 rakes of fly ash per month for 5 years to Dalmia Cement plants at Odisha, Chhattisgarh, Meghalaya, and Assam, and transport Spent Pot Lining (SPL) waste for 3 years to Dalmia Cement at Rajgangpur, Odisha. Jharsuguda operations has implemented Integrated Waste Management System by NEPRA for sustainable management of non-hazardous waste like plastic, paper, food, horticulture waste and others. This will enable us to move towards 'Zero Waste to Landfill' and will help us generate wealth out of waste. Till date, total 121 rakes had been despatched which is the highest ever ash despatch for Jharsuguda unit.

BALCO is associated with Cement industries in the vicinity through road mode and striving to achieve economies of scale and enterprise solution which is environmentally friendly and cost effective. For the very purpose, BALCO has ventured into supplying the conditioned Fly Ash through Rake. This meaningful, sustainable increase in fly ash utilisation at locational, distant thermal power plant is mutual win for both Cement companies and BALCO. BALCO is also engaged in Mine back filling of Manikpur Mines which will further support the effort to utilise Fly Ash.

Our Lanjigarh operation has placed an order for manufacturing of red mud bricks. It is in the direction of waste-to-wealth initiative. On similar lines, JSG unit is working with Runaya refining for extracting valuable metals from Dross as part of waste-to-wealth initiatives.

The organisation is working proactively towards the vision of Zero Waste.

Production performance

Production (kt)	FY 2023	FY 2022	% Change
Cast Metal Production (kt)			
Alumina – Lanjigarh	1,793	1,968	(9%)
Total Aluminium Production	**2,291**	**2,268**	**1%**
Jharsuguda	1,721	1,687	2%
BALCO	570	582	(2%)

Alumina refinery: Lanjigarh

At Lanjigarh, calcined alumina production stands at 1.79 million tonnes, primarily due to the calciners shutdown for overhauling.

Aluminium smelters

We ended the year with record production of 2.29 million tonnes.

Coal Security

We continue to focus on the long-term security of our coal supply at competitive prices. We added Jamkhani (2.6 MTPA), Radhikapur (West) (6 MTPA), Kuraloi (A) North (8 MTPA), Barra coal blocks and have been declared Successful Bidder for Ghogharpalli Coal Block through competitive bidding process by GoI. We have operationalised Jamkhani Coal block in FY 2023 & intend to operationalise Kurloi (A) North and Radhikapur (West) in the next fiscal year. These acquisitions, along with 15 million tonnes of long-term linkage will ensure 100% coal security for Aluminium Business. We also look forward to continuing our participation in linkage coal auctions and secure coal at competitive rates.

Prices

Particulars	FY 2023	FY 2022	% Change
Average LME cash settlement prices (US$ per tonne)	2,481	2,774	(11%)

Average LME prices for aluminium in FY 2023 stood at US$2,481 per tonne, 11% lower YoY. Aluminium LME has been steadily declining this year, owing to a recessionary market outlook coupled with the zero Covid policy of China. However, with the opening of the Chinese economy coupled with the decrease in the inflationary pressure, the LME prices is expected to rebound. Further, the aluminium market is in a growth phase now with demand expected to be driven by sunrise sectors such as Electric Vehicle, Renewable Energy, Defence and Aerospace.

Unit costs

(US$ per tonne)

Particulars	FY 2023	FY 2022	% change
Alumina cost (Lanjigarh)	364	291	25%
Aluminium CoP	2,324	1,858	25%
Jharsuguda CoP	2,291	1,839	25%
BALCO CoP	2,424	1,913	27%

During FY 2023, the cost of production (CoP) of alumina increased to US$364 per tonne due to lower production and headwinds in the input commodity prices.

In FY 2023, the total bauxite requirement of about 5.5 million tonnes were met through domestic as well as import sources.

In FY 2023, the COP of cast metal at Jharsuguda was US$2,291 per tonne, an increase by 25% from US$1,839 per tonne in FY 2022. The cast metal COP at BALCO stood at US$2,424 per tonne, increased by 27% from US$1,913 per tonne in FY 2022. This was primarily driven by the headwinds in input commodity prices.

Financial performance

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% Change
Revenue	52,403	50,881	3%
EBITDA	5,837	17,337	(66%)
EBITDA margin	11%	34%	

During the year, revenue increased by 3% to ₹52,403 crore, driven by improved operational performance, strategic hedging gains, favourable exchange rate movement partially offset by reduced LME. EBITDA was down at ₹5,837 crore (FY 2022: ₹17,337 crore), mainly due to fall in LME, input commodity inflation partially offset by favourable exchange rate movements.

Strategic priorities & outlook

Our focus remains on capitalisation of market opportunities through execution of right levers. Foremost priority remains delinking production cost from external volatility. Lanjigarh expansion activities is underway with full force and an upside in volume is expected in the upcoming year. Vedanta Limited was also declared the preferred bidder for Sijimali at the recently concluded Bauxite mine auction. The same would be instrumental in meeting requirement for 5 MTPA refinery operations. Full capacity production run rate at recently started Jamkhani mine should ease our dependence on spot market coal. This would be further augmented by operationalisation of other mines in the short to medium term. Effort would also be continued towards achieving better than best achieved operational performance along with increased volume delivery through debottlenecking and growth projects.

Our core business priorities include:

ESG: Safety & Well-being of all stakeholders, Low Carbon Green Aluminium Production (Restora, Restora Ultra), Diversity in Workforce, Circular Economy

Asset Optimisation: >100% capacity utilisation of assets through implementation of structured asset reliability program

Raw Material Security: Operationalise Sijimali bauxite mine, Lanjigarh expansion to 5 MTPA

Coal Security: Operationalise coal mines and improve linkage materialisation

Quality: Zero customer complaints

Operational Excellence: Continual improvement in operational parameters

Growth: 1 MTPA BALCO smelter expansion, >100% value-added capacity

Product Portfolio: Improve value-added product portfolio with focus on low carbon aluminium for better realisation.

Pg. 51

POWER

The year in brief

In FY 2023, TSPL's (Talwandi Sabo Power Limited) plant availability was 82% and Plant Load Factor (PLF) was 67%.

14,835 million units

Record overall power sales

Occupational health & safety

In FY 2023, TSPL focus on Category 5 Safety Incident elimination such as Critical Risk Management, Catastrophic Risk Management, Horizontal Deployment of Safety Alert Learnings,, Vedanta Safety Standard Implementation and Engineering/Controls such as Line of Fire Prevention and Safety improvement project.

We continue to strengthen the 'Visible Felt Leadership' through the on-ground presence of senior management, improvement in reporting across all risk and verification of on-ground critical controls. We also continue to build safety assisting infrastructure development through the construction of pedestrian pathways, dedicated route for bulkers, creation of secondary containment for hazardous chemicals and other infra development across sites.

Environment

TSPL focus on environment protection measures such as maintaining green cover of over 800 acres, continue the expansion of green cover inside plant premises and nearby communities. TSPL ensures availability of environment protection system such as ESP, Fabric Filters, Water Treatment Plant and RO Plant. In Tailing Dam Management, TSPL has implemented all the recommendation of M/s Golder Associates for ash dyke. Additional GISTM Conformance Assessment of TSPL Ash Dyke Facility by ATC Williams, Australia & TATA Consultancy (TCE) as Engineer of Records (EOR) to ensure Ash Dyke stability to review dyke design, quality assurance during for ash dyke raising and quarterly audit of ash dyke facility. In FY 2023, TSPL achieved 83% Ash utilisation in Road Construction, in Building sector for bricks, blocks, cements and low-lying area filling. TSPL has signed various MoUs with stakeholders to increase ash utilisation.

TSPL has recycled 12.62% of the water used & reduce the fresh water consumption by various operation controls. TSPL continues its focus on energy saving projects such as High Energy Efficient Booster Pump at Unit#02, CWP RPM reduction, HPT performance improvement, replacement of conventional lighting fixtures with LED lighting fixtures.

To stimulate efforts and reach towards new heights of sustainable business practices, TSPL established ESG transformation office. Under this initiative, TSPL has accelerated its efforts in Environment, Social and Governance aspects. TSPL ESG Transformation Office was created which included 12 communities of practice from each aspect of sustainability. Communities of Practice included Carbon, Water, Waste, Biodiversity, Supply Chain, People, Communities (CSR), Communication, Safety and Health, Acquisitions, Expansions. Each Community is led by a senior leader in the concerned department. Each community is driving sustainability initiatives in their community. In FY 2022-23, 45 new projects were identified, 38 initiatives completed and 62 improvement initiatives are in progress.

Production performance

Particulars	FY 2023	FY 2022	% Change
Total power sales (MU)	14,835	11,872	25%
Jharsuguda 600 MW	3,048	2,060	48%
BALCO 300 MW*	648	1,139	(43%)
HZL wind power	395	414	(5%)
TSPL	10,744	8,259	30%
TSPL – availability	82%	76%	

 # Malco continues to be under care and maintenance since 26 May 2017 due to low demand in Southern India.

** We have received an order dated 01 January 2019 from CSERC for Conversion of 300 MW IPP to CPP w.e.f. 01 April 2017. During the Q4 FY 2019, 184 units were sold externally from this plant.*

Operations

During FY 2023, power sales were 14,835 million units, 25% higher YoY. Power sales at TSPL were 10,744 million units with 82% availability in FY 2023. At TSPL, the Power Purchase Agreement with the Punjab State Electricity Board compensates us based on the availability of the plant.

The 600 MW Jharsuguda power plant operated at a lower plant load factor (PLF) of 63% in FY 2023.

The 300 MW BALCO IPP operated at a PLF of 66% in FY 2023.

The MALCO plant continues to be under care and maintenance, effective from 26 May 2017, due to low demand in Southern India.

Unit sales and costs

Particulars	FY 2023	FY 2022	% Change
Sales realisation (₹/kWh)[1]	3.04	3.10	(2%)
Cost of production (₹/kWh)[1]	2.38	2.42	(2%)
TSPL sales realisation (₹/kWh)[2]	4.50	3.62	24%
TSPL cost of production (₹/kWh)[2]	3.65	2.76	32%

(1) Power generation excluding TSPL

(2) TSPL sales realisation and cost of production is considered above, based on availability declared during the respective period

Average power sale prices, excluding TSPL, lower by 2% and the average generation cost was lower at ₹2.38 per kWh (FY 2022: ₹2.42 per kWh).

In FY 2023, TSPL's average sales price was higher at ₹4.50 per kWh (FY 2022: ₹3.62 per kWh), and power generation cost was higher at ₹3.65 per kWh (FY 2022: ₹2.76 per kWh).

Financial performance

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% Change
Revenue	7,201	5,826	24%
EBITDA	851	1,082	(21%)
EBITDA margin	12%	19%	

** Excluding one-offs*

EBITDA for the year was 21% lower YoY at ₹851 crore from ₹1,082 crore.

Strategic priorities & outlook

During FY 2023, we will remain focussed on maintaining the plant availability of TSPL and achieving higher plant load factors at the BALCO and Jharsuguda IPPs.

Our focus and priorities will be to:

Resolve pending legal issues and recover aged power debtors;

Achieve higher PLFs for the Jharsuguda and BALCO IPP; and

Improve power plant operating parameters to deliver higher PLFs/availability and reduce the non-coal cost;

Ensuring safe operations, energy & carbon management.

The year in brief

- Removal of trade barriers from Karnataka resulted in quick restart of export and enabled us to capture ~99% Export share from Karnataka
- Restart of WCL Operations and successfully exported 0.2 million tonnes in this financial year
- Acquisition of Bicholim mines at lowest bid premium among all iron ore mines auctioned in FY 2023

5.3 million tonnes
Production of saleable ore at Karnataka

696 kt
Pig Iron production

0.7 million tonne
Iron ore sales at Goa

Occupational health & safety

With our vision towards the aim of Zero Harm, we are committed to achieve zero fatal accident at Iron Ore Business. Our Lost Time Injury Frequency Rate (**"LTIFR"**) is 0.79 (FY 2023) compared to 0.83 (FY 2022). We are now focussing on bringing down the number of injuries by conducting a detailed review of critical risk controls through critical task audits, strengthening our work permit and isolation system through identification and closure of gaps, on site audits, increasing awareness of both Company and business personnel by conducting trainings as per requirements considering the sustainability framework.

We have strived to enhance the health and safety performance by digitalisation initiatives such as usage of non-contact type voltage detectors, underground cable detectors. We have also implemented AI cameras (T-Pulse system) for reporting of unsafe acts/conditions automatically in areas where Camera infrastructure is available with central dashboard with all details, analysis, trends and risk category, which ensures effective and immediate closure of violations at site. At VAB, we have done Geo fencing to ensure unauthorised entries in most critical operational areas.

Vedanta has launched a HSE-based portal by name V-Unified (Enablon) for reporting, collating and analysing the HSE-related data across the Business which has become a way of life since its inception during the Financial Year.

At VAB and IOK, we have launched 4 Critical Risk Management (CRM) verification by Line Managers and the observations are being tracked, analysed and rectification plan is in place. We have achieved target of 75% vs Planned.

In Health function, we have also launched SEVAMOB digital platform for digitisation of Employee Medical Records which help us in tracking and giving health-related trend analysis of employees.

In order to achieve highest levels of safety at site, we have identified key personnel from operation and maintenance to serve as Grid Owners in addition to their current roles and responsibilities. We have also conducted defensive driving trainings to further enhance driving skills thereby reducing the vehicle-related incidents. At VAB, we have conducted a training on crane and lifting safety for approving critical lift plan and better focus on safety in areas of lifting and critical lifts. We have also conducted rescue training for Confined space and Work at Height through a third party so as to authorise a shortlisted group of competent personnel as trained rescuers. To improve upon confined space safety, we have conducted “Authorised Gas Testers” training programme to strengthen our Confined space activities.

At IOK, we have conducted rescue trainings through a third-party for Confined Space and Work at Height. Traffic Management & Road Safety Training was conducted by Rashtriya Raksha University involving selected employees and Business Partners. 4 modules of AR-VR have been

launched at IOK which includes LMV operation, wheel loader operation, fire extinguisher operation and engine maintenance.

In FY 2024, we will be further launching remaining Safety Standard through CRM for strengthening our Fatality Prevention Programme.

Environment

At our Value-Added Business, we recycle and reuse all the process water. Only the non-contact type condenser cooling water of the power plant is cooled and treated for pH adjustment and discharged back into the Mandovi river, which is a consented activity by the authorities.

1,560 numbers of native species were planted in the year 2022-23 in green belt area of VAB along with 1,850 no. of native species plantation was done in surrounding villages of VAB.

Also, Value Added Business received Consent to establishment for expansion project for installing Ductile Iron plant, oxygen plant & Ferro Silicon Plant along with increasing hot metal production capacity.

At Iron ore Karnataka, continuing with its best practises, Company has constructed 38 check dams, 7 settling pond. Additionally, Company has de-silted 2 nearby village ponds increasing their rainwater harvesting potential by 20,000 m^3/annum.

In FY 2023, around 6 Ha of mining dump slope was covered with biodegradable geotextiles to prevent soil erosion & 55,000 native species saplings were planted. Various latest technologies like use of fog guns; environment-friendly dust suppressants mixed with water were adopted on the mines to reduce water consumption for dust suppression without affecting the effectiveness of the measures.

Production performance

Particulars	FY 2023	FY 2022	% Change
Production (dmt)			
Saleable ore	5.3	5.4	(2%)
Goa	-	-	-
Karnataka	5.3	5.4	(2%)
Pig iron (kt)	696	790	(12%)
Sales (dmt)			
Iron ore	5.7	6.8	(16%)
Goa	0.7	1.1	(33%)
Karnataka	5.0	5.7	(13%)
Pig iron (kt)	682	790	(14%)

Operations

At Karnataka, production was 5.3 million tonnes. Sales in FY 2023 were 5.7 million tonnes, 17% lower YoY. Production of pig iron was 6,96,559 tonnes in FY 2023, lower by 12% YoY due to shut down in blast furnaces in FY 2023.

At Goa, mining was brought to a halt pursuant to the Supreme Court judgement dated 7 February 2018 directing all companies in Goa to stop mining operations with effect from 16 March 2018.

We bought low grade iron ore in auctions held by Goa Government in Auction No. 26 & 27 in FY 2022. This opening stock of ore purchased in the auction and fresh royalty paid ore moved out of mines post the Supreme Court order, was then beneficiated and around 0.7 million tonnes were exported which further helped us to cover our fixed cost and some ore were used to cater to requirement of our pig iron plant at Amona.

Financial performance

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% Change
Revenue	6,503	6,350	2%
EBITDA	988	2,280	(57%)
EBITDA margin	15%	36%	

In FY 2023, revenue increased to ₹6,503 crore, 2% higher YoY mainly due to restart of WCL operations. EBITDA decreased to ₹988 crore compared with ₹2,280 crore in FY 2022 was mainly due to decrease in sales at Karnataka and VAB and input commodity inflation.

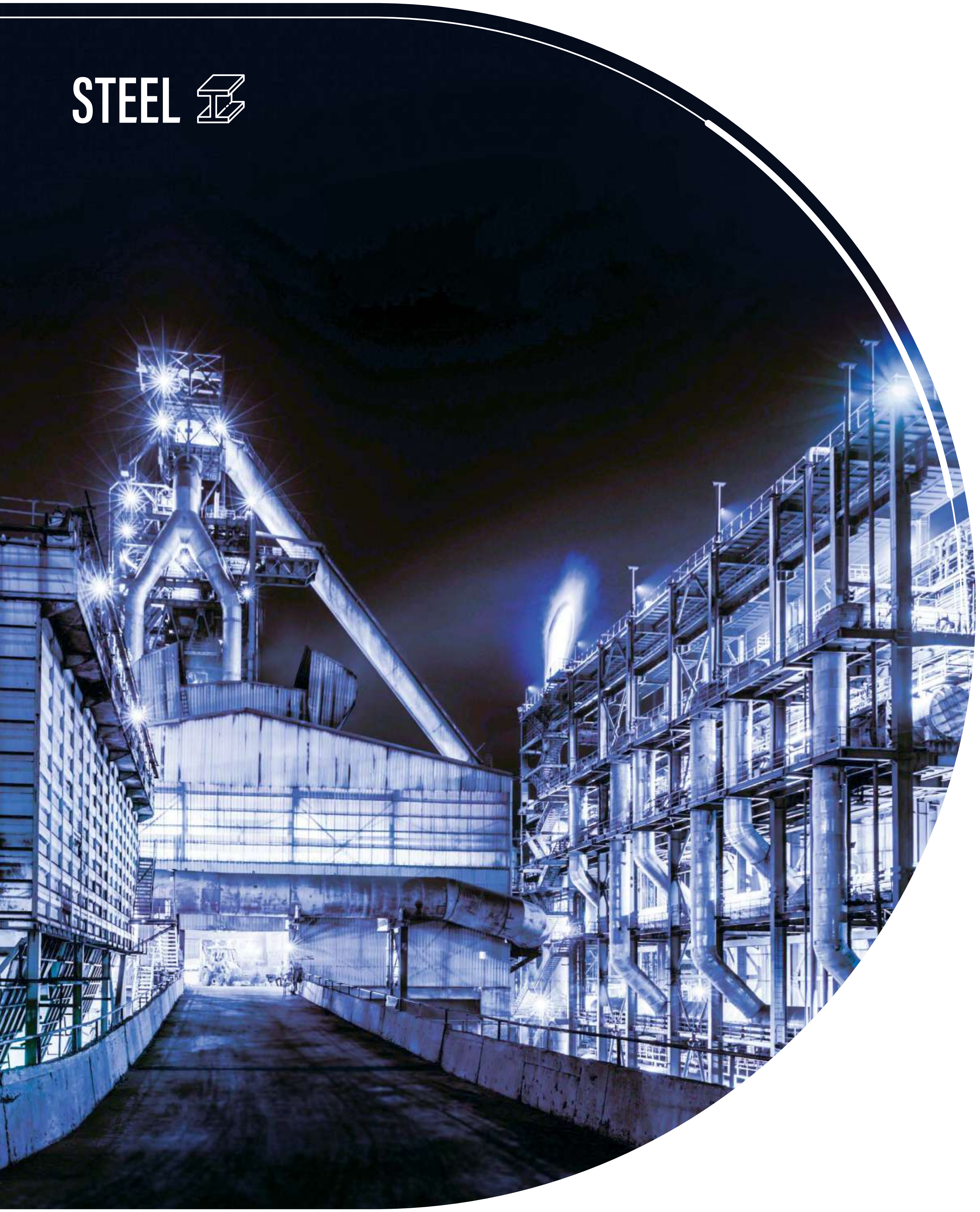
Strategic priorities & outlook

Our near-term priorities comprise:

Restart mining operations at Goa

Ramp up our operations in Liberia and setting up magnetite concentrator plant

Green Mining leveraging, digitalisation, and Renewable energy



The year in brief

ESL is an integrated steel plant (ISP) in Bokaro, Jharkhand, with a design capacity of 2.5 MTPA. Its current operating capacity is 1.5 MTPA with a diversified product mix of Wire Rod, Rebar, DI Pipe and Pig Iron.

In FY 2023, ESL Steel Limited (ESL) has achieved highest ever hot metal production of 1.37 million tonnes, up 1% YoY and highest ever saleable production of 1.29 million tonnes up 2% YoY.

196 kt
Highest ever DIP production
20% YoY ↑

1.29 million tonnes
Saleable production

ESL HSE/ESG Performance

Occupational Health & Safety

We, at ESL, believe that all accidents are preventable and to realise our vision of Zero Harm, we have carried out the following key initiatives for nurturing ZERO HARM culture across organisation.

- Launched Project VIHAAN – Critical Risk Management to verify critical risks Go and NoGo implementation periodically for various critical controls viz.
- Digital Initiatives – Launched Cardinal Safety Rule Portal, Kiosk-based safety induction for drivers and QR-based fire equipment maintenance and tracking
- Capability Building – Engaged DuPont to train and develop trainers for implementing various safety standards (160+ developed through TTT)
- Occupational Health – Engaged M/s Apollo for managing OHC & Air Ambulance services, initiated medical consultation facility for employees and their families at Bokaro City and developed 500+ trained first aiders
- Infrastructure – Conveyor guarding, drain covering, fire hydrant line revamping, settling pits, tarpaulin covering/uncovering platforms and man machine segregation across the plant roads

Environment

Waste and Circular Economy

We have achieved 100% utilisation of BF granulated slag and fly ash by re-using in cement plants & local brick manufacturers. Other types of waste viz., bottom ash, LD slag & core mould sand, we have achieved 98% of its utilisation by internal road making & mines back filling. Hazardous wastes are being sent to PCB authorised recyclers/re-processors.

Climate Change

- Reduction in False Air/Air leakages in Sinter Plant, Sinter Plant bed depth control, Fuel crushing index improvement has resulted in estimated decrease of tonnes of CO_2e by 35,000 tonnes of CO_2e
- LD gas recovery project has been undertaken by repairing and revamping the Gas Holder facility, which has led to an estimated decrease of 18,480 tonnes of CO_2e

Biodiversity/Plantation

- ESL has achieved 34.54% green belt development
- Around 25,000 saplings have been planted inside KML to drive greenbelt development project
- 10,000 fruit-bearing saplings have been distributed among 9 panchayats to drive greenbelt development in surrounding areas of ESL
- Miyawaki afforestation of 2.5 acre has been commenced in Q4 with the target of about 55,000 saplings

Water Management

- 2 nos. of rainwater settling pits along with pumps have been installed to contain the flow from the stormwater drains across the plant. This has resulted in increase in ETP water intake and optimised the usage of stormwater by 350-400 KLD
- 250 KLD sewage treatement plant has been commissioned during Q4 which would reduce fresh water offtake by 250 KL/day. This would ensure saving of fresh water by 90,000 KL/annum
- Green Belt Development – Planted more than 35,000 samplings including 10,000 fruit-bearing saplings, achieved 33% greenbelt requirement this year
- ESG – 60 projects have been identified out of which 10 have been completed and 34 have achieved IL 4 stage
- Sp. Water – We have reduced our fresh water offtake from the reservoir by 1.7 million m^3 through the following water stewardship programme. This has resulted in achieving specific water consumption of 2.88 m^3/tcs from 3.00 m^3/tcs

- Arresting water leakages and replacing firefighting pipelines
- Increasing recycle percentage through installation of ZLD pump from 12% to 24%
- Increasing cooling tower COC from 6 to 7
- Cleaning of backwash pipeline

- Sp. Energy & GHG Emissions - Against the target of 7.97 Gcal/tcs, we have achieved 7.72 Gcal/tcs (YTD), several initiatives were taken such as:
  - Optimisation of compressor, blower speed, CT fans, AC & Light operation, power consumption of other circuit hot water circulating pumps by installing VFD with feedback system
  - ID Fan VFD Installation in Sinter Plant, SMS, Lime secondary fan
  - Reduction in False Air/Air leakages in Sinter Plant, Sinter Plant bed depth control, Fuel crushing index improvement has resulted in estimated decrease of tonnes of CO_2e by 35,000 tonnes of CO_2e
  - Blast furnace dedusting damper auto control
  - Improving fuel rate by 20 kg/tcs for BF3 and 7 kg/tcs for BF2 resulting in reduction of 64,846.6 tonnes of CO_2e

Production performance

Particulars	FY 2023	FY 2022	% Change
Production (kt)	1,285	1,260	2%
Pig iron	192	186	3%
Billet	26	91	(71%)
TMT bar	463	399	16%
Wire rod	407	421	(3%)
Ductile iron pipes	196	164	20%

Operations

During FY 2023, we have achieved highest ever hot metal production of 1.37 million tonnes, up 1% YoY and highest ever saleable production of 1.29 million tonnes, up 2% YoY on account of increased availability of hot metal due to debottlenecking of blast furnace and operational efficiencies.

The priority remains to enhance production of value-added products (VAPs), i.e., TMT Bar, Wire Rod and DI Pipe. ESL achieved 83% VAP sales, 5% improvement in FY 2023, in line with priority.

There have been significant gains in Sales & NSR front. However, operational inefficiencies, higher raw material prices of coking coal & other market factors resulted in higher cost of sales. We are trying to stable our raw material prices. We have acquired two iron ore mines to achieve raw material long-term security & pricing stability.

Our Consent to Operate (CTO) for the steel plant at Bokaro, which was valid until December 2017, was not renewed by the Jharkhand State Pollution Control Board (JSPCB). This was followed by the Ministry of Environment, Forests and Climate Change (MoEF&CC) revoking the Environmental Clearance (EC) dated 21 February 2018. MoEF&CC, on 25 August 2020, has granted a Terms of Reference to ESL for 3 MTPA plant with conditions like fresh EIA/EMP reports and public hearing. The Honorable High Court of Jharkhand had extended the interim protection granted in the pending writ petitions till 16 September 2020. Hon'ble High Court on 16 September 2020, pronounced and revoked the interim stay for plant continuity w.e.f 23 September 2020. ESL filed a SLP before Hon'ble Supreme Court against 16 September 2020, order for grant of interim status quo order and plant continuity. Vide order dated 22 September 2020, Hon'ble Supreme Court issued notice and allowed plant operations to continue till further orders. In furtherance of the Supreme Court orders for plant continuity, MoEF vide its letter dated 2 February 2022 has deferred the grant of Environment Clearance till Forest Clearance Stage-II is granted to ESL. ESL has submitted its reply against MoEF letter vide letter dated 11 February 2022 for reconsidering the decision and not linking EC with FC since as per the applicable law and available precedents, grant of FC Stage-II is not a condition precedent for grant of EC. CTO will be procured post furnishing the EC. The grant of FC was kept at abeyance for want of Forest Clearance. FC Stage-I is granted to ESL, while the FC compliance are under process.

Prices

(US$ per tonne)

Particulars	FY 2023	FY 2022	% Change
Pig iron	551	545	1%
Billet	620	612	1%
TMT	700	687	2%
Wire rod	707	706	0%
DI pipe	769	628	22%
Average steel price (US$ per tonne)	**689**	**659**	**4%**

Average sales realisation increased 4% YoY from US$659 per tonne in FY 2022 to US$689 per tonne in FY 2023. Prices of iron and steel are influenced by several macro-economic factors. These include global economic slowdown, US-China trade war, Russia-Ukraine war, duties on iron and steel products, supply chain destocking, government expenditure on infrastructure, the emphasis on developmental projects, demand-supply dynamics, the Purchasing Managers' Index (PMI) in India and production and inventory levels across the globe especially China. Even though the NSR increased by US$29 per tonne, we were unable to increase our EBITDA margin & landed to US$32 per tonne for the year (against US$74 per tonne in FY 2022) due to increased raw material prices of coking coal, which continued to remain high in in Q2 and Q3, when the market prices for steel products declined sharply.

Unit costs

Particulars	FY 2023	FY 2022	% Change
Steel (US$ per tonne)	656	585	12%

Cost has increased by 12% YoY from US$585 per tonne to US$656 per tonne in FY 2023, primarily on account of increase in coking coal prices during the year, uncontrollable factors and operational inefficiencies.

Financial performance

Particulars	FY 2023	FY 2022	% Change
Revenue	7,852	6,474	21%
EBITDA	316	701	(55%)
EBITDA margin	4%	11%	-

Revenue increased by 21% to ₹7,852 crore (FY 2022: ₹6,474 crore), primarily due to higher volume and NSR. EBITDA decreased by 55% to ₹316 crore mainly due to increased cost partially offset by increased sales realisation.

Strategic priorities & outlook

Steel demand is expected to surge owing to the gradual recovery in economic activities across the world, robust demand from key sectors and the emphasis of governments to ramp up infrastructure spend in India. With the growing demand for steel in India, ESL has prioritised to increase its production capacity from 1.5 MTPA to 3 MTPA by FY 2025 and 5 MTPA by FY 2027 with a vision to become high-grade, low-cost steel producer with lowest carbon footprint. The focus is to operate with the highest Environment, Health and Safety standards, while improving efficiencies and unit costs.

The focus areas comprise:

- Ensuring business continuity
- Innovation in Technology for sustainable operations/production
- Development of low-cost CapEx products (Alloy Steel Segments and Flat Products) to capture market share
- Optimise and significantly reduce logistics cost over time
- Greater focus on Reliability Centred Maintenance
- Obtain clean 'Consent to Operate' and environmental clearances
- Raw material securitisation through long-term contracts; approaching FTA countries for coking coal
- Ensure zero harm and zero discharge, fostering a culture of 24x7 safety culture

FERRO ALLOYS CORPORATION LIMITED (FACOR)

The year in brief

FACOR has achieved highest ferro chrome ore production of 290 kt, since acquisition through operationalisation of two ore mines. Also achieved high ferro chrome production of 67 kt and sales of 67 kt.

60 KTPA
Commissioned new furnace

140 KTPA
Total ferro-chrome capacity reached

290 kt
Record chrome ore production

Occupational Health Safety

It is with deep sadness that we report the loss of two of our colleagues (Business partners) in work-related incidents at our managed operations in FY 2023, one each at Mining site and at Plant site. These incidents happened despite continuous efforts to eliminate fatalities and attain a Zero Harm work environment. A thorough investigation was conducted to identify the causes of these incidents and to share lessons learned across our sites, with the aim of preventing repeat or similar incidents.

LTIFR for the year was 0.13 as compared to 0.25 in FY 2022. The reduction was driven by several safety awareness, investigation, and prevention initiatives. As compared to a year ago, number of LTIs decreased from 2 to 1 in this FY 2023. There has been greater management focus to bring a cultural change via felt leadership programs, town halls & recognition for near-miss reporting. Our safety leadership regularly engages with the business partner site in-charges and their safety officers for their capability development and strengthening the culture of safety at our sites. We follow a zero-tolerance policy towards any safety related violations with stringent consequence management.

In FY 2023, FACOR complied with all its statutory requirements related to its Health, Safety and Environment. In terms of Safety, we continued creating awareness on various Safety topics through Monthly Safety Themes and Awareness programs. We successfully eliminated a few critical jobs from line of fire with “Installation Wagon Pusher Device at our Wagon Tripler area” and “Shifting of Ladle Cleaning area out of the hot metal handling zone”. We also completed our major Furnace relining job safely. AI-based Safety System “T-Pulse” was installed in CCTV Cameras of Charge Chrome Plant (CCP) Hot Metal Area to auto detect Unsafe observations. For Risk Management, EOT Cranes were provided with Anti-Collison device and Audio-Visual Alarm, Silpaulin were installed on weak benches of the Mines dump, Proximity sensors and Semi Fire Suppression System (SFSS) were installed at all Mines Dumpers and Inhouse Machine Guarding work was done throughout all the Conveyors across all the units.

Environment

For environment, on statutory front, Environment Clearance and Consent to Establish (CTE) was obtained for 33 MVA Furnace and Consent to Operate (CTO) was extended for Kalarangiatta Mines. We started utilising Spent resin which is a hazardous waste in our Powerplant (FPL) boiler after due approvals. For the first time, we started disposing our Plastic waste from both Plant and Mines to authorised vendors. Plantation of more than 12,000 saplings were conducted across all units of FACOR.

Our business is committed to protect the environment, minimise resource consumption and drive towards our goal of Net Water Positivity and 100% Waste utilisation. A few more highlights for FY 2023 are:

- Installation of a new Sewage Treatment Plant
- Installation of Weather Monitoring Station
- Installation of Ambient Air Quality Monitoring System (AAQMS)
- Conducted CGWA Water Audit and Ground Water Impact Assessment
- Velocity of flue gas – Installation of Stack & integrated with CEMS data at FPL
- Installation of CEMS analysers at Gas Cleaning Plant

At Charge Chrome Plant (CCP), We recorded Ferrochrome metal volume of 67 kt in FY 2023. We started blending Met Coke with Anthracite coal and Coke Fines Briquettes and were able to achieve average blending of 20% (15% Anthracite Coal and 5% Coke Fine Briquettes) in FY 2023 from 14% of FY 2022. We also reduced our specific Power consumption up to levels of 3,316 kWh/t against 3,345 kWh/t. In the month of January 2023, we have made second highest ferro chrome production of 6,840.

Financial performance

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% Change
Revenue	768	830	(8%)
EBITDA	149	325	(54%)
EBITDA margin	19%	39%	-

Revenue decreased by 8% to ₹768 crore (FY 2022: ₹830 crore), primarily due to lower sales volume. EBITDA decreased by 54% to ₹149 crore mainly due to lower sales volume and higher cost.

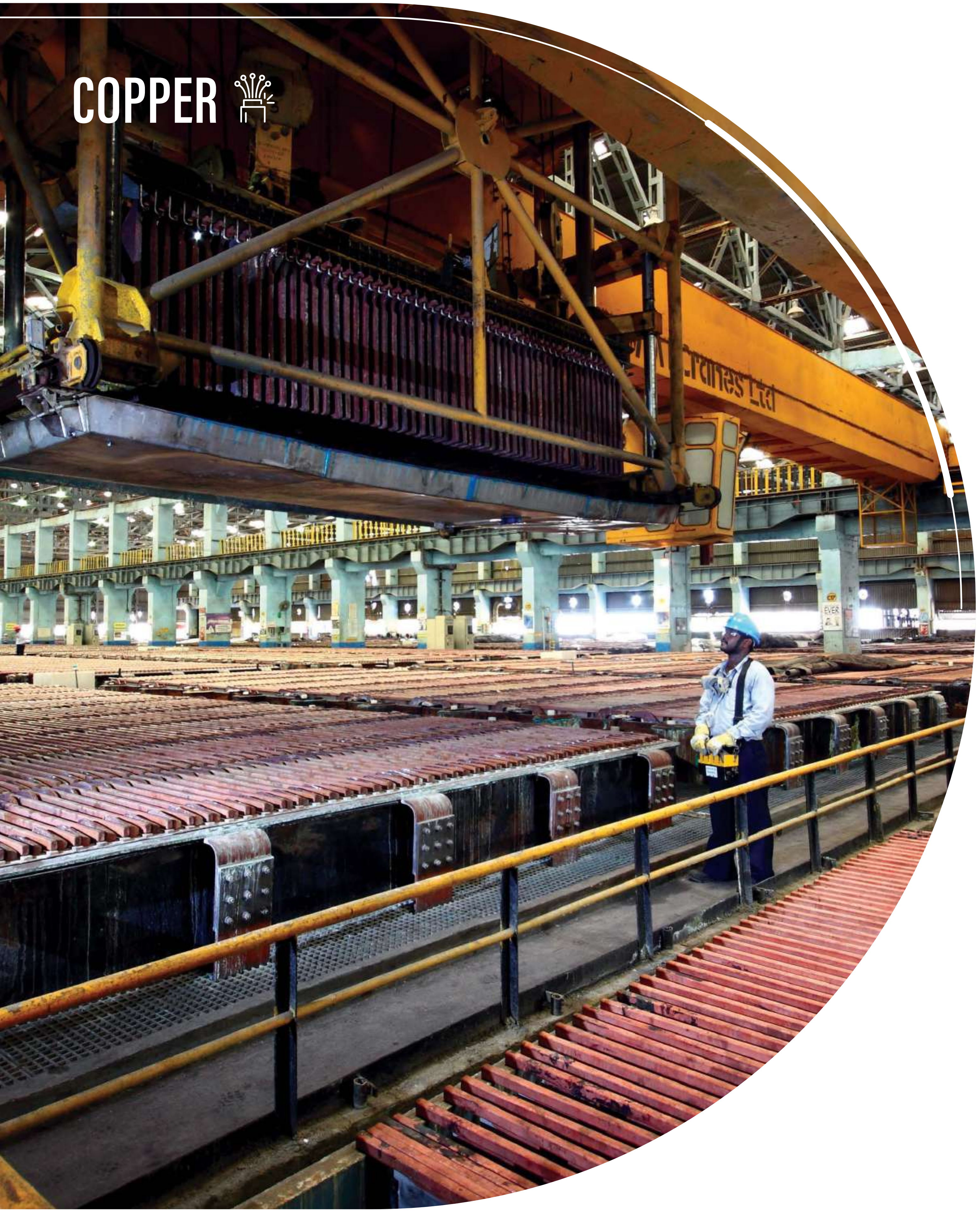
Production performance

Particulars	FY 2023	FY 2022	% Change
Ore Production (kt)	290	250	16%
Ferrochrome Production (kt)	67	75	(11%)
Ferrochrome Sales (kt)	67	77	(12%)
Power Generation (MU)	112	294	(6%)

At Mining division, we recorded highest ever Chrome Ore production of 290 kt in FY 2023 since acquisition. Through disrupt ideas and out of the box thinking, we also achieved highest ever monthly and quarterly Ore Production of 49 kt in April 2022 and 140 kt in Q1 FY 2023 since acquisition. Ensuring our commitment towards zero harm, we have installed fatigue monitoring systems, AFDSS and proximity sensors in all tippers. The mining division has achieved a milestone in observational reporting since FY 2022, through state-of-the-art inhouse developed 'FACOR – SO' mobile application along with geo-tagging.

Strategic priorities & outlook

- Expansion of Growth Capex project of 300 KTPA
- Expansion of Mines from current capacity of 290 kt to 390 kt
- Metal capacity addition of 76 KTPA through new 33 MVA Furnace
- 100 MW Power Generation & sale of additional power
- New COB plant commissioning of enhanced capacity of 50 TPH



The year in brief

Silvassa operations continued to deliver 20% growth in sales volume on YoY basis and largely catering to India's domestic copper requirement.

The copper smelter plant at Tuticorin was under shutdown for the whole of FY 2023, while we continue to engage with the Government and relevant authorities to enable the restart of operations at Copper India.

148 kt

Cathode production from Silvassa

18% YoY ↑

Occupational Health & Safety

The lost time injury frequency rate (LTIFR) was 2.77 in FY 2023 (FY 2022: 0). Dupont Process Safety Management (PSM) Tool was launched for addressing the core elements of safety driven by sub committees under each PSM element. Received 4 Star Safety Rating from British Safety Council.

We conducted safety stand-downs to communicate the learnings from safety incidents and prevent future incidents. Our safety leadership regularly engages with the business partner site in-charges and their safety officers for their capability development and strengthening the culture of safety at our sites.

Environment

Aligned with the Vedanta's vision to reach net zero emissions by 2050, Sterlite Copper has entered into a renewable energy sourcing agreement to produce Green Copper using 100% renewable energy & implemented AI & ML based Smart fuel optimisation for combined targeted GHG Emission reduction by 68,000 tCO_2.

Copper Mines of Tasmania continued in care and maintenance awaiting a decision on restart. Meanwhile, a small, dedicated team is maintaining the site and there were no significant safety or environmental incidents during the year. The site retained its ISO accreditation in safety, environment and quality management systems and the opportunity of a lull in production was used to review and further improve these systems.

Production performance

Particulars	FY 2023	FY 2022	% Change
Production (kt)			
India – cathode	148	125	18%
Sales	164	137	20%

Operations

Copper production operations in Silvassa increased by 18% to 148 kt and have also seen growth of 20% in terms of sales volume and realised highest sales after closure of the Tuticorin unit and improved operational efficiencies, debottlenecking & capability building initiatives carried across the plant, the year also marked remarkable growth in free cash flow.

The Tamil Nadu Pollution Control Board (TNPCB) vide order, dated 9 April 2018, rejected the consent renewal application of Vedanta Limited for its copper smelter plant at Tuticorin. It directed Vedanta not to resume production operations without formal approval/consent (vide order dated 12 April 2018) and directed the closure of the plant and the disconnection of electricity (vide order dated 23 May 2018).

The Government of Tamil Nadu also issued an order dated 28 May 2018 directing the TNPCB to permanently close and seal the existing copper smelter at Tuticorin; this was followed by the TNPCB on 28 May 2018. Vedanta Limited filed a composite appeal before the National Green Tribunal (NGT) against all the above orders passed by the TNPCB and the Government of Tamil Nadu. In December 2018, NGT set aside the impugned orders and directed the TNPCB to renew the CTO. The order passed by the NGT was challenged by Tamil Nadu State Govt. in the Hon'ble Supreme Court.

The Company had filed a Writ Petition before the Madras High Court challenging the various orders passed against the Company in 2018 and 2013. On 18 August 2020, the Madras High Court delivered the judgement wherein it dismissed all the Writ Petitions filed by the Company. The Company has approached the Supreme Court and challenged the said High Court order by way of a Special Leave Petition (SLP) to Appeal and also filed an interim relief for care & maintenance as well as trial operation of the plant. The matter was then listed on 2 December 2020, before the

Supreme Court. The Bench after having heard both the sides on the interim relief of trial operation of the Plant, concluded that at this stage the interim relief could not be allowed. Further, the matter was listed as item no. 22 on 10 April 2023 and was taken up and heard by the Supreme Court. The Bench allowed the activities as permitted in the letter of the Additional Chief Secretary to the district collector, namely:

I. Gypsum evacuation

II. Operation of Secured Landfill (SLF) leachate sump pump

III. Bund rectification of SLF - 4

IV. Green-belt maintenance

Our copper mine in Australia has remained under extended care and maintenance since 2013. However, we continue to evaluate various options for its profitable restart, given the Government's current favourable support and prices.

Prices

Particulars	FY 2023	FY 2022	% Change
Average LME cash settlement prices (US$ per tonne)	8,530	9,689	(12%)

Average LME copper prices reduced by 12% compared with FY 2022 predominantly due to low demand in China owing to COVID restrictions.

Financial performance

(₹ crore, unless stated)

Particulars	FY 2023	FY 2022	% Change
Revenue	17,491	15,151	15%
EBITDA	(4)	(115)	97%
EBITDA margin	0%	(1%)	

During the year, revenue was ₹17,491 crore, an increase of 15% on the previous year's revenue of ₹15,151 crore. The increase in revenue was mainly due to higher volume, favourable exchange rate partially offset by lower Copper LME prices. EBITDA improvement ₹111 crore mainly on account of improved operational efficiencies, higher volumes and increase in Sales Margin largely offset by a onetime charge against duty entitlement scripts of ₹64 crore.

Strategic priorities & outlook

Over the following year our, focus and priorities will be to:

Engage with the Government and relevant authorities to enable the restart of operations at Copper India;

Improving operating efficiencies, increasing Sales Margin, reducing our cost profile;

Upgrade technology & digitalisation to ensure high-quality products and services that sustain market leadership and surpass customer expectations; and

Continuous debottlenecking and upgrading our processing capacities for increased throughput.

PORT BUSINESS

Vizag General Cargo Berth (VGCB)

The volumes handled increased slightly by 1% YoY and the despatch volume increased by 4% YoY. 3% of the total volumes handled represents Multi-cargo (i.e., other than coal) under supplementary agreement signed with Visakhapatnam Port Authority (VPA).

Risk Management Pg. 56

Vedanta has a well-defined risk management framework involving identification, evaluation, mitigation and monitoring of all risks to meet its objectives. This is enabled by a robust process that ensures all risks are identified at individual business level and across ongoing projects. The entire mechanism is led by structured risk management system and governance framework to ensure monitoring at multiple levels, and thus ensure operating controls are aligned to vision, mission and strategy. All the respective businesses of Vedanta undertake to review on a quarterly basis the risks relevant to it, the risk trend, control measures and actionable. Each business also develops its risk matrix and risk register, basis which the Group's principal risks are identified, and response mechanism formulated. Vedanta's risks are broadly classified under sustainability risks, operational risks, compliance risks and financial risks.

Human Resources Pg. 102

People are a key resource at Vedanta, and the Company strives to give them an enabling and fulfilling workplace. This is achieved through sustained actions around improving health and safety, driving diversity, equity and inclusion, and facilitating them equal learning and development opportunities. Transforming workplace is an important pillar in Vedanta's ESG strategy, and the Company is undertaking definitive actions to achieve the various goals set under it.

Vedanta maintains a strong focus on attracting and retaining the best employees, which now includes finest minds from over 30 countries. The Company has a robust mechanism to hire talent from campuses and groom them. It also has multiple programs to build leadership, including 'ACT-UP' to identify and nurture talent and 'Emerging Leaders Programme' to identify and elevate individuals to CXO roles. During FY 2023, more than 500 employees were elevated through various programs. Vedanta is further using digital technologies to enhance learning experiences through initiatives like 'Gurukul' for knowledge-sharing and 'Knolskape' for simulation-based learning.

The Company has been actively promoting diversity and inclusivity with focus on improving representation of women, LGBTQ+ and other underprivileged or underrepresented communities. Programs like 'V Lead' and 'V Engage' are enabling this. The Company has also adopted a globally benchmarked methodology for rewarding and motivating its people and business partners, for long-term success. To notch-up safety, the Company launched HSE digital – incident management module in FY 2023 and also initiated roll-out of a critical risk management (CRM) module.

The Company's robust people practices have resulted in several prestigious awards including Great Place to Work and Kincentric Best Employer 2022. As of 31 March 2023, the Company had 87,500+ in total workforce, with women representation increasing to 14% from 11% previous year.

Information Technology Pg. 66

Technology implementation centred around digitalisation, automation, data analytics and Industry 4.0 technologies are major enablers of growth and future-readiness at Vedanta. The Company has made several investments towards this to enhance operational productivity, safety and sustainability. 100% of the Company's workforce at digitally literate. Vedanta is currently implementing its digital transformation phase-2 project, aimed at becoming smarter and data-driven. Towards this, investments are being made in advanced technologies like advanced process control, digital twin, predictive analysis and asset performance monitoring among others. They are set to make the operations more reliable and efficient, with the use of data to analyse performance and take necessary actions.